REGION 5 RAC2

REMEDIAL ACTION CONTRACT FOR

Remedial, Enforcement Oversight, and
Non-Time Critical Removal Activities at Sites of Release
or Threatened Release of Hazardous Substances in Region 5

FINAL
REMEDIAL INVESTIGATION REPORT
Phase 2 Remedial Investigation
Lincoln Park/Milwaukee River Channel Sediments Site
Milwaukee Estuary AOC, Wisconsin

WA No. 064-RICO-2508/Contract No. EP-S5-06-01

March 2011

PREPARED FOR

U.S. Environmental Protection Agency

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Acronyms and Abbreviations

amsl	above mean sea level
AOC	Administrative Order on Consent
bss	below sediment surface
BUI	beneficial use impairment
COC	chemical of concern
CLP	contract laboratory program
CRL	Central Regional Laboratory
ft^3/s	cubic feet per second
yd^3	cubic yard
°F	degrees Fahrenheit
DPT	direct-push technology
DQE	data quality evaluation
FS	feasibility study
FSP	Field Sampling Plan
GLNPO	Great Lakes National Program Office
MEC	Midpoint Effect Concentration
mg/kg	milligrams per kilogram
MVS	Mining Visualization System
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEC	Probable Effect Concentration
QA/QC	quality assurance/quality control
RAL	remedial action limit
RI	remedial investigation
SIM	selected ion mode
SQG	sediment quality guidelines
SVOC	semivolatile organic compound

3D	three-dimensional
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TEC	Threshold Effect Concentration
TOC	total organic carbon
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WDNR	Wisconsin Department of Natural Resources

1 Introduction and Background

1.1 Introduction

This Remedial Investigation (RI) report presents the results of the investigative activities performed as part of the Phase 2 Remedial Investigation of the Lincoln Park/Milwaukee River Channel (hereinafter referred to as the Lincoln Park/Milwaukee River Site or the Site), within the Milwaukee River Estuary Area of Concern (AOC). It is being submitted pursuant to the U.S. Environmental Protection Agency (USEPA) statement of work as part of Work Assignment No. 064-RICO-2508 under Contract No. EP-S5-06-01.

The Lincoln Park/Milwaukee River Site is part of the Estabrook Impoundment within the Milwaukee Estuary AOC and includes Lincoln Creek downstream of Green Bay Road and the Milwaukee River from one-quarter mile north of the western and eastern oxbows to the Estabrook Park Dam. The 103-acre impoundment is located within the cities of Glendale and Milwaukee, Wisconsin. The Phase 2 investigation area includes Zones 3b through 7, which is outlined in Figure 1.

1.2 General Site Description

The Site was initially divided into Zones 1 through 5 within Phase 1 and portions of the Phase 2 project areas during the Estabrook Impoundment Sediment Remediation Pre-Design Study (Wisconsin Department of Natural Resources [WDNR], 2005). Two additional zones have been subsequently added (Zones 6 and 7) to the Phase 2 project area. The objective of this RI report is to sufficiently characterize the nature and extent of the contaminated sediment in a subzone of Zone 3 (Zone 3b), as well as Zones 4 through 7. This RI report may be used to support a feasibility study (FS) that will allow for selection of a remedial action to eliminate, reduce, or control risks to human health and the environment and assist to alleviate the Milwaukee Estuary AOC beneficial use impairments (BUIs). Zones 1, 2, and the northern portion of Zone 3 (Zone 3a) have been addressed separately in the following documents:

- *Final Focused Remedial Investigation – Lincoln Park/Milwaukee River Channel Sediments, Milwaukee, WI.* (STN Environmental, August 2009a). The study area for the RI included the west oxbow of the Milwaukee River (Zone 1) and an approximately one-mile stretch of the Lincoln Creek (Zone 2) to the confluence with the primary channel of the Milwaukee River.
- *Feasibility Study – Lincoln Park/Milwaukee River Channel Sediments Site, Milwaukee Estuary Area of Concern.* (CH2M HILL, 2009). The FS focused on Zones 1, 2, and the northwestern part of Zone 3 (Zone 3a).
- Remedial Investigation/Feasibility Study—Lincoln Park/Blatz Pavilion Site, Milwaukee, WI (Natural Resource Technology, Incorporated [NRT], March 2007). The RI/FS document focused on a subsection of Zone 3 that included Blatz Pavilion.

- *Remedial Construction Documentation Report – PCB-Impacted Sediment Removal Lincoln Park/Blatz Pavilion Site, Milwaukee, WI* (NRT, January 2009). The Remedial Construction Documentation Report presented the results of the polychlorinated biphenyl (PCB) remedial activities performed at the Blatz Pavilion.

1.3 Background

The Lincoln Park area was originally occupied by an oxbow of the Milwaukee River. The area was excavated in the 1930s to create the west oxbow, into which Lincoln Creek empties, and the east oxbow. The sediments in the Lincoln Park area are comprised of sediments that were transported from Lincoln Creek and the Milwaukee River and have been deposited following the excavation of the oxbows (STN, 2009). The Estabrook Dam located at the southern extent of the project area was built on a limestone outcrop in 1936 for flood control and to provide a recreation area. The dam is currently owned and operated by Milwaukee County. The bottom draw design of the dam and periodic opening and closing of the dam has caused the contaminated sediment to be released downstream and dewatered upstream, resulting in some compaction of the sediment upstream within the impoundment (WDNR, 2005).

Inspections by WDNR have identified the need for significant repair work on the dam. WDNR issued a Repair or Abandon Order to Milwaukee County on July 28, 2009. The order establishes deadlines for Milwaukee County to meet related to outstanding maintenance and repair requirements. The order also gives Milwaukee County the option of deciding whether to abandon the dam. The decision for repair or abandonment is the responsibility of Milwaukee County, the owner of the dam.

PCB contamination in the river was initially identified in the Milwaukee River through fish tissue sampling in 1981. A PCB mass balance study conducted by Baird & Associates in 1997 estimated that the Lincoln Park/ Milwaukee River sediments hold over 100,000 cubic yards (yd^3) of sediment contaminated with an estimated 5,200 kilograms (11,500 pounds) of PCBs (as Aroclor 1242). The mass balance study determined the Lincoln Park/Milwaukee River site contribute the greatest mass loading of PCBs to the Milwaukee River and Harbor, and that remediation of contaminated sediment within this area is expected to result in a long-term reduction in PCB mass transport in the Milwaukee River of up to 70 percent (Baird & Associates, 1997). Contaminated sediment is a major contributor to BUIs within the Milwaukee Estuary AOC (Milwaukee River Estuary Remedial Action Plan, 1994). BUIs within the AOC include the following:

- Restrictions on fish and wildlife consumption
- Eutrophication or undesirable algae
- Degradation of fish and wildlife populations
- Beach closings
- Fish tumors or other deformities
- Degradation of aesthetics
- Bird or animal deformities or reproduction problems
- Degradation of benthos
- Degradation of phytoplankton and zooplankton population
- Restriction on dredging activities
- Loss of fish and wildlife habitat

BUIs specifically associated with the Lincoln Park/Milwaukee River site include restrictions on fish and wildlife consumption, degradation of fish and wildlife populations, degradation of benthos, and restrictions on dredging activities.

From March through August 2008, approximately 4,700 yd^3 of contaminated sediment/soil were removed and the area backfilled at a small area immediately adjacent to the Blatz Pavilion Lagoon (located within Zone 3) through funding from WDNR (NRT, 2009). The Blatz Pavilion Lagoon area is isolated from the other contaminated areas in Zones 1 through 7 and has easy public access. WDNR selected the Blatz Pavilion Lagoon site to be the first area remediated.

1.4 Summary of Previous Investigations

Investigations conducted by the WDNR since 2000 have indicated that PCBs are the main contaminant of concern (COC) within the Estabrook impoundment. The historical total PCB concentrations within the Phase 1 and 2 area sediments ranged from nondetected to a maximum of 870 milligrams per kilogram (mg/kg) at location EST 10A collected in 1995 within Zone 2 of the Phase 1 area. The maximum historical total PCB concentration detected in the Phase 2 area was 62 mg/kg at location EST 2-14 collected in 2002. Location EST 2-14 is located on the western side of the main channel of the Milwaukee River, immediately downstream from the confluence of Lincoln Creek.

In 2000, the WDNR began a pre-design study of the Lincoln Park/Milwaukee River project area through a grant by USEPA Great Lakes National Program Office (GLNPO). Water and sediment samples within Zones 1 through 5 were collected between October 2001 and September 2003. A total of 246 sediment samples were collected to examine the occurrence and distribution of PCBs, polynuclear aromatic hydrocarbons (PAHs), and metals in Zones 1 through 5. Other data collected included water depth, sediment thickness probe transects, sediment total organic carbon (TOC), and geotechnical characteristics (WDNR, 2005).

In December 2007, the Milwaukee County Parks Department collected surface and subsurface sediment samples from four locations (SS-1 through SS-4) immediately upstream of the fixed spillway at the Estabrook Dam. Sampling was performed to characterize the sediments that could potentially become displaced during debris removal activities. Each sediment sample was analyzed for semivolatile organic compounds (SVOCs) and PCBs. Selected surface and subsurface samples were also analyzed for volatile organic compounds (VOCs) and Resource Conservation and Recovery Act metals (Himalayan, 2008).

GLNPO conducted additional sediment sampling activities in March 2009 to primarily fill Phase 1 area data gaps and support the RI/FS. However, one sample location (MR-ZZ01) was collected within the Phase 2 project area in Zone 5 at the Estabrook Dam spillway and analyzed for total PCBs (STN, 2009).

After the completion of RI activities in July 2010, the Milwaukee County Parks Department collected surface and subsurface sediment samples from 15 locations (S-1 through S-15) immediately upstream of the fixed spillway at the Estabrook Dam. Sampling was performed to characterize the sediments required to be removed as part of the Estabrook Dam rehabilitation and sediment removal planning. Each sediment sample was collected in at least two depth intervals and analyzed for PCBs (AECOM, 2010).

Historical sediment characterization data within the Phase 2 project area was located in Zones 3b through 5, and primarily consisted of total PCB results. The portions of the Phase 2 project area that lacked sediment characterization data include the segment of the Milwaukee River south of the railroad bridge to the southern confluence of the western oxbow (Zone 7), as well as the eastern oxbow (Zone 6). The investigative design and technical approach for the Phase 2 RI activities designed to fill that data gap are detailed in Section 3.

2 Site Characteristics

2.1 Local Demographics and Land Use

The Lincoln Park/Milwaukee River Site is primarily Milwaukee County Parks property consisting of approximately 312 acres, which is used for recreational purposes including canoeing, kayaking, and fishing. Picnic areas, baseball and softball diamonds, football/soccer fields, a playground, a swimming pool, and walking trails are also available in the vicinity of Blatz Pavilion. Portage and launch access of nonmotorized watercraft across park land is controlled by the Milwaukee County Parks Department and includes the Milwaukee River and the Estabrook Impoundment. There are three designated access sites for canoeing and kayaking in Estabrook Park and one near the Lincoln Park fishing pier, which is located in the Phase 1 project area along the east bank of the western oxbow, north of Hampton Avenue (STN, 2009; NRT, 2007). A segment of the Estabrook impoundment, called the Blatz Lagoon, immediately adjacent to the Blatz Pavilion, was selected by WDNR and Milwaukee County to be the first area to be remediated in the impoundment (NRT, 2007).

Several private residences are located on the southern shore of the Milwaukee River within Zone 4, which transitions into commercial development downstream of the I-43 Bridge and the North Port Washington Road Bridge.

2.2 Climate

The following temperature and precipitation data were obtained from the Midwestern Regional Climate Center using the Milwaukee Mitchell Airport weather station[1]. The averages cited are based on the period of record from 1971 to 2000. The average temperature for Milwaukee, Wisconsin, ranges from 20.7 to 72.0 degrees Fahrenheit (°F) in January and July, respectively. The annual average temperature is 47.5 °F. The Milwaukee area receives an average of 34.8 inches of precipitation every year, ranging from an average of 1.65 inches of precipitation in January to 4.08 inches in August. The annual average snowfall is 52.6 inches, with the maximum snowfall generally occurring in January (15.3 inches). The prevailing winds are west-northwest.

2.3 Topography

River banks are characterized by a moderately steep bank that grades into gently rolling hills in much of the northern and eastern areas of the Milwaukee County Park property portion of the Phase 2 project area (hereafter referred to as the park). The highest elevation is approximately 642 feet above mean sea level (amsl) and is located approximately 800 feet north of the river and 350 feet west of I-43. The highest elevation on the northern end of the island between the east oxbow and the main channel of the Milwaukee River is approximately 630 feet amsl. The south and southwest area of the park, west of Zone 3 and south of Zones 4 and 5, are generally flat and the major topographic feature is the surface

[1] http://mcc.sws.uiuc.edu/climate_midwest/mwclimate_data_summaries.htm

drainage near the boundary of Zones 3 and 4. The bathymetry of the riverbed within the Phase 2 Lincoln Park/Milwaukee River Site is discussed in Section 3.3.1.

2.4 Geology

The regional geology of the site is dominated by the effects of multiple glacial advances and retreats (such as ground and end moraines). Coarse-grained (sand and gravel) glacial outwash deposits predominate along the Milwaukee River, which occupies the course of a former glacial outwash channel. Surface and near-surface deposits outside the area immediately along the Milwaukee River tend to be dominantly fine-grained (silt and clay) glacial till deposits. The unconsolidated materials are underlain by Devonian dolomite bedrock of the Milwaukee Formation (STN, 2009).

The banks of the Milwaukee River between the west and east oxbows, as well as the eastern oxbow channel, consist of wide, exposed, sediment flats and shallow water. The sediment has previously been characterized as deposits of silt and fine sand of varying thickness between 0 and 8 feet. Along the main channel north and south of the west and east oxbows, the banks are steeper and historical data indicated fewer depositional areas with shallow sediment thicknesses ranging from 0 to 3.5 feet. Sediments located directly upstream of the Estabrook Dam impoundment are approximately 3 feet thick. Sediment thickness data collected as part of the Phase 2 investigation is discussed in Section 4.

2.5 Hydrology—Milwaukee River

The general direction of flow in the Milwaukee River is south-southeast from Silver Spring Road toward the Estabrook Dam, which regulates flow within the study area. The drainage area for the Milwaukee River upstream of the Estabrook Dam is approximately 696 square miles. The dam backs the Milwaukee River water up for approximately 2.5 miles, to approximately 0.3 mile upstream of Silver Spring Road, and Lincoln Creek is influenced to approximately 0.5 mile upstream of the confluence of the Milwaukee River. The impoundment is 103-acres, has a hydraulic height of 8 feet, and a maximum storage of 700 acre-feet (STN, 2009).

The water depths in the project area are largely a function of whether Estabrook Dam is open or closed and range from approximately 1 to 4 feet. Historically the dam was operated to be opened to allow unrestricted water flow in early October and closed in early May through the summer months to sustain a target water elevation of 616 feet amsl. Since July 2009 the dam has remained open due to a WDNR-issued Repair or Abandon Order to Milwaukee County requiring the dam to remain open until it is repaired or abandoned.

Peak flow events occur in March and April, when individual averages are as great as 1,300 cubic feet per second (ft^3/s), while the historic monthly mean flows for March and April are 1,030 ft^3/s and 960 ft^3/s, respectively (NRT, 2007). The 2-year storm discharge event is approximately 4,730 ft^3/s; flow for the 100-year storm event is 14,770 ft^3/s (Walker and Krug, 2003). NRT (2007) analyzed hydrographs for the river and documented the influence of the dam on flow within the river. The flow decreases substantially during late April and early May (when the dam is closed) and continues to be reduced until it ranges from 210 to 265 ft^3/s between July and September, even though over 50 percent of the precipitation occurs between May and September. The average monthly flows between

November and February range from 300 to 395 ft^3/s and are more indicative of an unrestricted flow regime where the flow tends to mimic precipitation.

On July 15, 2010, an intense rainfall produced approximately 5.5 inches of rainfall and was measured to exceed a 100-year storm event by the Milwaukee Metropolitan Sewer District. On July 22, 2010, an additional 4 inches of rain was received in a 1-hour duration, exceeding the 100-year equivalent of 2.93 inches of rainfall received in a 1-hour duration (Huff, 1992). Both of the events are potential sources of sediment transport that followed the RI activities.

3 Sediment Investigation and Analysis

The following section briefly describes the objectives, rationale, and approach of the Phase 2 investigation. Additional detail can be found in the *Lincoln Park/Milwaukee River Channel Sediments Site Phase 2 Remedial Investigation Field Sampling Plan* (FSP; CH2M HILL, 2010a).

3.1 Objectives

The Phase 2 field investigation was designed to collect information to evaluate existing sediment conditions. The focus of the investigation was to verify existing data, fill identified data gaps, and collect site-specific information to evaluate the extent of contaminants within the Phase 2 project area. The specific objectives of the remedial investigation were:

- Measure sediment thickness and collect elevation data to determine sediment distribution and support volume calculations.
- Characterize the nature and extent of total PCB concentrations (as Aroclors) to estimate the volume of material with total PCB concentrations exceeding the 1-mg/kg site remedial action limit (RAL) and the 50 mg/kg Toxic Substances Control Act criteria.
- Conduct comprehensive analytical sampling of other potential site contaminants (PCBs [Aroclors and congeners], SVOCs, pesticides, and target analyte list [TAL] metals) to expand upon and refine the current understanding of the nature and extent of contamination.
- Collect sediment particle size and TOC data to indicate depositional nature of location (relatively higher percentage of fine-grained particles and higher TOC values indicate depositional zones), and give indications of cohesion/erodibility of the sediment and the bioavailability of contaminants to receptors.
- Conduct a baseline habitat survey to document stream and riparian habitat features, including an inventory of aquatic and riparian vegetation, as well as fish habitat features within the Lincoln Park Phase 2 project area.

3.2 Investigation Rationale

The Phase 2 investigation was designed to achieve the objectives listed in Section 3.1 by using a series of transects to acquire sediment thickness data and to collect sediment cores for the aforementioned chemical and physical analyses. The transect spacing from which sediment thickness poling and coring activities were performed was selected based on the spatial distribution of historical sediment probe and core data, the known physical characteristics of the site, and data density required to develop a representative and defensible site model to illustrate the horizontal and vertical extent of sediment deposits and PCB concentrations above 1 mg/kg and 50 mg/kg.

Transects were spaced every 200 feet within Phase 2 areas with known depositional areas based on historic sediment thickness data, such as the east oxbow and the main river

channel between both the west and east oxbows. Areas with little historical evidence of sediment deposition were investigated using a 400-foot transect spacing.

Prior to sediment coring activities, sediment probing was conducted to collect sediment thickness data along each transect using 25-foot interval spacing to capture the potential variability of sediment deposition within the project area. A total of 558 sediment thickness data points were collected along 58 transects (Figure 2). In addition to sediment thickness survey data, elevation data was collected at each sediment probe location, as well as the toe and top of defined banks at each transect location in order to establish a bathymetric surface and define the riverbed channel width.

Sediment cores were collected at a minimum of one per transect at the probe location with the greatest sediment thickness. Additional sediment cores were collected if more than one depositional area was encountered in a transect, or if a depositional area had a width greater than the adjacent transect spacing. For example, if a depositional area greater than 200 feet wide was identified along a transect with a spacing of 200 feet from the adjacent transect, an additional sediment core was collected, resulting in two core locations evenly spaced along the transect. A total of 88 sediment cores were collected from the study area and processed for analysis.

3.3 Investigation Approach

3.3.1 Sediment Thickness and Bathymetry Survey

Sediment thickness and bathymetry data were collected during two field events conducted from mid-February through mid-April 2010. The first field event was conducted when the sediment flats and portions of the Milwaukee River were frozen solid, which allowed for ease of access to the sediment flats with GeoProbe direct-push technology (DPT) probe and sampling equipment. The second field event was performed during open water conditions after the spring thaw of the river.

During frozen conditions, two DPT rigs outfitted with solid drive points were used to collect sediment thickness data to refusal within the frozen sediment flats. The refusal depth was calibrated to the manual poling process, as well as the textural classes of the sediment cores. Calibration consisted of initially performing manual poling using 0.75- and 0.5–inch-diameter steel rods. Results of the manual poling were compared to the initial depth at which refusal started using the DPT rig. Following the manual and DPT poling activities, a sediment core from the location was collected 2 feet past the refusal depth of the DPT rig. A correlation between the textural classes and depths of refusal for each poling method was examined. The process was performed at several locations where sediment textures varied between silt, silty clay, and fine to coarse sand. The calibration exercise demonstrated similar sediment thickness results between the manual poling process using the 0.5-inch-diameter steel rod and the initial refusal depth of the DPT rig.

In areas of the river where the ice thickness was deemed sufficient to support personnel but not a DPT rig, a gas-powered auger was first used to auger through the ice to allow access to the sediment surface for conducting the manual poling process. Sediment poling locations collected during open water conditions were collected using the manual poling process with a 0.5-inch-diameter steel rod along the proposed transects from a jon boat.

The surface elevation from which work was performed (water, ice, or sediment flat) was surveyed using survey-grade sub-meter geographic positioning system equipment capable of a horizontal accuracy of +/- 3 feet and a vertical accuracy of less than or equal to 0.1 foot. Poling locations performed from ice or water surfaces used a survey rod outfitted with a 0.5–foot-diameter disk to measure the distance from the sediment surface to the respective surveyed work surface from which the sediment bathymetry elevation was calculated. Top and toe of the defined bank slope elevation was also surveyed at each proposed transect location during the sediment thickness survey to define the project extent at each transect.

Sediment bathymetry elevations in thawed river conditions used a series of four staff gauges that spanned the project extent to determine real-time water elevations. Sediment bathymetry elevations were calculated as the difference of measured water depth from the water elevation. Upstream and downstream staff gauge readings were also collected prior to poling activities at each transect to determine real-time water elevation. A staff gauge reading was also collected at each of the four staff gauges daily, prior and after poling activities, from which a correction factor was developed and applied to each transect during the data reduction to account for the river gradient. Briefly, the process included determining the average daily value for each staff gage, calculating the slope between each of the four staff gages (such as, slope between SG1 and SG2, SG2 and SG3, and SG3 and SG4), and applying the correction to the field-measured values. The correction factor applied ranged from 0 to 0.5 foot.

A summary of the sediment probing data and defined bank survey data are located in Tables 1 and 2, respectively.

3.3.2 Sediment Core Collection and Processing

Sediment cores were collected 3 to 5 feet upstream of the target probe location to avoid disturbed sediment. A minimum of three sets of cores were collected from each location to provide adequate volume for the scheduled chemical and physical analyses.

During the initial mobilization during frozen conditions sediment cores were collected and surveyed concurrently with sediment thickness survey activities. Sediment cores collected at this time used DPT rigs as detailed in FOP-02, *DPT Drilling and Sediment Sample Collection* per the FSP (CH2M HILL, 2010a). Remaining sediment coring was performed after the spring thaw during open water conditions following the completion of remaining sediment thickness and bathymetry activities.

The coring process during open water conditions was performed using hand coring methods due to low water levels that would not have allowed for access with a barge-mounted DPT rig. Hand coring was completed with a 2- or 4-inch-diameter core liner that was driven to the probe or refusal depth using a fence post or slide hammer. Once driven to the required depth the core liner was filled with water and capped to create a vacuum to prevent sediment from escaping as the core was retrieved. The core was then pulled from the sediment and capped at the bottom prior to exiting the water column to maintain the created vacuum. Photographs documenting the sediment core collection process are located in Appendix A.

The sediment cores were processed immediately upon collection using the methods prescribed in the FSP. The sediment cores were visually characterized for texture, color,

consistency, visible evidence of staining, and other observations. Sediment was described using the Unified Soil Classification System (modified slightly for sediment characterization) based on visual identification and recorded on sediment core logs located in Appendix B.

Sediment samples for chemical and physical analyses were collected continually throughout the core. Surface intervals were collected from 0 to 0.5 foot below the sediment surface and subsurface sediment was sampled using a 1-foot interval to the bottom of the core. If the last sample interval was less than 0.5 foot, it was included in the previous interval, if it was greater than 0.5 foot, it was treated as a separate sample. The corresponding sampling intervals from the multiple cores collected at each location for appropriate sample volume were combined into pre-cleaned mixing containers. Rocks, twigs, leaves, and other debris were removed, and the sediments were mixed until a uniform color and texture was achieved. The homogenate was then transferred to the appropriate sample containers. All samples were stored on ice until shipment to the receiving laboratories. All sediment samples were analyzed for PCB Aroclors, SVOCs, pesticides, TAL metals, and TOC. Samples from approximately 10 percent of the locations were submitted for particle size analysis. A summary of sediment core samples collected is in Table 3. Analytical results and photographs for each sample are located in Appendixes C and D, respectively.

Aliquots for PCB congener samples were collected from 50 percent of the core locations and were shipped to an offsite USEPA-contracted facility for archiving until preliminary Aroclor data was received and reviewed to inform the selection of sample for PCB congener analysis. Representative samples were selected for congener analysis to capture the range of conditions at the site, as follows:

- Samples with elevated PCB concentrations and relatively low PAH concentrations
- Samples containing elevated PCB and PAH concentrations
- Samples containing a range of total PCB concentrations
- Samples containing different types and ratios of the different Aroclors detected

The samples submitted for PCB congener analysis are summarized in Table 4. PCB congener results and respective laboratory case narratives, as reported by ESAT, are within Appendix E.

3.4 Analytical Methods

Sediment samples and associated quality assurance/quality control (QA/QC) samples were analyzed by laboratories within the USEPA Contract Laboratory Program (CLP). PCB Aroclors, SVOCs, and pesticides were analyzed using Method SOM01.2, which was modified to account for the high moisture content of the sediment samples. PCB congeners were analyzed using method CBC01.2, and TAL metals were analyzed by Method ILM05.4. TOC and particle size analyses were performed by the USEPA Central Regional Laboratory (CRL) using CRL standard operating procedures AIG009 and AIG038A, respectively.

Waste characterization analyses (toxicity characteristic leaching procedure [TCLP] analyses) were also performed by participating CLP laboratories. The TCLP extraction method used for all parameters was SW-846 1311. The TCLP VOCs, SVOCs, and pesticides were analyzed using SOM01.2. TCLP metals were analyzed using ILM05.4, and TCLP herbicides were analyzed with SW-846 8151A.

The specific analyte lists and required reporting limits for the CLP and CRL laboratory analyses are presented in the *Lincoln Park/Milwaukee River Channel Sediments Site Phase 2 Remedial Investigation Quality Assurance Project Plan* (CH2M HILL, 2010b). The analytical methods were selected such that the quantitation limits for each analysis achieved the investigation objectives.

3.5 Summary Data Quality Evaluation

A detailed Data Quality Evaluation (DQE) memorandum is provided in Appendix F. The key findings of that evaluation indicated that the completeness objective of 90 percent was met for all method/analyte combinations. The evaluation also found that the precision and accuracy of the data, as measured by field and laboratory QC indicators, indicated that the data quality objectives were met.

The DQE did note a small number of PCB Aroclor data points were rejected due to a percent difference (>100 percent) between the primary and confirmation columns. Some results that were nondetects were also rejected due to extremely low surrogate recoveries, which could result in the data being biased very low. The data should not be used to make project decisions. The DQE memo also noted rejected data points for selected pesticide, metals, and SVOC data.

4 Sediment Investigation Results

The results of the field surveys, chemical and physical analyses, and the comparison of the chemistry concentration data to selected screening values are summarized below. This section is organized to first discuss the results of the sediment thickness survey followed by a summary of the physical and chemical characteristics, respectively. A discussion of the nature and extent of total PCB concentrations completes this section.

4.1 Sediment Thickness

The results of the sediment thickness survey are summarized in Table 1 and Figure 2. Figure 3 illustrates the elevation of the sediment surface in the study area.

The measured sediment thickness ranged from 0 to 10.6 feet. The average sediment thickness was approximately 2.2 feet. The largest depositional areas were observed on Transects 5 through 34, which are located in the eastern oxbow and in the shoals that have formed in the main channel of the Milwaukee River adjacent to and immediately upstream of the eastern oxbow (Zones 6 and 7). Three additional smaller depositional areas were observed on Transect 35 at the confluence of Lincoln Creek with the Milwaukee River (Zone 3), on the northern ends of Transects 43 through 46, on the inside bend of the main River Channel (Zone 4), and on the southern end of Transect 58, immediately upstream of the Estabrook Dam (Zone 5).

Sediment thickness in the eastern oxbow (Zone 6) ranged from not present to 10.0 feet. Sediment thickness within the main channel adjacent to the eastern oxbow (Zone 7) ranged from 0.1 to 10.6 feet. The sediment in the main channel in Zone 3 ranged from not present to 6.7 feet. Sediment thickness in Zone 4 ranged from not present to 6.1 feet. In Zone 5, sediment deposits ranged from not present to a thickness of 4.1 feet.

4.2 Sediment Physical Characteristics

Core logs for each sediment core location are presented in Appendix B. The core logs indicate that the sediment deposits in this reach of the river are largely interbedded layers of silt or sandy silt, silty to gravely sand, and silty to sandy gravel. In the eastern oxbow (Zone 6), the surface sediment was dominantly silt, underlain by sand or sandy gravel in the northern two-thirds of the oxbow and by a dense clay or sandy clay in the southern portion of the oxbow. The surface sediment in the main river channel adjacent to and downstream of the eastern oxbow (Zones 7 and 3) was dominantly sand or silty sand. Sediment deposits along the western side of the channel tended to be dominated by silts. The large shoal near the southern confluence of the eastern oxbow was composed of silty sand underlain by dense, firm clay or sandy clay. The main channel in Zone 4 contained a very thin to nonexistent sand layer of sediment above a bedrock subsurface. The depositional area in Zone 4, just downstream of the eastern bend in the river channel, was generally comprised of silt, clayey silt, or sandy silt overlying sand deposits. Zone 5 was found to be similar to Zone 4 until reaching thicker sediment deposits located along the southern shore and directly upstream of the Estabrook Spillway ranging from very organic, rich silt to loose sand.

Grain size results indicate sediment in the depositional areas is typically sandy silt/clay or a mixture of sand and gravel. TOC results ranged from 0.1 to 13.8 percent, with a mean value of 4.8 percent. The percent solids (dry solids at 60° Celsius) ranged from 18.7 to 95.1 percent, with a mean value of 72.3 percent. Grain size, TOC, and percent solids results are presented in Tables C-1 through 3 within Appendix C.

4.3 Sediment Chemistry Results

The following section is limited to PCBs, which are the primary COCs at the site. Total PAHs, metals, and pesticides analytical results will undergo further review for determination of RALs at a later date following initial review of this report. The analytical results for PCBs, PAHs, metals, and pesticides are tabulated in Appendix C.

4.3.1 PCBs

Total PCB concentrations were determined by summing the positive results for any PCB Aroclor detected in a given sample. The data were evaluated to determine the predominant Aroclor mixture and if the predominant Aroclors were not detected in any particular sample, then one-half the reporting limit for that Aroclor was used. PCB samples were analyzed for nine Aroclors, including Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268. Aroclors 1221, 1232, 1242, 1262, and 1268 were not detected in any samples, and thus were not considered predominant and were not included in the summation. Total PCB concentrations ranged from 0.004 to 25.8 mg/kg, with a mean concentration of 0.5 mg/kg and a median value of 0.09 mg/kg.

The total PCB values (Appendix C) were compared to the site-specific RAL of 1 mg/kg. Eighteen sample results from 16 sediment core locations exhibited total PCB concentrations greater than 1 mg/kg (Table 4). The locations were generally clustered in three areas: the shoals on either side of the main channel of the Milwaukee River at and between the two confluences with the eastern oxbow (Transects 7 through 36), the shoal located on the inside bend of where the main channel turns eastward (Transects 44, 46, and 47), and the sediment deposits on the southern bank of the main river channel immediately upstream of the Estabrook Impoundment (Transects 55, 56, and 58). The areas with total PCB concentrations above the site-specific RAL are generally located within the depositional areas described in Section 4.1 above and represented in Figure 4, which depicts the maximum total PCB value per sediment core, as well as the depth interval of the sample. The distribution of total PCBs is further discussed in Section 4.4.

Aroclors 1248 and 1260 were the most commonly detected PCBs in the site samples and were detected in 48 and 38 percent of the samples, respectively. Aroclor 1248 was also present in high concentrations, ranging from 0.001 to 23 mg/kg. Aroclor 1260 was detected at concentrations ranging from 0.001 to 2.8 mg/kg. Aroclor 1016 was detected in 2 percent of site samples, ranging in concentration from 0.003 to 0.13 mg/kg. Aroclor 1254 was detected in 8 percent of the site samples, with concentrations ranging from 0.03 to 2.9 mg/kg. A summary of statistics for each PCB Aroclor is presented in Table 5. The lateral and vertical distribution of sediments greater than 1 mg/kg is further discussed in Section 4.4.

4.3.2 PAHs

Total PAH concentrations ranged from 0.02 to 139 mg/kg, with a mean concentration of 6.2 mg/kg and a median concentration of 2.4 mg/kg. The high molecular weight

parameters (for example, the four- and five-ring compounds) were generally detected in the highest concentrations. The highest mean concentrations were observed within the top 1.5 feet of sediment. Figure 5 illustrates the maximum PAH concentration per sediment core location and notates the depth at which the maximum concentration occurs.

PAHs were the predominant SVOCs detected in sediment samples; however, di-n-butyl phthalate and bis(2-ethylhexyl) phthalate were detected at relatively low concentrations in a number of samples. The compounds are not uncommon, as they have been widely used as plasticizers.

SVOC analyses was performed using both a standard mass spectrometry method and selected ion mode (SIM) quantitation method and, in some cases needed dilutions, resulting in up to 5 separate results for each of the 17 individual compound PAH results. The data results received by CH2M HILL did not indicate which value should be used as the result. In order to determine which validated results to use in the total PAH sum, the decision tree within Exhibit 1 on the following page was developed and implemented to determine the most representative result for incorporation into the dataset. The selection process started with evaluating the results and associated qualifiers from the mass spectrometry analysis. If the qualifiers assigned to the mass spectrometry result were "U" (nondetect) or "J" (estimated value), the SIM results were evaluated. Based on the qualifiers assigned to the SIM results, the data were either used or rejected for the initial mass spectrometry result. If the original mass spectrometry result was qualified with either an "E" (result outside of the high calibration range) or "=" or "J", which were only assigned by the data validation (for example, not the laboratory), then the results from the mass spectrometry quantitation were used.

Further discussion of total PAH results in relationship to sediment quality guidelines (SQGs) is located in Appendix H (COC Screening).

4.3.3 Pesticides and Metals

The analytical data for pesticides and metals were also compared to SQGs. Results indicate that pesticide concentrations present in the sediments are not likely to pose potential risk to benthic organisms since there were no parameters that exceeded the Midpoint Effect Concentration (MEC) or Probable Effect Concentration (PEC). The metals screening did indicate exceedances of the TEC values for all the parameters and PEC exceedances for six parameters. The most common exceedances were for lead (in 16 samples) and these were generally co-located with locations where the 1 mg/kg RAL for PCBs was exceeded. Based on these results, the pesticide and metals data will not be further evaluated during the RI process.

4.3.4 Comparison of COCs to Preliminary Screening Level Values

Appendix H details the selection of preliminary screening level values for metals, pesticides, and PAHs. WDNR SQGs were selected to be used for preliminary data evaluation purposes. If WDNR SQGs were not available, USEPA Region III Biological Technical Advisory Group Freshwater Sediment Screening values were used. These values are not to be considered as RALs for the site and were chosen as an initial step to conduct a preliminary evaluation of concentration levels. Further evaluation of metals, pesticides, and PAH data is needed prior to determining appropriate RALs specific to protecting human health and ecological risk at the site.

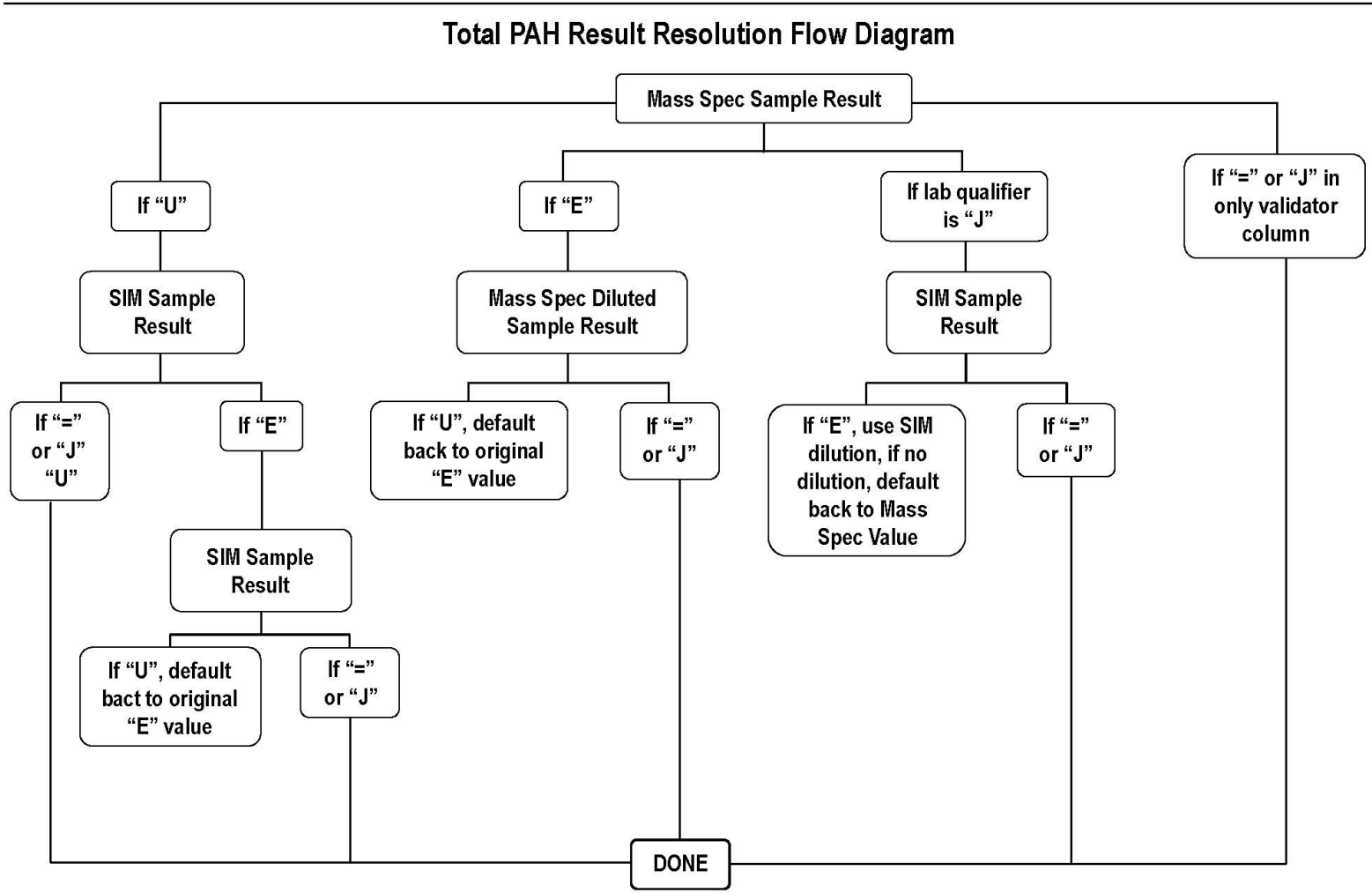

EXHIBIT 1
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Figure_X_LincolnPark_v2 12.03.10 sls/cae

CH2MHILL.

The guidance specifies the following three screening values for selected parameters:

- Threshold Effect Concentration (TEC) is the concentration, if below, toxicity effects to benthic dwelling organisms are predicted to be unlikely.
- Midpoint Effect Concentration (MEC) is the midpoint concentration between the TEC and Probable Effect Concentrations.
- Probable Effect Concentration (PEC) is the concentration, if exceeded, toxicity effects to benthic organisms are probable.

4.4 Nature and Extent of Contaminants of Concern

4.4.1 PCBs

Total PCB concentrations are generally low and range from 0.004 to 25.8 mg/kg, with a mean concentration of 0.5 mg/kg and were composed primarily of Aroclors 1248 and 1260. The highest total PCB concentration encountered during Phase 2 RI activities was 25.8 mg/kg and is located within the surface sample collected from location SD55N-J, which is on the south bank of the main channel, approximately 500 feet upstream from the Estabrook Impoundment. The next highest total PCB concentration is 7.1 mg/kg located at 1.5 feet below sediment surface (bss) at location SD18W-B. Based on observation of the data results there is no apparent correlation between total PCB concentrations and the TOC content of the sediment. However, the highest PCB concentrations were generally in areas described in the sediment core logs as having higher silt and clay content. Project areas where total PCB concentrations exceeded 1 mg/kg are located in nine distinct deposits within Zones 3a, 4, 5, and 7.

Location SD-23N-C located in the northern portion of the eastern oxbow (Zone 6) contained a sample collected from 1.5 to 2.5 feet below the sediment surface with a total PCB concentration of 1.013 mg/kg. However, due to the minimal exceedance above 1 mg/kg and its vertical distribution within the sediment profile, the area represented by this sample was not considered for further evaluation in this report.

A description of the nine deposits is found below with estimated volumes for remedial action as described in Section 4.5.3. Remedial action volumes reported includes overburden quantities to account for typical excavation construction methods. A summary of sediment volumes and areas per deposit is located in Table 7. A visual representation of the modeled horizontal and vertical 1 mg/kg total PCB remedial action extent is located in Figure 6.

4.4.1.1 Deposit 3a-1

Deposit 3a-1 is located at the western oxbow southern confluence to the Milwaukee River along the north shore and is described as being mostly silt with fine to medium sand. This deposit has been added to the proposed Phase 1 Remedial Design project area slated for remedial action in order to allow for complete excavation of the Zone 3a depositional area. Total PCB concentrations are relatively low and range from 1.2405 to 1.554 mg/kg (SD-35W-A and SD-36N-C, respectively) at 0.5 to 1.5 feet bss. No further concentrations greater 1 mg/kg were detected below 1.5 feet. Estimated quantities of sediments greater than 1 mg/kg equal 160 yd^3, with an estimated remedial action volume of 560 yd^3.

4.4.1.2 Deposit 4-1 and 4-2

Deposits 4-1 and 4-2 are located at the northern shore of Zone 4 within the interior bend directly downstream of the Hampton Street Bridge. Total PCB concentrations are relatively low ranging from 1.37 to 1.8905 mg/kg (SD-44N-A and SD-47S-I, respectively) and are located at the surface (0 to 0.5 foot) of the sediment profile in deposit 4-1 and extend to 1.8 feet bss in deposit 4-2 . Sediment thickness in deposit 4-1 and 4-2 extends to a maximum of 4.4 and 1.8 feet, respectively and is described as clayey silt at the surface with increasing sand at depth. Estimated quantities of sediments greater than 1 mg/kg equal 40 and 470 yd^3 (4-1 and 4-2, respectively). The estimated remedial action volume is also 40 and 470 yd^3, respectively, which is due to the sediments greater than the RAL being located at the sediment surface.

4.4.1.3 Deposit 4-3

Deposit 4-3 is located at the southern shore of Zone 4 directly west of the Interstate I-43 Bridge. The deposit is comprised of one sample location (SD-50N-J) with a total PCB concentration of 3.925 mg/kg collected from 0 to 0.8 feet, which represents the complete sediment profile. Sediments in this deposit are described as fine sandy silt throughout the sediment profile. Estimated quantities of sediments greater than the RAL equal 60 yd^3 with the same respective remedial action volume.

4.4.1.4 Deposit 5-1

Deposit 5-1 is located immediately upstream of the Estabrook Spillway and represents the downstream extent of the project area. The greatest total PCB concentrations encountered during the CH2M HILL RI activities are located within this deposit and range from 1.198 to 25.835 mg/kg at locations SD-56S-A and SD-55N-J, respectively. Sediment thickness within deposit 5-1 extends to a maximum depth of 4 feet with an average thickness of 2.5 feet, and is described as fine sandy silt throughout the sediment profile. Analytical data collected by Milwaukee County (2007 and 2010) and STN (2009) was also used to provide additional analytical resolution during the three-dimensional (3D) modeling of sediment volume estimates greater than the RAL of 1 mg/kg. Estimated quantities of sediments greater than the RAL equal 3,890 yd^3 with an estimated remedial action volume of 6,810 yd^3. During the RI activities conducted by CH2M HILL, no sediments greater than 50 mg/kg were detected; however, during sampling conducted by Milwaukee County in 2010 as part of the Estabrook Dam rehabilitation and sediment removal planning 6 of 15 sample locations collected contained concentrations greater than 50 mg/kg. Sediment volumes greater than 50 mg/kg were estimated within the Estabrook Dam cost estimate prepared by AECOM and reported to be approximately 1,380 yd^3 (AECOM, 2010).

4.4.1.5 Deposit 7-1

Deposit 7-1 is located directly west of the eastern oxbow upstream confluence. The deposit is comprised of one location (SD-07E-G) with a total PCB concentration of 3.02 mg/kg at 4.5 to 5.5 feet bss. The sediment profile within this deposit is described as coarse sand and gravel at the surface, transitioning to silty sands at depth. Estimated quantity of sediment greater than 1 mg/kg is 40 yd^3 with an estimated remedial action volume of 3,960 yd^3. The difference in volumes is a direct result of the depth at which the sediments exceeding 1 mg/kg are located (4.5 to 5.5 feet bss), which results in a significant overburden included within the remedial action volume.

4.4.1.6 Deposit 7-2

Deposit 7-2 is located downstream of the northern western oxbow confluence in Zone 7. The deposit is comprised of one sample location (SD-15E-I) with a total PCB concentration of 6.348 mg/kg collected from 1.5 to 2.5 feet bss. The sediment profile thickness is approximately 4 feet and is described as medium sand overlaying firm fine sandy clay encountered at 2.7 feet bss. Estimated quantities of sediments greater than 1 mg/kg is 260 yd^3 with an estimated remedial action volume of 1,210 yd^3.

4.4.1.7 Deposit 7-3

Deposit 7-3 is located along the western shore in the main channel of the Milwaukee River in Zone 7. Total PCB concentrations range from 2.551 to 7.1051 mg/kg (SD-17W-E and SD-18W-B, respectively) and are located at 1.5 to 2.5 feet bss. The maximum sediment profile thickness in this deposit ranges from approximately 5 to 7 feet composed of silty clay with fine sand to 2.5 feet bss followed by increasing sandy silt to refusal. Estimated quantities of sediment greater than 1 mg/kg equal 1,320 yd^3 with an estimated remedial action volume of 3,800 yd^3.

4.4.1.8 Deposit 7-4

Deposit 7-4 is located at the eastern oxbow downstream confluence in Zone 7. This deposit is comprised of three sample locations (SD-20E-I, SD-21E-J, and SD-21E-F) with total PCB concentrations ranging from 1.105 to 2.448 mg/kg collected between 0.5 to 3.5 feet bss. Maximum sediment profile thickness is 4.5 feet at location SD-21E-F and is described as sandy silt. Estimated quantities of sediments greater than 1 mg/kg is 710 yd^3, with a remedial action volume of 2,090 yd^3.

4.5 Data Evaluation Summary

The RI data were evaluated by using a 3D interpolation method to delineate the horizontal and vertical extent of sediment containing total PCB concentrations equal to or greater than 1 mg/kg. The computer application Mining Visualization System (MVS) v9.22 by CTECH (www.ctech.com) was used to interpolate PCB concentrations. The PCB concentration distribution was modeled within a 3D mesh using a geostatistical process called kriging. The MVS model software uses expert systems to analyze the spatial distribution and number of field data points; construct a multidimensional variogram, which is a best fit to the dataset being analyzed; and then perform kriging in the domain of the model. One of the fundamental design criteria used in developing the variogram and kriging algorithms was to produce modeled distributions that honor the measured distributions as closely as possible.

4.5.1 Chemical Dataset

The chemical dataset included total PCB analytical results from sediment core samples collected during the 2010 RI conducted by CH2M HILL, as well as data collected immediately upstream of the Estabrook Spillway, which included the following PCB sediment core sample data: 2007 Milwaukee County data (Himalayan, 2008), 2009 STN data collected as part of the Phase 1 RI activities (STN, 2009), and Milwaukee County data collected in July 2010 (AECOM, 2010). The dataset resulted in a total of 287 samples from 108 locations (88—CH2M HILL, 19—Milwaukee County, and 1—STN, respectively). Historical data collected by WDNR from 2002 through 2003 within the Phase 2 project area

were not included due to age of the data resulting in potentially not representing current concentrations or sediment deposit conditions within a highly dynamic river system.

4.5.2 Interpolation Methods

Key attributes of the MVS-based interpolation approach for delineation of the extent of PCB concentrations are discussed in this subsection.

Total PCB concentrations were represented as point values located at corresponding horizontal coordinates (such as northing and easting) for each sampling station. The vertical position was represented by the sample midpoint depth below the top of the sediment surface. Analytical results from QA/QC samples were excluded.

Interpolation of PCB data was performed within two separate 3D meshes representing the project site. One 3D mesh was used from the start of Zone 4 to the upstream extent of the project north of the railroad bridge and the second 3D mesh started at Zone 4 and extended to the Estabrook Spillway (Zones 4 and 5). The eastern oxbow (Zone 6) was not included within either 3D mesh due to the low concentrations of total PCBs detected. Z-spacing of each grid was determined by sediment thickness and represented a maximum depth of 0.5 foot to represent the minimum sample interval and provide appropriate vertical resolution of the 3D mesh. During interpolation to each of the 3D meshes, the complete PCB dataset was used to prevent potentially different interpolation results at zone boundaries.

The 3D meshes of each zone and subzone were constructed with a normalized, flat-top and bottom sediment surface determined by probe refusal. The bottom sediment surface was measured in depth to better correlate PCB concentrations within sediment stratigraphy, rather than elevation. The lower boundary of the 3D mesh was defined by the sediment thickness data as determined by the sediment poling results and defined bank extent survey data previously discussed in Section 3.3.1. A sediment thickness value of 0.0 feet was assigned to the defined bank toe of slope survey location and was used to define the horizontal extent of the modeled area. Sediment thickness data representing the lower boundary surface of the 3D mesh was linearly interpolated to a 20- by 20-foot square grid using MicroStation Geopak tool, and then imported into MVS to define the vertical extent of the 3D analytical model.

4.5.3 Results

Once the 3D distribution of PCB concentrations was modeled, the sediment volume associated with a concentration greater or equal to 1 mg/kg total PCBs were calculated using MVS. In addition to a volume representative of total PCBs exceeding 1 mg/kg, an area and volume was calculated to estimate a remedial action volume. The remedial action volume includes overburden quantities to account for typical excavation construction methods. Overburden volumes include 1:1 (horizontal to vertical) side slopes and sediments less than 1 mg/kg located above targeted sediments greater or equal to 1 mg/kg.
A summary of sediment volumes and areas per deposit is located in Table 7. A visual representation of the modeled horizontal and vertical 1 mg/kg total PCB remedial action extent is located in Figure 6.

5 Ecological Survey

A baseline habitat assessment associated with the Lincoln Park/Milwaukee River Channel Phase 2 RI was performed on September 16 and 17, 2010. Appendix G contains a technical memorandum describing the objectives, procedures, and results of the habitat survey, as well as field documentation, photographs, and figures.

6 Summary and Conclusions

6.1 Physical Site Characteristics

The Lincoln Park/Milwaukee River Site includes approximately 1.5 miles of the Milwaukee River and is an active area that supports many recreational activities with the majority of access provided through public property owned by Milwaukee County. Water depths in the project area are largely a function of whether Estabrook Dam is open or closed and currently range from approximately 1 to 4 feet since the dam has remained open since 2009. Peak flow events occur in March and April, when individual averages are as great as 1,300 ft^3/s.

The banks of the Milwaukee River north of the Hampton Street Bridge consist of wide, exposed, sediment flats characterized as deposits of silt and sands with areas of gravel deposition having a varying thickness between 0 and 10 feet. The main channel north of the Hampton Street Bridge consisted of sands varying from 0.5 to 3 feet thick. South of the Hampton Street Bridge the river banks generally become steeper with narrow depositional areas located immediately adjacent to the banks with relatively shallow sediment thicknesses ranging from 0 to 6 feet. The main channel in this area contained a very thin to nonexistent sand layer of sediment above a bedrock subsurface.

Sediments located directly upstream of the Estabrook Spillway and along the southern shore are approximately 3 to 4 feet thick and range from a very organic rich surface layer transitioning to silty sand above a bedrock subsurface.

6.2 Nature and Extent of Contamination

Historical information, as well as current investigation, results have not identified any discrete contamination sources in Lincoln Creek, or the western oxbow of the Milwaukee River. Of the five separate PCB compounds (Aroclors 1016, 1248, 1254, and 1260) that have been detected during the RI activities, Aroclors 1248 and 1260 were the most frequently detected and detected at the highest concentrations. In general, total PCB concentrations greater than the RAL of 1 mg/kg occurred below the surficial sediments (greater than 0.5 foot) within deposits north of the Hampton Street Bridge, while deposits located downstream of the river bend at Zone 4 contained total PCB concentrations greater than the RAL beginning at the sediment surface. The maximum total PCB concentrations detected during RI activities was in the vicinity of the Estabrook Spillway with a concentration of 25.8 mg/kg.

However, analytical data collected by Milwaukee County in 2010 as part of the Estabrook Dam rehabilitation and sediment removal planning were shown to contain concentrations greater than 50 mg/kg at six of 15 sample locations collected at the spillway (AECOM, 2010).

Approximately 6,950 yd^3 of sediment with a concentration above the RAL of 1 mg/kg exists in 9 separate deposits within the project area. The estimated volume for the remedial action, which includes additional overburden estimates, is 19,000 yd^3 within a footprint of approximately 9.2 acres if excavation is selected as the preferred remedy for each deposit .

The largest sediment deposit is located directly upstream of the Estabrook Spillway and contains an estimated volume of 6,810 yd^3 (includes overburden) for remedial action if excavation is performed with approximately 1,380 yd^3 of the sediments being greater than 50 mg/kg.

7 References

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Tables

TABLE 1
Sediment Probing Data Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/17/2010	01e-a	Y	413134.83	2522922.63	4.3	2.9	1.4	615.22	612.32	610.92
3/17/2010	01e-b	N	413136.41	2522899.70	4.1	3.4	0.7	615.22	611.82	611.12
3/17/2010	01e-c	N	413141.10	2522878.60	5.2	5	0.2	615.22	610.22	610.02
3/17/2010	01e-d	N	413148.08	2522843.58	6	5.7	0.3	615.22	609.52	609.22
3/17/2010	01e-e	N	413152.23	2522816.68	6.2	5.9	0.3	615.22	609.32	609.02
3/17/2010	01e-f	N	413162.02	2522796.74	5.4	5.3	0.1	615.22	609.92	609.82
3/17/2010	01e-g	N	413173.38	2522774.69	1.5	0.6	0.9	615.22	614.62	613.72
3/17/2010	02e-a	N	412721.52	2522882.32	5.1	4.5	0.6	615.12	610.62	610.02
3/17/2010	02e-b	N	412751.78	2522851.67	4.8	3.8	1.0	615.12	611.32	610.32
3/17/2010	02e-c	Y	412749.25	2522821.97	7.2	5.7	1.5	615.12	609.42	607.92
3/17/2010	02e-d	N	412759.35	2522799.26	7.8	7.2	0.6	615.12	607.92	607.32
3/17/2010	02e-e	N	412770.22	2522772.66	6.3	6	0.3	615.12	609.12	608.82
3/17/2010	02e-f	N	412782.99	2522748.95	6.5	6.1	0.4	615.12	609.02	608.62
3/17/2010	02e-g	N	412794.07	2522728.13	3.6	2.5	1.1	615.12	612.62	611.52
3/17/2010	03e-a	N	412353.51	2522926.53	2.9	0.4	2.5	615.01	614.61	612.11
3/17/2010	03e-a2	Y	412331.94	2522892.27	4.7	3.2	1.5	615.01	611.81	610.31
3/17/2010	03e-b	N	412327.01	2522873.99	4.7	4.3	0.4	615.01	610.71	610.31
3/17/2010	03e-c	N	412321.56	2522847.71	5.2	4.8	0.4	615.01	610.21	609.81
3/17/2010	03e-d	N	412314.31	2522819.80	4.5	3.7	0.8	615.01	611.31	610.51
3/17/2010	03e-e	N	412316.02	2522794.99	5.4	5.3	0.1	615.01	609.71	609.61
3/17/2010	03e-f	N	412306.98	2522769.04	5.7	5.3	0.4	615.01	609.71	609.31
3/25/2010	04e-a	Y	411969.70	2523014.71	4.75	2.2	2.6	613.40	611.20	608.65
3/25/2010	04e-b	N	411958.10	2522981.43	3.95	1.4	2.6	613.40	612.00	609.45
3/25/2010	04e-c	N	411951.03	2522954.37	3.6	0.9	2.7	613.40	612.50	609.80
3/25/2010	04e-d	N	411947.12	2522928.88	4.2	2.3	1.9	613.40	611.10	609.20
3/25/2010	04e-e	Y	411945.20	2522911.10	4.25	2.7	1.6	613.40	610.70	609.15
3/25/2010	04e-f	N	411944.98	2522894.01	3.6	2.4	1.2	613.40	611.00	609.80
3/25/2010	04e-g	N	411951.96	2522864.42	4.05	3.3	0.8	613.40	610.10	609.35
3/25/2010	04e-h	N	411948.57	2522838.05	5.3	4.8	0.5	613.40	608.60	608.10
3/25/2010	04e-i	N	411950.35	2522814.71	4.85	4.4	0.4	613.40	609.00	608.55
3/1/2010	05w-a	N	411756.05	2523031.83	3.2	3.1	0.1	613.62	610.52	610.42
3/1/2010	05w-b	N	411753.87	2523006.24	6	3.6	2.4	613.27	609.67	607.27
3/1/2010	05w-c	N	411752.29	2522981.43	5.6	1.1	4.5	614.27	613.17	608.67
3/1/2010	05w-d	N	411749.89	2522956.74	5.8	0.9	4.9	614.80	613.90	609.00
3/1/2010	05w-e	Y	411749.52	2522931.67	6	0.8	5.2	614.84	614.04	608.84
3/1/2010	05w-f	N	411748.52	2522906.87	5	1	4.0	614.94	613.94	609.94
3/1/2010	05w-g	N	411746.38	2522879.94	6.2	1	5.2	614.98	613.98	608.78
3/1/2010	05w-h	N	411744.26	2522852.71	6.2	0.9	5.3	614.81	613.91	608.61
3/1/2010	05w-i	Y	411741.80	2522823.59	5.9	1	4.9	614.65	613.65	608.75
3/1/2010	05w-j	N	411738.73	2522794.24	6.3	0.5	5.8	614.78	614.28	608.48
3/1/2010	05w-k	N	411734.78	2522761.13	6	2.8	3.2	613.56	610.76	607.56
3/1/2010	06w-a	N	411642.24	2522781.13	3.7	1.9	1.8	613.32	611.42	609.62
3/1/2010	06w-b	N	411632.65	2522805.53	4.3	0.9	3.4	613.98	613.08	609.68
3/1/2010	06w-c	Y	411623.97	2522828.95	5.9	0.8	5.1	614.56	613.76	608.66
3/1/2010	06w-d	N	411613.43	2522851.89	6.2	0.5	5.7	615.01	614.51	608.81
3/1/2010	06w-e	N	411600.46	2522873.85	5.8	0	5.8	615.32	615.32	609.52
3/1/2010	06w-f	N	411582.99	2522894.02	7.3	0	7.3	616.15	616.15	608.85
3/1/2010	06w-g	N	411578.11	2522917.72	7.7	0	7.7	616.25	616.25	608.55
3/1/2010	06w-h	Y	411569.50	2522942.53	7.2	0	7.2	616.16	616.16	608.96
3/1/2010	06w-i	N	411558.61	2522971.92	6.5	0.2	6.3	614.81	614.61	608.31
3/1/2010	06w-j	N	411547.61	2523000.87	6.2	1.2	5.0	613.06	611.86	606.86

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Sediment Probing Data Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
2/26/2010	07e-a	N	411378.18	2522905.27	4.5	1	3.5	614.63	613.63	610.13
2/26/2010	07e-b	N	411397.02	2522889.24	4.9	4.3	0.6	612.99	608.69	608.09
2/26/2010	07e-c	N	411416.48	2522873.08	5.3	2	3.3	613.39	611.39	608.09
2/26/2010	07e-d	N	411436.45	2522858.29	5.2	1.8	3.4	613.80	612.00	608.60
2/26/2010	07e-e	N	411455.99	2522842.34	6.3	0.1	6.2	614.82	614.72	608.52
2/26/2010	07e-f	N	411475.32	2522826.31	7.2	0.7	6.5	614.81	614.11	607.61
2/26/2010	07e-g	Y	411494.56	2522810.19	8.3	1	7.3	614.82	613.82	606.52
2/26/2010	07e-h	N	411513.69	2522793.99	4.5	1.5	3.0	614.45	612.95	609.95
2/26/2010	07e-i	N	411532.78	2522778.28	6.5	1.7	4.8	613.76	612.06	607.26
2/26/2010	07e-j	N	411552.24	2522761.87	4.3	1.7	2.6	613.72	612.02	609.42
2/26/2010	08e-a	N	411289.10	2522801.12	4.4	2.2	2.2	613.11	610.91	608.71
2/26/2010	08e-b	N	411309.06	2522786.06	4.4	2.7	1.7	613.18	610.48	608.78
2/26/2010	08e-c	Y	411329.51	2522771.41	4.5	2.8	1.7	613.22	610.42	608.72
2/26/2010	08e-d	N	411349.34	2522756.39	4	2.7	1.3	613.21	610.51	609.21
2/26/2010	08e-e	N	411368.72	2522741.04	4.6	1.6	3.0	613.75	612.15	609.15
2/26/2010	08e-f	N	411389.39	2522726.46	5	2	3.0	613.74	611.74	608.74
2/26/2010	08e-g	N	411409.74	2522712.71	4.7	1.6	3.1	614.09	612.49	609.39
2/26/2010	08e-h	Y	411430.23	2522697.09	5.5	1.4	4.1	614.43	613.03	608.93
2/26/2010	08e-i	N	411450.30	2522682.63	6.9	0.9	6.0	614.36	613.46	607.46
2/26/2010	08e-j	N	411470.49	2522667.35	5.2	1.4	3.8	614.25	612.85	609.05
3/18/2010	09s-a2	N	411744.09	2522735.34	4.7	2.8	1.9	614.58	611.78	609.88
3/18/2010	09s-b2	N	411768.17	2522741.84	4.3	2.3	2.0	614.58	612.28	610.28
3/18/2010	09s-c2	N	411792.61	2522748.30	6.2	3.7	2.5	614.58	610.88	608.38
3/18/2010	09s-d2	N	411814.84	2522748.91	5.6	4.6	1.0	614.58	609.98	608.98
3/18/2010	09s-e2	N	411840.05	2522747.53	5.8	3.9	1.9	614.58	610.68	608.78
3/18/2010	09s-f2	N	411865.04	2522748.01	5.1	3.5	1.6	614.58	611.08	609.48
3/18/2010	09s-g2	N	411888.10	2522748.24	3.7	2.9	0.8	614.58	611.68	610.88
3/18/2010	09s-h2	N	411908.67	2522746.59	0.3	0	0.3	614.58	614.58	614.28
3/18/2010	10s-a	N	411751.21	2522566.05	6.2	5.8	0.4	614.50	608.70	608.30
3/18/2010	10s-b	N	411772.56	2522554.98	6.35	5.5	0.9	614.50	609.00	608.15
3/18/2010	10s-c	N	411790.75	2522539.96	4.8	3.8	1.0	614.50	610.70	609.70
3/18/2010	10s-d	Y	411808.63	2522529.43	4.1	2.9	1.2	614.50	611.60	610.40
3/18/2010	11n-a	N	411692.71	2522378.67	5.7	5	0.7	614.46	609.46	608.76
3/18/2010	11n-b	N	411688.75	2522402.39	6.3	5.4	0.9	614.46	609.06	608.16
3/18/2010	11n-c	N	411684.80	2522426.90	6.6	6	0.6	614.46	608.46	607.86
3/18/2010	11n-d	N	411679.27	2522453.78	5.4	5.1	0.3	614.46	609.36	609.06
3/18/2010	11n-e	Y	411674.79	2522470.19	2.5	1.6	0.9	614.46	612.86	611.96
3/18/2010	12s-a	N	411597.04	2522324.91	5.7	3.9	1.8	614.45	610.55	608.75
3/18/2010	12s-b	Y	411623.92	2522325.70	7.3	4.6	2.7	614.45	609.85	607.15
3/18/2010	12s-c	N	411648.43	2522326.49	5.9	4.8	1.1	614.45	609.65	608.55
3/18/2010	12s-d	N	411673.73	2522326.49	3.1	2.7	0.4	614.45	611.75	611.35
3/3/2010	13e-a	Y	411576.86	2522493.49	6.1	0.8	5.3	613.83	613.03	607.73
3/3/2010	13e-b	N	411560.29	2522473.95	5.7	0.9	4.8	613.73	612.83	608.03
3/3/2010	13e-c	N	411545.10	2522453.65	5.6	1.2	4.4	614.04	612.84	608.44
3/3/2010	13e-d	N	411527.98	2522434.36	4.7	1.6	3.1	613.31	611.71	608.61
3/18/2010	13w-a	N	411495.05	2522384.99	5.7	4.8	0.9	614.42	609.62	608.72
3/18/2010	13w-b	N	411505.33	2522402.39	6	5.6	0.4	614.42	608.82	608.42
3/18/2010	13w-c	N	411517.98	2522418.20	5.4	3.2	2.2	614.42	611.22	609.02
3/2/2010	14e-a	N	411503.00	2522574.82	3.7	1.4	2.3	613.47	612.07	609.77
3/2/2010	14e-b	N	411487.08	2522555.65	5.3	0.8	4.5	614.34	613.54	609.04

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Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/2/2010	14e-c	Y	411471.87	2522535.83	5.4	0.9	4.5	614.51	613.61	609.11
3/2/2010	14e-d	N	411456.52	2522516.95	5.2	1.1	4.1	614.47	613.37	609.27
3/2/2010	14e-e	N	411441.18	2522496.28	4.8	1.1	3.7	614.11	613.01	609.31
3/18/2010	14s-a	N	411397.55	2522436.57	5.6	4.7	0.9	614.40	609.70	608.80
3/18/2010	14s-b	N	411411.44	2522457.40	5.8	5.6	0.2	614.40	608.80	608.60
3/18/2010	14s-c	N	411426.20	2522476.50	5.4	2.9	2.5	614.40	611.50	609.00
2/26/2010	15e-a	Y	411265.13	2522777.58	6.4	2.5	3.9	613.20	610.70	606.80
2/26/2010	15e-b	N	411269.00	2522752.68	6	2.3	3.7	613.19	610.89	607.19
2/26/2010	15e-c	N	411271.65	2522728.03	5.5	2.7	2.8	613.17	610.47	607.67
2/26/2010	15e-d	N	411274.67	2522703.06	4.1	2.6	1.5	613.17	610.57	609.07
2/26/2010	15e-e	N	411277.62	2522678.15	3.5	2.4	1.1	613.15	610.75	609.65
2/26/2010	15e-f	N	411280.60	2522653.25	3.8	1.8	2.0	613.27	611.47	609.47
2/26/2010	15e-g	N	411283.88	2522628.21	5.3	1.5	3.8	613.91	612.41	608.61
2/26/2010	15e-h	N	411286.71	2522602.88	5.1	1.2	3.9	614.40	613.20	609.30
2/26/2010	15e-i	Y	411289.35	2522578.67	5.3	1.3	4.0	614.64	613.34	609.34
2/26/2010	15e-j	N	411291.10	2522553.80	4.8	1.9	2.9	614.00	612.10	609.20
3/25/2010	15w-a	Y	411307.87	2522443.44	3.9	2.4	1.5	613.21	610.81	609.31
3/25/2010	15w-b	N	411310.32	2522484.23	3.9	3.3	0.6	613.21	609.91	609.31
3/25/2010	15w-c	N	411305.42	2522508.73	3.2	2.7	0.5	613.21	610.51	610.01
3/25/2010	15w-d	N	411300.86	2522539.21	3.15	2.6	0.6	613.21	610.61	610.06
3/25/2010	15w-e	N	411299.61	2522558.63	4.25	0	4.3	613.21	613.21	608.96
2/26/2010	16e-a	Y	411105.48	2522786.88	7.5	0.2	7.3	614.78	614.58	607.28
2/26/2010	16e-b	N	411107.83	2522762.39	4.7	0.8	3.9	614.53	613.73	609.83
2/26/2010	16e-c	N	411109.72	2522737.08	3.4	1.1	2.3	613.35	612.25	609.95
2/26/2010	16e-d	N	411112.40	2522712.30	5.1	1.2	3.9	613.10	611.90	608.00
2/26/2010	16e-e	N	411114.93	2522687.16	3.2	1.9	1.3	613.10	611.20	609.90
2/26/2010	16e-f	N	411118.01	2522661.89	3.8	2.7	1.1	613.23	610.53	609.43
2/26/2010	16e-g	N	411120.24	2522637.46	3.6	2.4	1.2	613.03	610.63	609.43
3/3/2010	16w-a	N	411142.86	2522402.77	4.1	0	4.1	614.63	614.63	610.53
3/3/2010	16w-b	N	411140.97	2522428.71	4.6	0	4.6	614.35	614.35	609.75
3/3/2010	16w-c	Y	411138.92	2522453.30	4.6	0	4.6	614.14	614.14	609.54
3/25/2010	16w-d	N	411137.52	2522485.80	2.9	2.2	0.7	613.18	610.98	610.28
3/25/2010	16w-e	N	411133.20	2522510.52	7.3	3.1	4.2	613.18	610.08	605.88
3/25/2010	16w-f	N	411131.74	2522541.07	5.9	2.2	3.7	613.18	610.98	607.28
3/25/2010	16w-g	N	411130.88	2522566.33	3.1	1.3	1.8	613.18	611.88	610.08
3/25/2010	16w-h	Y	411128.83	2522581.46	5.65	1.6	4.1	613.18	611.58	607.53
3/25/2010	16w-i	N	411132.16	2522606.40	4.1	2	2.1	613.18	611.18	609.08
2/25/2010	17e-a	N	410957.79	2522817.13	4.2	0.4	3.8	614.46	614.06	610.26
2/25/2010	17e-b	N	410958.93	2522792.16	4.3	0.5	3.8	614.37	613.87	610.07
2/25/2010	17e-c	N	410959.91	2522766.91	4.9	0.6	4.3	614.24	613.64	609.34
2/25/2010	17e-d	Y	410961.35	2522742.31	5	0.5	4.5	614.24	613.74	609.24
2/25/2010	17e-e	N	410962.94	2522716.90	4.8	0.7	4.1	613.85	613.15	609.05
2/25/2010	17e-f	N	410964.02	2522692.47	4.1	0.6	3.5	613.29	612.69	609.19
2/25/2010	17e-g	N	410964.99	2522667.16	4.1	1.6	2.5	612.77	611.17	608.67
3/3/2010	17w-a	N	410982.24	2522312.26	4.2	0	4.2	614.67	614.67	610.47
3/3/2010	17w-b	N	410980.56	2522337.79	6.4	0	6.4	614.55	614.55	608.15
3/3/2010	17w-c	N	410979.15	2522362.41	5.4	0.1	5.3	614.66	614.56	609.26
3/3/2010	17w-d	N	410978.56	2522387.54	6.6	0	6.6	614.33	614.33	607.73
3/3/2010	17w-e	Y	410976.82	2522411.71	6.9	0.1	6.8	614.33	614.23	607.43
3/26/2010	17w-e2	N	410969.54	2522424.15	3.4	0.6	2.8	613.20	612.60	609.80

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Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/26/2010	17w-f	N	410969.95	2522450.01	2.7	2.45	0.3	613.20	610.75	610.50
3/26/2010	17w-g	N	410967.22	2522476.14	3.15	2.25	0.9	613.20	610.95	610.05
3/26/2010	17w-h	N	410968.24	2522503.38	3.3	2.2	1.1	613.20	611.00	609.90
3/26/2010	17w-i	N	410967.68	2522529.91	3.5	2.2	1.3	613.20	611.00	609.70
3/26/2010	17w-j	N	410970.88	2522557.54	3.35	1.9	1.5	613.20	611.30	609.85
3/26/2010	17w-k	N	410972.29	2522581.74	3.6	2.2	1.4	613.20	611.00	609.60
3/26/2010	17w-l	Y	410972.16	2522613.61	5.2	1.9	3.3	613.20	611.30	608.00
3/26/2010	17w-m	N	410969.75	2522639.06	3.75	1.75	2.0	613.20	611.45	609.45
3/26/2010	17w-n	N	410966.65	2522667.41	3.35	1.5	1.9	613.20	611.70	609.85
3/26/2010	17w-o	N	410964.34	2522691.23	3.55	0.7	2.9	613.20	612.50	609.65
2/25/2010	18e-a	N	410803.70	2522850.06	3.9	0.4	3.5	614.68	614.28	610.78
2/25/2010	18e-b	N	410800.72	2522825.66	6.1	1.1	5.0	614.28	613.18	608.18
2/25/2010	18e-c	N	410797.56	2522800.81	4.3	0.6	3.7	614.38	613.78	610.08
2/25/2010	18e-d	N	410794.61	2522775.84	5	0.2	4.8	614.51	614.31	609.51
2/25/2010	18e-e	Y	410791.53	2522750.74	6	0.4	5.6	614.51	614.11	608.51
2/25/2010	18e-f	N	410788.67	2522726.31	8.2	0.5	7.7	614.39	613.89	606.19
2/25/2010	18e-g	N	410785.48	2522701.58	4.2	1.1	3.1	613.87	612.77	609.67
2/25/2010	18e-h	N	410781.88	2522676.82	4.9	1.6	3.3	612.78	611.18	607.88
3/26/2010	18e-i	Y	410790.99	2522664.68	3.8	1.8	2.0	613.25	611.45	609.45
3/26/2010	18e-j	N	410788.25	2522638.60	2.9	1.2	1.7	613.25	612.05	610.35
3/26/2010	18e-k	N	410784.70	2522611.05	2.9	1.2	1.7	613.25	612.05	610.35
3/26/2010	18e-l	N	410784.47	2522584.35	2.9	0.9	2.0	613.25	612.35	610.35
3/4/2010	18w-a	N	410735.30	2522293.72	4.1	0	4.1	614.78	614.78	610.68
3/4/2010	18w-b	Y	410738.61	2522323.96	4.8	0	4.8	614.42	614.42	609.62
3/4/2010	18w-c	N	410741.18	2522348.24	4.2	0.2	4.0	613.95	613.75	609.75
3/26/2010	18w-d	N	410753.88	2522388.88	3.2	2.6	0.6	613.25	610.65	610.05
3/26/2010	18w-e	N	410756.33	2522415.83	2.7	2.5	0.2	613.25	610.75	610.55
3/26/2010	18w-f	N	410759.05	2522439.77	3.9	2.25	1.7	613.25	611.00	609.35
3/26/2010	18w-g	N	410761.55	2522466.25	3.55	1.9	1.7	613.25	611.35	609.70
3/26/2010	18w-h	N	410764.85	2522493.80	3	1.8	1.2	613.25	611.45	610.25
3/26/2010	18w-i	N	410769.16	2522521.36	3.25	1.45	1.8	613.25	611.80	610.00
3/26/2010	18w-j	N	410771.65	2522546.94	2.7	1.2	1.5	613.25	612.05	610.55
2/25/2010	19e-a	N	410612.65	2522817.93	4.3	0.6	3.7	614.30	613.70	610.00
2/25/2010	19e-b	Y	410608.35	2522793.78	11.5	0.9	10.6	613.83	612.93	602.33
2/25/2010	19e-c	N	410603.63	2522768.88	3.2	0.8	2.4	613.96	613.16	610.76
2/25/2010	19e-d	N	410598.67	2522744.39	4.2	2	2.2	612.59	610.59	608.39
2/26/2010	19e-e	N	410594.28	2522719.83	3.5	2.1	1.4	612.50	610.40	609.00
2/26/2010	19e-f	N	410589.70	2522695.01	3.5	0.7	2.8	613.44	612.74	609.94
2/26/2010	19e-g	N	410585.36	2522670.48	4.3	0.4	3.9	613.88	613.48	609.58
2/26/2010	19e-h	N	410580.38	2522645.95	4.2	0.5	3.7	613.79	613.29	609.59
2/26/2010	19e-i	Y	410575.75	2522621.67	5.2	0.6	4.6	613.81	613.21	608.61
2/26/2010	19e-j	N	410571.30	2522597.11	4.4	0.6	3.8	613.88	613.28	609.48
2/26/2010	19e-k	N	410566.80	2522572.19	4.3	0.5	3.8	613.69	613.19	609.39
2/26/2010	19e-l	N	410561.96	2522547.94	4.4	0.6	3.8	613.42	612.82	609.02
2/26/2010	19e-m	N	410557.35	2522522.98	3.2	0.4	2.8	613.15	612.75	609.95
2/26/2010	19e-n	Y	410552.72	2522498.51	3.9	1.3	2.6	612.86	611.56	608.96
2/26/2010	19e-o	N	410548.06	2522474.05	3.3	1.3	2.0	612.59	611.29	609.29
2/26/2010	19e-p	N	410543.62	2522449.62	3	2.2	0.8	612.50	610.30	609.50
2/26/2010	19e-q	N	410539.14	2522424.97	3	2.4	0.6	612.54	610.14	609.54
2/26/2010	19e-r	N	410534.47	2522400.55	5	2.9	2.1	612.45	609.55	607.45

TABLE 1
Sediment Probing Data Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
4/14/2010	19e-s	Y	410530.36	2522378.41	3.2	1.3	1.9	613.62	612.32	610.42
4/24/2010	20e-a	N	410390.31	2522848.46	3.9	0.5	3.4	614.57	614.07	610.67
4/24/2010	20e-b	N	410387.00	2522811.41	3.5	1.3	2.2	612.69	611.39	609.19
4/24/2010	20e-c	N	410384.93	2522786.53	4	1.6	2.4	612.44	610.84	608.44
4/24/2010	20e-d	Y	410382.94	2522761.42	4.3	0.6	3.7	614.21	613.61	609.91
4/24/2010	20e-e	N	410380.91	2522736.85	4.5	0.4	4.1	614.43	614.03	609.93
4/24/2010	20e-f	N	410379.17	2522711.34	4.6	0.4	4.2	614.51	614.11	609.91
4/24/2010	20e-g	N	410377.41	2522686.36	4.8	0.4	4.4	614.43	614.03	609.63
4/24/2010	20e-h	N	410375.58	2522661.72	4.5	0.3	4.2	614.28	613.98	609.78
4/24/2010	20e-i	Y	410373.71	2522636.69	5.1	0.4	4.7	614.24	613.84	609.14
4/24/2010	20e-j	N	410371.63	2522612.07	4.7	0.5	4.2	614.13	613.63	609.43
4/24/2010	20e-k	N	410369.96	2522587.03	4.7	0.6	4.1	613.94	613.34	609.24
4/24/2010	20e-l	N	410368.15	2522561.89	3.9	0.7	3.2	613.51	612.81	609.61
4/24/2010	20e-m	Y	410365.99	2522537.29	3.4	0.5	2.9	612.73	612.23	609.33
4/24/2010	20e-n	N	410364.32	2522512.22	3.2	1.8	1.4	612.45	610.65	609.25
4/24/2010	20e-o	N	410362.16	2522487.47	3.5	2.3	1.2	612.49	610.19	608.99
4/24/2010	20e-p	N	410360.15	2522462.30	3.9	2.4	1.5	612.40	610.00	608.50
4/24/2010	20e-q	N	410358.44	2522437.53	4.9	2.8	2.1	612.36	609.56	607.46
3/4/2010	20w-a	Y	410356.60	2522412.46	6.9	0.6	6.3	613.85	613.25	606.95
2/24/2010	21e-a	N	410163.92	2522779.24	3.5	2	1.5	613.86	611.86	610.36
2/24/2010	21e-b	N	410167.98	2522754.08	3.4	1.9	1.5	612.54	610.64	609.14
2/24/2010	21e-c	N	410172.48	2522728.98	4.1	2.1	2.0	612.65	610.55	608.55
2/24/2010	21e-d	N	410175.18	2522705.87	4.3	0.7	3.6	613.62	612.92	609.32
2/24/2010	21e-e	N	410181.51	2522679.96	4.8	0.5	4.3	614.07	613.57	609.27
2/24/2010	21e-f	Y	410186.37	2522655.28	4.9	0.4	4.5	614.19	613.79	609.29
2/24/2010	21e-g	N	410190.75	2522630.81	4.9	0.4	4.5	614.20	613.80	609.30
2/24/2010	21e-h	N	410195.45	2522606.35	5.2	0.4	4.8	614.20	613.80	609.00
2/24/2010	21e-i	N	410200.49	2522582.13	5	0.5	4.5	614.03	613.53	609.03
2/24/2010	21e-j	Y	410204.79	2522557.33	4.3	0.3	4.0	613.38	613.08	609.08
2/24/2010	21e-k	N	410209.55	2522532.60	3.2	0.4	2.8	612.42	612.02	609.22
2/24/2010	21e-l	N	410214.23	2522508.34	3.1	2.3	0.8	612.42	610.12	609.32
2/24/2010	21e-m	N	410218.47	2522483.46	3.4	2	1.4	612.44	610.44	609.04
2/24/2010	21e-n	N	410223.30	2522458.82	4	2.1	1.9	612.39	610.29	608.39
2/24/2010	21e-o	N	410227.85	2522434.47	5	2.6	2.4	612.49	609.89	607.49
2/24/2010	21e-p	N	410233.07	2522410.06	3.8	2.1	1.7	612.40	610.30	608.60
2/24/2010	21e-q	N	410236.92	2522389.63	3.4	0.6	2.8	613.78	613.18	610.38
2/27/2010	22s-a	N	411431.29	2523015.34	2.1	1.2	0.9	614.58	613.38	612.48
2/27/2010	22s-b	N	411453.34	2523028.02	4.8	1.1	3.7	614.58	613.48	609.78
2/27/2010	22s-c	N	411474.85	2523040.23	4.3	1.5	2.8	613.83	612.33	609.53
2/27/2010	22s-d	N	411497.07	2523052.61	4.2	1.4	2.8	614.06	612.66	609.86
2/27/2010	22s-e	N	411518.15	2523064.88	4.7	1.1	3.6	614.30	613.20	609.60
2/27/2010	22s-f	N	411540.22	2523076.84	4.4	1.7	2.7	614.09	612.39	609.69
2/27/2010	22s-g	Y	411558.23	2523086.49	4.7	0.6	4.1	614.43	613.83	609.73
2/27/2010	22s-h	N	411576.16	2523097.06	1.6	0.3	1.3	614.17	613.87	612.57
2/27/2010	23n-a	N	411509.22	2523210.05	5.4	0.8	4.6	614.49	613.69	609.09
2/27/2010	23n-b	N	411488.46	2523196.01	5.2	0.1	5.1	615.08	614.98	609.88
2/27/2010	23n-c	Y	411468.28	2523181.40	5.1	0	5.1	615.19	615.19	610.09
2/27/2010	23n-d	N	411447.74	2523167.57	4.7	0	4.7	614.79	614.79	610.09
2/27/2010	23n-e	N	411427.04	2523153.39	4.7	1	3.7	614.33	613.33	609.63
2/27/2010	23n-f	N	411406.83	2523139.01	4.9	1.9	3.0	613.71	611.81	608.81

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Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
2/27/2010	23n-g	N	411386.72	2523124.93	3.5	0.9	2.6	614.65	613.75	611.15
2/27/2010	24s-a	N	411265.39	2523275.02	2.7	0.4	2.3	614.57	614.17	611.87
2/27/2010	24s-b	N	411284.46	2523292.24	3.3	1.2	2.1	613.29	612.09	609.99
2/27/2010	24s-c	N	411303.07	2523308.45	4.1	1.1	3.0	613.53	612.43	609.43
2/27/2010	24s-d	Y	411322.11	2523324.44	5.8	0.7	5.1	614.68	613.98	608.88
2/27/2010	24s-e	N	411341.57	2523340.48	5.6	0.5	5.1	614.73	614.23	609.13
2/27/2010	24s-f	N	411360.55	2523356.60	5.4	0.5	4.9	614.58	614.08	609.18
2/27/2010	24s-g	N	411379.95	2523372.98	5.3	0.4	4.9	614.69	614.29	609.39
2/27/2010	25w-a	N	411132.56	2523392.35	3.6	0.4	3.2	614.86	614.46	611.26
2/27/2010	25w-b	N	411144.72	2523410.69	4.5	0.8	3.7	614.52	613.72	610.02
2/27/2010	25w-c	N	411158.55	2523431.33	4.3	0.7	3.6	614.44	613.74	610.14
2/27/2010	25w-d	N	411172.53	2523451.71	3.9	0.6	3.3	614.22	613.62	610.32
2/27/2010	25w-e	Y	411187.33	2523472.43	4.8	0.4	4.4	614.12	613.72	609.32
2/27/2010	25w-f	N	411201.34	2523492.59	3.2	2.4	0.8	613.63	611.23	610.43
2/27/2010	25w-g	N	411215.13	2523514.01	3.5	0.8	2.7	614.06	613.26	610.56
3/3/2010	26e-a	N	411059.95	2523626.32	2.7	0.6	2.1	613.03	612.43	610.33
2/27/2010	26w-a	N	410952.77	2523490.72	3.8	0	3.8	615.19	615.19	611.39
3/2/2010	26w-b	N	410966.82	2523512.03	4.8	0	4.8	614.71	614.71	609.91
3/2/2010	26w-c	N	410980.35	2523532.34	4.7	0	4.7	614.45	614.45	609.75
3/2/2010	26w-d	Y	410993.70	2523553.78	4.6	0	4.6	614.38	614.38	609.78
3/2/2010	26w-e	N	411007.70	2523575.20	4.2	0	4.2	614.21	614.21	610.01
3/2/2010	26w-f	N	411020.79	2523595.80	3.5	1.8	1.7	613.91	612.11	610.41
3/2/2010	26w-g	N	411043.85	2523607.49	4.5	0.3	4.2	613.76	613.46	609.26
3/3/2010	27e-a	N	410839.69	2523702.78	2.6	0.5	2.1	612.44	611.94	609.84
2/27/2010	27w-a	Y	410798.76	2523557.19	10	0	10.0	615.19	615.19	605.19
2/27/2010	27w-b	N	410805.92	2523580.96	4.9	0.2	4.7	614.86	614.66	609.96
2/27/2010	27w-c	N	410812.10	2523605.54	7.9	0.5	7.4	614.54	614.04	606.64
2/27/2010	27w-d	N	410818.37	2523628.98	5.1	0.7	4.4	614.27	613.57	609.17
2/27/2010	27w-e	N	410825.20	2523654.00	4.2	1.1	3.1	613.89	612.79	609.69
2/27/2010	27w-f	N	410831.90	2523677.92	2.6	0.5	2.1	612.97	612.47	610.37
3/3/2010	28e-a	N	410619.77	2523702.61	0.8	0.7	0.1	612.82	612.12	612.02
2/27/2010	28w-a	Y	410628.14	2523591.79	5.4	0	5.4	615.02	615.02	609.62
2/27/2010	28w-b	N	410626.84	2523614.58	5.5	0.6	4.9	614.30	613.70	608.80
2/27/2010	28w-c	N	410625.04	2523639.30	5.3	1.1	4.2	613.36	612.26	608.06
2/27/2010	28w-d	N	410623.23	2523664.48	3.4	0.9	2.5	612.81	611.91	609.41
3/25/2010	29e-b	N	410430.74	2523610.77	4.9	2	2.9	612.95	610.95	608.05
3/2/2010	29w-a	Y	410449.46	2523560.74	3.6	0	3.6	614.75	614.75	611.15
3/2/2010	29w-b	N	410439.39	2523583.94	2.4	0	2.4	613.07	613.07	610.67
3/3/2010	29w-d	N	410415.59	2523639.73	4	0.9	3.1	612.77	611.87	608.77
3/2/2010	30w-a	N	410299.96	2523463.01	2.8	0	2.8	615.31	615.31	612.51
3/2/2010	30w-b	Y	410283.61	2523482.81	5.2	0	5.2	614.16	614.16	608.96
3/2/2010	30w-c	N	410267.63	2523501.96	2.9	1.7	1.2	612.45	610.75	609.55
3/2/2010	30w-d	N	410253.98	2523518.49	2.4	2	0.4	612.44	610.44	610.04
3/2/2010	30w-e	N	410238.15	2523537.25	4	1	3.0	613.12	612.12	609.12
3/2/2010	31w-a	Y	410197.84	2523326.86	7.3	0	7.3	615.66	615.66	608.36
3/2/2010	31w-b	N	410175.49	2523338.98	5.6	0	5.6	615.01	615.01	609.41
3/2/2010	31w-c	N	410153.48	2523350.01	5.4	0.2	5.2	613.41	613.21	608.01
3/2/2010	31w-d	N	410130.84	2523361.03	3.9	2	1.9	612.40	610.40	608.50
3/2/2010	31w-e	N	410108.65	2523372.32	2.6	1	1.6	613.49	612.49	610.89
2/24/2010	32n-a	N	410159.05	2523160.21	6.2	0	6.2	615.63	615.63	609.43

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Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
2/24/2010	32n-b	N	410134.53	2523158.35	7	0.1	6.9	615.76	615.66	608.76
2/24/2010	32n-c	Y	410109.29	2523156.49	9.2	1.2	8.0	613.92	612.72	604.72
2/24/2010	32n-d	N	410084.34	2523154.54	3.1	2.4	0.7	612.43	610.03	609.33
2/24/2010	32s-a	N	410051.02	2523152.11	0	0	0.0	613.67	613.67	613.67
2/24/2010	33n-a	N	410217.06	2522990.66	4.2	0.2	4.0	614.86	614.66	610.66
2/24/2010	33n-b	N	410193.77	2522981.09	5.7	0.3	5.4	614.86	614.56	609.16
2/24/2010	33n-c	N	410171.78	2522969.71	7.1	0.2	6.9	614.89	614.69	607.79
2/24/2010	33n-d	N	410148.25	2522959.92	7	0.3	6.7	614.49	614.19	607.49
2/24/2010	33n-e	Y	410124.67	2522953.43	9.5	0.4	9.1	613.18	612.78	603.68
2/24/2010	33n-f	N	410099.90	2522950.67	5.9	3	2.9	612.31	609.31	606.41
2/24/2010	33s-a	N	410070.31	2522943.53	7.7	0.7	7.0	613.90	613.20	606.20
2/24/2010	34n-a	N	410357.72	2522869.18	7	0.3	6.7	614.83	614.53	607.83
2/24/2010	34n-b	N	410338.36	2522862.66	5	0.6	4.4	614.49	613.89	609.49
2/24/2010	34n-c	N	410314.25	2522854.69	4.1	0.7	3.4	614.37	613.67	610.27
2/24/2010	34n-d	Y	410290.31	2522846.30	4.4	0.4	4.0	614.38	613.98	609.98
2/24/2010	34n-e	N	410267.40	2522838.34	5.9	0.6	5.3	614.36	613.76	608.46
2/24/2010	34n-f	N	410243.75	2522830.81	5.4	0.4	5.0	614.47	614.07	609.07
2/24/2010	34n-g	N	410219.63	2522823.52	4.5	0.4	4.1	614.59	614.19	610.09
2/24/2010	34n-h	Y	410195.72	2522815.41	5.7	0.4	5.3	614.66	614.26	608.96
2/24/2010	34n-i	N	410172.25	2522807.66	6.9	0.5	6.4	614.35	613.85	607.45
2/24/2010	34n-j	N	410148.28	2522800.14	3.8	0.6	3.2	613.50	612.90	609.70
2/24/2010	34n-k	N	410124.49	2522792.05	4.6	0.8	3.8	612.36	611.56	607.76
3/19/2010	35e-a	Y	410060.09	2522437.37	6	4	2.0	614.23	610.23	608.23
3/19/2010	35e-b1	N	410043.19	2522465.75	4.3	4.2	0.1	614.23	610.03	609.93
3/19/2010	35e-c1	N	410027.89	2522487.29	5	4.1	0.9	614.23	610.13	609.23
3/19/2010	35e-d1	N	410018.09	2522511.46	5.4	4.9	0.5	614.23	609.33	608.83
3/19/2010	35e-e1	N	410000.82	2522532.82	5	4.1	0.9	614.23	610.13	609.23
3/19/2010	35e-f1	N	410000.80	2522558.35	2.2	1.9	0.3	614.23	612.33	612.03
3/4/2010	35w-a	Y	410181.90	2522358.71	4	0	4.0	614.57	614.57	610.57
3/4/2010	35w-b	N	410167.13	2522378.38	4.5	1.6	2.9	612.40	610.80	607.90
3/4/2010	35w-c	N	410150.32	2522397.60	2.8	2.2	0.6	612.14	609.94	609.34
3/4/2010	35w-d	N	410132.58	2522418.89	3.3	2.1	1.2	612.14	610.04	608.84
3/4/2010	36n-a	N	410134.26	2522297.88	5.4	0	5.4	615.29	615.29	609.89
3/4/2010	36n-b	N	410105.59	2522289.73	5.5	0	5.5	614.77	614.77	609.27
3/4/2010	36n-c	Y	410082.21	2522282.84	6.7	0	6.7	614.68	614.68	607.98
3/4/2010	36n-d	N	410058.51	2522275.77	6.2	0	6.2	614.78	614.78	608.58
3/4/2010	36n-e	N	410034.27	2522268.77	5.4	0	5.4	614.94	614.94	609.54
3/19/2010	36s-a	N	409861.33	2522214.28	3.4	1.9	1.5	614.23	612.33	610.83
3/19/2010	36s-b	Y	409889.62	2522217.83	4.65	1.05	3.6	614.23	613.18	609.58
3/19/2010	36s-c	N	409905.99	2522230.15	4.6	1.4	3.2	614.23	612.83	609.63
3/19/2010	36s-d	N	409930.28	2522238.87	4.6	1.8	2.8	614.23	612.43	609.63
3/19/2010	36s-e	N	409957.61	2522247.41	4.9	2.8	2.1	614.23	611.43	609.33
3/19/2010	36s-f	N	409981.07	2522258.57	5.4	3.5	1.9	614.23	610.73	608.83
3/19/2010	36s-g	N	410005.59	2522266.04	5.5	1.1	4.4	614.23	613.13	608.73
3/19/2010	37e-a	Y	409872.79	2522501.83	4.8	2.9	1.9	614.20	611.30	609.40
3/19/2010	37e-b	N	409866.37	2522473.35	5.5	4.4	1.1	614.20	609.80	608.70
3/19/2010	37e-c	N	409861.86	2522448.39	5.7	5.3	0.4	614.20	608.90	608.50
3/19/2010	37e-d	N	409858.51	2522421.21	6	5.2	0.8	614.20	609.00	608.20
3/19/2010	37e-e	N	409853.57	2522391.12	6.7	4.7	2.0	614.20	609.50	607.50
3/19/2010	37e-f	N	409852.13	2522376.73	6.3	4.6	1.7	614.20	609.60	607.90

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Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/19/2010	37e-g	N	409846.84	2522354.02	5.8	4	1.8	614.20	610.20	608.40
3/19/2010	37e-h	N	409845.69	2522327.82	5.05	3.65	1.4	614.20	610.55	609.15
3/19/2010	37e-i	Y	409846.40	2522299.15	4.8	3.1	1.7	614.20	611.10	609.40
3/19/2010	37e-j	N	409843.17	2522274.00	4.6	2.4	2.2	614.20	611.80	609.60
3/19/2010	37e-k	N	409839.28	2522249.47	4.3	1.8	2.5	614.20	612.40	609.90
3/19/2010	37e-l	N	409838.82	2522220.23	2.4	0.9	1.5	614.20	613.30	611.80
3/26/2010	38w-a	N	409685.88	2522279.80	3.9	1.5	2.4	612.83	611.33	608.93
3/26/2010	38w-b	Y	409698.11	2522305.80	6.1	3.3	2.8	612.83	609.53	606.73
3/26/2010	38w-c	N	409697.87	2522331.36	5.8	4	1.8	612.83	608.83	607.03
3/26/2010	38w-d	N	409697.72	2522360.40	6.1	3.4	2.7	612.83	609.43	606.73
3/26/2010	38w-e	N	409706.14	2522379.95	4	3.2	0.8	612.83	609.63	608.83
3/26/2010	38w-f	N	409706.86	2522412.18	4	3.2	0.8	612.83	609.63	608.83
3/26/2010	38w-g	N	409707.74	2522439.29	3.95	3.7	0.3	612.83	609.13	608.88
3/26/2010	38w-h	N	409703.70	2522470.34	4.45	3.6	0.9	612.83	609.23	608.38
3/26/2010	38w-i	N	409711.43	2522497.49	2.25	1.05	1.2	612.83	611.78	610.58
3/28/2010	39w-a	N	409494.30	2522300.49	0.7	0.6	0.1	612.47	611.87	611.77
3/28/2010	39w-b	N	409494.71	2522326.37	4.7	3.6	1.1	612.47	608.87	607.77
3/28/2010	39w-c	N	409493.41	2522357.77	5.1	4.3	0.8	612.47	608.17	607.37
3/28/2010	39w-d	Y	409498.50	2522384.35	4.9	3.8	1.1	612.47	608.67	607.57
3/28/2010	39w-e	N	409496.67	2522411.36	2.9	2.7	0.2	612.47	609.77	609.57
3/28/2010	39w-f	N	409500.54	2522436.02	3.1	2.5	0.6	612.47	609.97	609.37
3/28/2010	39w-g	N	409502.47	2522463.05	3.4	2.8	0.6	612.47	609.67	609.07
3/28/2010	39w-h	Y	409503.24	2522486.42	3.4	2.4	1.0	612.47	610.07	609.07
3/28/2010	39w-i	N	409503.71	2522509.35	2.6	2	0.6	612.47	610.47	609.87
3/28/2010	40e-a	N	409262.64	2522510.35	1.2	1	0.2	612.27	611.27	611.07
3/28/2010	40e-b	Y	409259.41	2522487.54	3.4	2.1	1.3	612.27	610.17	608.87
3/28/2010	40e-c	N	409258.94	2522464.11	1.8	1.7	0.1	612.27	610.57	610.47
3/28/2010	40e-d	N	409258.94	2522440.56	3.1	2	1.1	612.27	610.27	609.17
3/28/2010	40e-e	N	409257.54	2522419.22	1.9	1.7	0.2	612.27	610.57	610.37
3/28/2010	40e-f	N	409258.53	2522389.43	1.4	1.4	0.0	612.27	610.87	610.87
3/28/2010	40e-g	N	409261.34	2522355.37	2.95	2.45	0.5	612.27	609.82	609.32
3/28/2010	40e-h	Y	409260.14	2522332.81	5.2	3	2.2	612.27	609.27	607.07
3/28/2010	40e-i	N	409257.79	2522308.81	2.6	2	0.6	612.27	610.27	609.67
3/28/2010	41e-a	N	409089.96	2522533.48	0.95	0.85	0.1	612.41	611.56	611.46
3/28/2010	41e-b	N	409093.96	2522510.72	2.3	2.2	0.1	612.41	610.21	610.11
3/28/2010	41e-c	Y	409090.99	2522485.91	3.8	2.8	1.0	612.41	609.61	608.61
3/28/2010	41e-d	N	409094.28	2522455.64	2.4	1.9	0.5	612.41	610.51	610.01
3/28/2010	41e-e	N	409097.81	2522428.26	2.5	2.2	0.3	612.41	610.21	609.91
3/28/2010	41e-f	N	409092.00	2522405.20	3.2	2.5	0.7	612.41	609.91	609.21
3/28/2010	41e-g	N	409092.00	2522379.64	3.5	3	0.5	612.41	609.41	608.91
3/28/2010	41e-h	N	409087.02	2522353.06	3.05	2.7	0.4	612.41	609.71	609.36
3/28/2010	41e-i	N	409101.78	2522321.56	3.9	3.4	0.5	612.41	609.01	608.51
3/28/2010	41e-j	N	409091.61	2522299.30	4.85	2.3	2.6	612.41	610.11	607.56
3/4/2010	42e-a	Y	408935.03	2522563.30	1.25	0.1	1.2	612.89	612.79	611.64
3/28/2010	42e-b	N	408930.34	2522536.90	2.3	2	0.3	612.38	610.38	610.08
3/28/2010	42e-c	N	408920.30	2522512.71	3.85	3.25	0.6	612.38	609.13	608.53
3/28/2010	42e-d	N	408910.56	2522485.99	3.9	3.5	0.4	612.38	608.88	608.48
3/28/2010	42e-e	N	408902.54	2522460.62	3.3	2.9	0.4	612.38	609.48	609.08
3/28/2010	42e-f	N	408895.23	2522437.25	2.8	2.5	0.3	612.38	609.88	609.58
3/28/2010	42e-g	N	408883.77	2522413.31	2.7	2	0.7	612.38	610.38	609.68

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Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/28/2010	42e-h	N	408875.95	2522394.64	2.4	2.1	0.3	612.38	610.28	609.98
3/28/2010	42e-i	Y	408870.36	2522368.67	3.2	1.6	1.6	612.38	610.78	609.18
3/28/2010	42e-j	N	408861.45	2522337.59	1.5	0.4	1.1	612.38	611.98	610.88
3/4/2010	43n-a	Y	408835.60	2522641.20	6.1	0	6.1	613.72	613.72	607.62
3/28/2010	43s-a	Y	408644.54	2522492.92	1.4	0	1.4	613.16	613.16	611.76
3/28/2010	43s-b	N	408663.68	2522505.15	1.85	1.5	0.4	612.36	610.86	610.51
3/28/2010	43s-c	N	408687.14	2522522.25	2.35	2.15	0.2	612.36	610.21	610.01
3/28/2010	43s-d	N	408698.66	2522537.23	2.6	2.5	0.1	612.36	609.86	609.76
3/28/2010	43s-e	N	408722.81	2522554.44	3.2	2.7	0.5	612.36	609.66	609.16
3/28/2010	43s-f	N	408752.95	2522570.08	3.9	3.2	0.7	612.36	609.16	608.46
3/28/2010	43s-g	N	408774.17	2522589.11	2.95	2.15	0.8	612.36	610.21	609.41
3/28/2010	43s-h	N	408790.95	2522601.70	3	2.1	0.9	612.36	610.26	609.36
3/28/2010	43s-i	N	408808.64	2522619.63	2.5	1.5	1.0	612.36	610.86	609.86
3/28/2010	43s-j	N	408844.67	2522643.27	1.2	0.1	1.1	612.36	612.26	611.16
3/4/2010	44n-a	Y	408781.07	2522767.76	4.5	0.1	4.4	614.51	614.41	610.01
3/4/2010	44n-b	N	408756.26	2522764.70	2.9	0.4	2.5	613.37	612.97	610.47
3/29/2010	44n-c	N	408738.92	2522762.66	1.9	0.9	1.0	612.32	611.42	610.42
3/29/2010	44n-d	N	408711.58	2522754.02	3.4	2	1.4	612.32	610.32	608.92
3/29/2010	44n-e	N	408690.37	2522757.66	4.1	3.2	0.9	612.32	609.12	608.22
3/29/2010	44n-f	N	408661.54	2522752.29	4.4	3.9	0.5	612.32	608.42	607.92
3/29/2010	44n-g	N	408634.03	2522746.73	5.2	4.1	1.1	612.32	608.22	607.12
3/29/2010	44n-h	N	408608.40	2522741.54	3.2	3.1	0.1	612.32	609.22	609.12
3/29/2010	44n-i	N	408581.14	2522740.30	2.1	2	0.1	612.32	610.32	610.22
3/29/2010	44n-j	N	408558.20	2522744.48	1.2	1.1	0.1	612.32	611.22	611.12
3/4/2010	45n-a	Y	408792.47	2522936.08	5.4	0	5.4	615.96	615.96	610.56
3/4/2010	45n-b	N	408767.84	2522939.59	3	0	3.0	614.18	614.18	611.18
3/4/2010	45n-c	N	408741.98	2522943.96	2.8	2.6	0.2	612.37	609.77	609.57
3/29/2010	45s-a	N	408588.61	2522966.20	2.3	1.9	0.4	612.27	610.37	609.97
3/29/2010	45s-b	N	408618.57	2522959.32	2.6	2.3	0.3	612.27	609.97	609.67
3/29/2010	45s-c	N	408641.65	2522955.32	2.7	2.6	0.1	612.27	609.67	609.57
3/29/2010	45s-d	N	408664.59	2522948.82	2.6	2.6	0.0	612.27	609.67	609.67
3/29/2010	45s-e	N	408686.34	2522947.97	2.6	2.4	0.2	612.27	609.87	609.67
3/29/2010	45s-f	N	408714.21	2522927.79	2.6	2.4	0.2	612.27	609.87	609.67
3/29/2010	45s-g	N	408740.25	2522938.67	2.5	1.4	1.1	612.27	610.87	609.77
3/4/2010	46n-a	Y	408808.78	2523134.87	4.3	0	4.3	614.62	614.62	610.32
3/31/2010	46n-b	N	408780.50	2523126.84	2.2	1.25	1.0	612.10	610.85	609.90
3/31/2010	46n-c	N	408754.37	2523134.66	2.5	2	0.5	612.10	610.10	609.60
3/31/2010	46n-d	N	408728.49	2523141.21	2.7	2.5	0.2	612.10	609.60	609.40
3/31/2010	46n-e	N	408703.01	2523147.59	2	1.9	0.1	612.10	610.20	610.10
3/31/2010	46n-f	N	408677.72	2523154.31	2.2	2.1	0.1	612.10	610.00	609.90
3/31/2010	46n-g	N	408651.40	2523160.68	2.2	2.2	0.0	612.10	609.90	609.90
3/31/2010	46n-h	N	408625.95	2523166.75	2	1.9	0.1	612.10	610.20	610.10
3/31/2010	46n-i	N	408598.86	2523173.82	0.2	0	0.2	612.70	612.70	612.50
3/31/2010	47s-a	N	408649.19	2523369.90	1.05	0.85	0.2	612.04	611.19	610.99
3/31/2010	47s-b	N	408674.15	2523364.96	2.6	2.3	0.3	612.04	609.74	609.44
3/31/2010	47s-c	N	408700.78	2523360.24	2.1	2.1	0.0	612.04	609.94	609.94
3/31/2010	47s-d	N	408725.89	2523355.53	2	2	0.0	612.04	610.04	610.04
3/31/2010	47s-e	N	408752.85	2523350.30	2.2	2.2	0.0	612.04	609.84	609.84
3/31/2010	47s-f	N	408778.13	2523344.42	2.1	2	0.1	612.04	610.04	609.94
3/31/2010	47s-g	N	408804.63	2523339.23	2.1	2	0.1	612.04	610.04	609.94

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Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/31/2010	47s-h	N	408830.25	2523332.80	2	1.7	0.3	612.04	610.34	610.04
3/31/2010	47s-i	Y	408846.51	2523328.94	1.3	0	1.3	613.14	613.14	611.84
3/31/2010	48n-a	N	408898.65	2523525.98	0.4	0.1	0.3	611.99	611.89	611.59
3/31/2010	48n-b	Y	408872.88	2523531.41	2.1	1	1.1	611.99	610.99	609.89
4/15/2010	48n-b1	N	408889.60	2523527.23	3	1.8	1.2	611.99	610.19	608.99
3/31/2010	48n-c	N	408845.70	2523538.13	2.5	2.3	0.2	611.99	609.69	609.49
3/31/2010	48n-d	N	408770.20	2523549.94	2.3	2.2	0.1	611.99	609.79	609.69
3/31/2010	48n-e	N	408793.52	2523547.82	2.2	2.2	0.0	611.99	609.79	609.79
3/31/2010	48n-f	N	408741.64	2523556.84	2.4	2.4	0.0	611.99	609.59	609.59
3/31/2010	48n-g	N	408820.36	2523541.74	1.8	1.8	0.0	611.99	610.19	610.19
3/31/2010	48n-h	N	408715.16	2523562.87	2.6	2.6	0.0	611.99	609.39	609.39
3/31/2010	48n-i	N	408689.38	2523565.97	1.9	0.8	1.1	611.99	611.19	610.09
3/31/2010	49n-a	Y	409013.20	2523881.82	3	0	3.0	613.69	613.69	610.69
3/31/2010	49n-b	N	408987.27	2523893.90	2.2	1.7	0.5	611.89	610.19	609.69
3/31/2010	49n-c	N	408962.88	2523903.87	2.7	2.2	0.5	611.89	609.69	609.19
3/31/2010	49n-d	N	408938.12	2523914.12	2.5	2.4	0.1	611.89	609.49	609.39
3/31/2010	49n-e	N	408913.69	2523924.32	2.1	2.1	0.0	611.89	609.79	609.79
3/31/2010	49n-f	N	408889.02	2523934.82	2.7	2.6	0.1	611.89	609.29	609.19
3/31/2010	49n-g	N	408864.42	2523944.71	2.7	2.6	0.1	611.89	609.29	609.19
3/31/2010	49n-h	N	408839.35	2523954.61	2.1	2.1	0.0	611.89	609.79	609.79
3/31/2010	49n-i	N	408816.41	2523964.15	2.4	2.05	0.4	611.89	609.84	609.49
3/31/2010	50n-a	Y	409153.52	2524220.88	1.1	0	1.1	611.89	611.89	610.79
3/31/2010	50n-b	N	409126.18	2524225.16	2.05	0.8	1.3	611.79	610.99	609.74
3/31/2010	50n-c	N	409100.30	2524228.66	2.15	1.7	0.5	611.79	610.09	609.64
3/31/2010	50n-d	N	409073.05	2524232.85	2.1	2	0.1	611.79	609.79	609.69
3/31/2010	50n-e	N	409046.77	2524236.14	2.4	2.2	0.2	611.79	609.59	609.39
3/31/2010	50n-f	N	409020.73	2524239.38	2.1	2.1	0.0	611.79	609.69	609.69
3/31/2010	50n-g	N	408995.02	2524242.55	2.6	2.5	0.1	611.79	609.29	609.19
3/31/2010	50n-h	N	408968.76	2524246.58	2.6	2.6	0.0	611.79	609.19	609.19
3/31/2010	50n-i	N	408942.26	2524249.07	2.9	2.8	0.1	611.79	608.99	608.89
3/31/2010	50n-j	Y	408918.39	2524251.93	1.4	0.8	0.6	611.79	610.99	610.39
3/31/2010	51n-a	N	409156.07	2524548.54	2.3	2	0.3	611.72	609.72	609.42
3/31/2010	51n-b	Y	409182.63	2524546.52	2.25	1.7	0.6	611.72	610.02	609.47
3/31/2010	51n-c	N	409129.50	2524550.96	2	2	0.0	611.72	609.72	609.72
3/31/2010	51n-d	N	409104.09	2524553.91	2.7	2.4	0.3	611.72	609.32	609.02
3/31/2010	51n-e	N	409077.29	2524556.29	2.5	2	0.5	611.72	609.72	609.22
3/31/2010	51n-f	N	409051.37	2524557.51	2.4	2.3	0.1	611.72	609.42	609.32
3/31/2010	51n-g	N	409024.77	2524559.12	2.1	2.1	0.0	611.72	609.62	609.62
3/31/2010	51n-h	N	408996.99	2524561.60	2.1	2.1	0.0	611.72	609.62	609.62
3/31/2010	51n-i	Y	408972.17	2524562.98	2.1	1.3	0.8	611.72	610.42	609.62
3/30/2010	52n-a	N	409190.04	2524674.56	1.8	1.4	0.4	611.74	610.34	609.94
3/30/2010	52n-b	Y	409164.41	2524675.43	3.45	1.7	1.8	611.74	610.04	608.29
3/30/2010	52n-c	N	409138.97	2524677.20	2.45	2	0.5	611.74	609.74	609.29
3/30/2010	52n-d	N	409110.56	2524677.00	2.1	1.8	0.3	611.74	609.94	609.64
3/30/2010	52n-e	N	409084.52	2524678.28	2.7	2	0.7	611.74	609.74	609.04
3/30/2010	52n-f	N	409058.55	2524679.50	2.15	1.8	0.4	611.74	609.94	609.59
3/30/2010	52n-g	N	409032.62	2524680.42	2.4	2.4	0.0	611.74	609.34	609.34
3/30/2010	52n-h	N	409004.89	2524681.20	2.6	2.6	0.0	611.74	609.14	609.14
3/30/2010	52n-i	N	408976.57	2524681.75	2.4	2.2	0.2	611.74	609.54	609.34
3/30/2010	52n-j	N	408950.85	2524682.85	2	1.6	0.4	611.74	610.14	609.74

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3/30/2010	53n-a	N	409052.04	2525141.68	1.9	1.9	0.0	611.64	609.74	609.74
3/30/2010	53n-b	N	409040.85	2525128.60	1.9	1.6	0.3	611.64	610.04	609.74
3/30/2010	53n-c	N	408995.01	2525101.10	2	1.9	0.1	611.64	609.74	609.64
3/30/2010	53n-d	N	409017.87	2525115.03	2	1.8	0.2	611.64	609.84	609.64
3/30/2010	53n-e	N	408974.15	2525084.74	2	1.9	0.1	611.64	609.74	609.64
3/30/2010	53n-f	N	408950.78	2525070.62	2.1	1.9	0.2	611.64	609.74	609.54
3/30/2010	53n-g	N	408931.27	2525052.34	2.25	2.25	0.0	611.64	609.39	609.39
3/30/2010	53n-h	N	408911.77	2525036.91	2.35	2.15	0.2	611.64	609.49	609.29
3/30/2010	53n-i	Y	408890.62	2525021.22	1.4	0.7	0.7	611.64	610.94	610.24
3/30/2010	54n-a	N	408833.83	2525491.40	2.2	1.7	0.5	611.53	609.83	609.33
3/30/2010	54n-b	N	408814.44	2525475.51	1.85	1.85	0.0	611.53	609.68	609.68
3/30/2010	54n-c	N	408793.86	2525457.08	2.2	1.8	0.4	611.53	609.73	609.33
3/30/2010	54n-d	N	408774.30	2525438.09	2.25	2.1	0.2	611.53	609.43	609.28
3/30/2010	54n-e	N	408755.14	2525424.05	2.9	2.6	0.3	611.53	608.93	608.63
3/30/2010	54n-f	N	408734.10	2525406.92	2.8	2.2	0.6	611.53	609.33	608.73
3/30/2010	54n-g	N	408712.53	2525388.32	3	2.7	0.3	611.53	608.83	608.53
3/30/2010	54n-h	N	408695.03	2525371.33	3.2	3	0.2	611.53	608.53	608.33
3/30/2010	54n-i	Y	408672.68	2525355.09	3	0.6	2.4	611.53	610.93	608.53
3/30/2010	55n-a	N	408706.41	2525643.64	1.2	0.9	0.3	611.48	610.58	610.28
3/30/2010	55n-b	N	408687.37	2525627.22	2.5	2.3	0.2	611.48	609.18	608.98
3/30/2010	55n-c	N	408665.89	2525610.15	2.6	2.3	0.3	611.48	609.18	608.88
3/30/2010	55n-d	N	408644.22	2525593.81	2.3	2.2	0.1	611.48	609.28	609.18
3/30/2010	55n-e	N	408623.89	2525575.96	2.3	2	0.3	611.48	609.48	609.18
3/30/2010	55n-f	N	408602.76	2525560.18	2.6	2.2	0.4	611.48	609.28	608.88
3/30/2010	55n-g	N	408581.75	2525543.98	3.35	2.7	0.7	611.48	608.78	608.13
3/30/2010	55n-h	N	408560.87	2525525.72	3.1	2.9	0.2	611.48	608.58	608.38
3/30/2010	55n-i	N	408540.04	2525509.68	3.2	2.8	0.4	611.48	608.68	608.28
3/30/2010	55n-j	Y	408521.00	2525492.92	3.4	0	3.4	612.46	612.46	609.06
3/30/2010	56s-a	Y	408385.38	2525654.35	3.5	0	3.5	612.88	612.88	609.38
3/30/2010	56s-b	N	408410.16	2525668.76	2.9	1.1	1.8	611.43	610.33	608.53
3/30/2010	56s-c	N	408433.79	2525679.99	3.1	2.9	0.2	611.43	608.53	608.33
3/30/2010	56s-d	N	408457.05	2525692.10	3.45	3.05	0.4	611.43	608.38	607.98
3/30/2010	56s-e	N	408476.51	2525706.47	3.05	2.85	0.2	611.43	608.58	608.38
3/30/2010	56s-f	N	408500.28	2525718.88	3	2.6	0.4	611.43	608.83	608.43
3/30/2010	56s-g	N	408523.02	2525734.89	3.2	2.8	0.4	611.43	608.63	608.23
3/30/2010	56s-h	N	408545.40	2525750.36	2.9	2.7	0.2	611.43	608.73	608.53
3/30/2010	56s-i	N	408568.61	2525763.27	2.95	2.65	0.3	611.43	608.78	608.48
3/30/2010	56s-j	N	408591.19	2525777.36	3.15	2.65	0.5	611.43	608.78	608.28
3/30/2010	56s-k	Y	408614.20	2525790.57	4.3	3.5	0.8	611.43	607.93	607.13
3/30/2010	57w-a	N	408718.26	2525882.93	0.2	0.2	0.0	611.43	611.23	611.23
3/30/2010	57w-b	N	408694.50	2525894.72	2.1	2.1	0.0	611.43	609.33	609.33
3/30/2010	57w-c	N	408671.03	2525908.08	1.7	1.7	0.0	611.43	609.73	609.73
3/30/2010	57w-d	N	408648.16	2525922.27	2.2	2.2	0.0	611.43	609.23	609.23
3/30/2010	57w-e	N	408623.32	2525935.29	1.4	1.4	0.0	611.43	610.03	610.03
3/30/2010	57w-f	N	408600.21	2525947.56	1.8	1.8	0.0	611.43	609.63	609.63
3/30/2010	57w-g	N	408575.49	2525960.84	0.6	0.6	0.0	611.43	610.83	610.83
3/24/2010	58s-a	N	408282.82	2525845.59	4.1	0	4.1	613.29	613.29	609.19
3/24/2010	58s-b	Y	408304.80	2525856.28	4	0	4.0	612.35	612.35	608.35
3/24/2010	58s-c	N	408327.75	2525868.33	3.4	0	3.4	612.08	612.08	608.68
3/30/2010	58s-d	N	408348.70	2525879.80	2.95	1.1	1.9	611.38	610.28	608.43

TABLE 1
Sediment Probing Data Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Date	Location ID	Sediment Core (Y/N)	Northing (WI SPS)	Easting (WI SPS)	Probe Depth (ft)	Water/Ice Thickness (ft)	Sediment Thickness (ft)	Surface Elevation [Ice, Water, Sediment] (NGVD29)	Sed Top Elevation (NGVD29)	Sed Bottom Elevation (NGVD29)
3/30/2010	58s-e	N	408372.42	2525890.93	3.2	1.6	1.6	611.38	609.78	608.18
3/30/2010	58s-f	N	408396.41	2525903.31	2.8	1.65	1.2	611.38	609.73	608.58
3/30/2010	58s-g	Y	408419.75	2525914.98	2.9	1.7	1.2	612.15	610.45	609.25
3/30/2010	58s-h	N	408443.10	2525926.75	2.8	1.6	1.2	611.38	609.78	608.58
3/30/2010	58s-i	N	408467.16	2525938.19	3	2.1	0.9	611.38	609.28	608.38
3/30/2010	58s-j	N	408490.61	2525951.89	2.6	1.8	0.8	611.38	609.58	608.78
3/30/2010	59s-a	N	408462.38	2525843.31	3.5	3.3	0.2	612.10	608.80	608.60

TABLE 2
Defined Bank Survey Data
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Location ID	Northing (WI SPS)	Easting (WI SPS)	Surface Elevation (NGVD29)
01E-TOE	413129.88	2522950.31	616.58
01E-TOP	413132.24	2522957.09	621.00
01W-TOE	413178.69	2522773.94	615.94
01W-TOP	413180.43	2522768.34	621.60
02E-TOE	412731.37	2522902.74	616.06
02E-TOP	412730.38	2522907.33	619.56
02W-TOE	412780.11	2522715.99	616.96
02W-TOP	412783.40	2522712.44	623.55
03E-TOE	412353.51	2522926.53	615.66
03E-TOP	412353.58	2522929.77	619.78
03W-TOE	412316.24	2522736.14	615.74
03W-TOP	412315.38	2522726.41	622.68
04W/09N-TOE	411947.12	2522754.62	607.59
04W/09N-TOP	411948.63	2522752.50	617.49
04E-TOE	411971.58	2523036.24	616.11
04E-TOP	411976.13	2523040.43	619.59
05e-toe	411762.90	2523053.80	616.30
05e-top	411765.89	2523057.29	618.41
05W/09S-TOE	411723.80	2522726.46	616.62
05W/09S-TOP	411722.02	2522725.03	619.76
06w-toe	411648.68	2522764.20	615.04
06w-top	411648.79	2522753.28	619.56
07e-toe	411358.32	2522920.94	616.59
07e-top	411355.01	2522922.95	618.27
07w-toe	411571.48	2522743.77	616.63
07w-top	411573.84	2522741.41	618.20
08w-toe	411500.56	2522649.30	616.66
08w-top	411503.91	2522648.26	618.18
10N-TOE	411842.15	2522546.91	616.41
10N-TOP	411843.02	2522544.89	617.93
10S-TOE	411729.74	2522578.22	613.66
10S-TOP	411718.65	2522579.50	617.58
11N/12N-TOE	411698.31	2522349.98	615.91
11N/12N-TOP	411709.22	2522344.03	624.89
11S-TOE	411680.41	2522491.73	613.41
11S-TOP	411671.61	2522501.55	618.71
12S-TOE	411571.72	2522319.99	615.75
12S-TOP	411569.60	2522313.06	621.72
13e-toe	411595.40	2522521.97	616.66
13e-top	411596.25	2522524.44	618.05
13w-toe	411483.99	2522365.71	616.38
13w-top	411476.50	2522357.88	622.43
14e-toe	411515.41	2522598.69	616.52
14e-top	411519.16	2522602.20	618.57
14w-toe	411381.04	2522415.85	616.17
14w-top	411379.15	2522412.28	618.35
15e-toe	411259.53	2522827.64	616.35
15e-top	411258.93	2522831.89	618.14

TABLE 2
Defined Bank Survey Data
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Location ID	Northing (WI SPS)	Easting (WI SPS)	Surface Elevation (NGVD29)
15w-toe	411308.33	2522432.28	616.12
15w-top	411308.09	2522429.42	618.67
16e-toe	411102.69	2522811.76	616.18
16e-top	411101.98	2522816.57	619.37
16w-toe	411146.67	2522376.98	615.57
16w-top	411148.01	2522375.01	617.85
17E-TOE	410956.29	2522847.26	616.22
17e-top	410959.26	2522849.61	619.07
17w-toe	410983.62	2522286.42	616.58
17w-top	410983.70	2522281.12	618.33
18e/08e-toe	410806.93	2522875.11	615.58
18e/08e-top	410806.78	2522880.60	618.67
18w-toe	410729.69	2522268.35	616.24
18w-top	410730.99	2522263.78	618.23
19e-toe	410617.37	2522842.84	615.87
19e-top	410617.03	2522846.41	618.25
19w-toe	410524.03	2522351.97	616.15
19w-top	410523.81	2522348.65	618.69
20w-toe	410354.75	2522387.44	616.54
20w-top	410355.29	2522384.61	619.02
20e-toe	410391.30	2522873.61	616.25
20e-top	410391.43	2522875.60	617.80
21w-toe	410249.96	2522367.74	612.29
21w-top	410244.51	2522360.33	618.85
22n-toe	411597.50	2523109.50	616.74
22n-top	411600.34	2523110.15	618.04
22s-toe	411395.67	2523000.11	616.72
22s-top	411390.44	2523000.04	618.03
23n-toe	411530.33	2523223.96	616.53
23n-top	411532.51	2523225.80	617.79
23s-toe	411367.96	2523112.91	617.52
23s-top	411366.67	2523111.41	617.96
24n-toe	411398.73	2523387.45	616.25
24n-top	411401.46	2523390.50	618.18
24s-toe	411245.90	2523259.77	616.72
24s-top	411243.54	2523258.22	617.91
25e-toe	411229.98	2523539.11	616.49
25e-top	411231.48	2523541.19	618.83
25w-toe	411118.54	2523372.03	616.64
25w-top	411117.74	2523370.58	618.43
26e-toe	411077.56	2523642.86	615.91
26e-top	411085.18	2523646.47	619.30
26w-toe	410961.76	2523467.25	615.84
26w-top	410960.44	2523465.11	618.57
27e-toe	410854.61	2523726.94	615.96
27e-top	410855.66	2523728.64	617.76
27w-toe	410791.93	2523532.94	616.21
27w-top	410790.50	2523530.34	618.36

TABLE 2
Defined Bank Survey Data
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Location ID	Northing (WI SPS)	Easting (WI SPS)	Surface Elevation (NGVD29)
28e-toe	410618.09	2523722.37	615.86
28e-top	410618.12	2523725.27	617.82
28w-toe	410630.61	2523570.63	615.76
28w-top	410631.38	2523568.84	617.43
29e-toe	410399.18	2523663.26	616.42
29e-top	410396.94	2523665.19	618.29
29w-toe	410458.22	2523537.78	616.11
29w-toe	410457.99	2523538.04	616.11
29w-top	410458.16	2523536.14	617.99
29w-top	410458.61	2523535.66	618.21
30e-toe	410220.70	2523558.29	616.50
30e-top	410214.65	2523564.06	618.77
30w-toe	410316.56	2523442.45	616.78
30w-top	410319.35	2523439.13	618.47
31e-toe	410088.59	2523384.85	616.71
31e-top	410081.56	2523387.07	618.98
31w-toe	410220.50	2523315.35	615.67
31w-top	410222.81	2523315.56	617.75
32n-toe	410184.29	2523162.14	616.40
32n-top	410188.05	2523163.27	618.99
32s-toe	410025.97	2523150.25	616.88
32s-top	410023.02	2523149.39	618.60
33n-toe	410236.94	2523001.22	615.93
33n-top	410239.66	2523002.75	618.11
33s-toe	410045.73	2522933.51	616.34
33s-top	410043.32	2522934.09	618.19
34n-toe	410386.00	2522878.05	616.23
34n-top	410386.63	2522879.65	617.71
34s-toe	410045.64	2522765.91	616.22
34s-top	410041.08	2522764.75	618.08
35e-toe	409989.39	2522585.86	616.53
35e-top	409986.91	2522587.75	618.33
35w-toe	410199.73	2522339.30	616.40
35w-top	410202.85	2522337.05	618.63
36N-toe	410163.65	2522300.98	616.08
36n-top	410164.34	2522298.98	617.99
36S/37W-TOE	409840.44	2522188.41	616.01
36S/37W-TOP	409839.70	2522184.22	619.34
37e-toe	409874.14	2522532.30	616.32
37e-top	409874.00	2522535.45	618.27
38e-toe	409715.63	2522525.22	615.90
38e-top	409713.90	2522527.84	618.06
38W-TOE	409681.66	2522252.64	616.00
38W-TOP	409682.47	2522248.60	619.61
39e-toe	409510.81	2522544.14	616.11
39e-top	409509.86	2522550.52	619.62
39W-TOE	409491.97	2522277.71	616.21
39W-TOP	409490.39	2522274.06	619.93

TABLE 2
Defined Bank Survey Data
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Location ID	Northing (WI SPS)	Easting (WI SPS)	Surface Elevation (NGVD29)
40E-TOP/TOE	409258.54	2522536.58	619.09
40W-TOP/TOE	409256.34	2522294.77	618.43
41E-TOE	409095.97	2522557.77	616.00
41E-TOP	409096.23	2522561.19	620.26
41W-TOE	409084.22	2522161.78	615.51
41W-TOP	409084.60	2522160.14	619.75
42e-toe	408941.92	2522587.55	615.84
42e-top	408946.85	2522599.51	619.07
42W-TOE	408849.00	2522274.82	615.36
42W-TOP	408847.76	2522275.10	619.28
43n-toe	408855.30	2522655.85	616.50
43n-top	408857.52	2522660.45	619.26
43W-TOE	408622.96	2522473.90	616.07
43W-TOP	408620.73	2522471.89	617.77
44n-toe	408803.23	2522777.46	616.42
44n-top	408818.55	2522774.81	622.14
44S-TOE	408526.76	2522746.46	615.50
44S-TOP	408524.28	2522747.96	617.92
45n-toe	408813.22	2522941.76	616.91
45n-top	408823.24	2522940.15	621.30
45S-TOE	408554.53	2522977.10	615.63
45S-TOP	408554.08	2522977.14	617.47
46n-toe	408833.14	2523129.59	616.77
46n-top	408834.85	2523129.94	619.66
46S-TOE	408583.60	2523176.69	615.35
46S-TOP	408583.26	2523176.84	617.67
47N-TOE	408868.98	2523322.46	616.38
47N-TOP	408870.17	2523321.17	617.99
47S-TOE	408621.86	2523376.79	616.16
47S-TOP	408617.20	2523374.34	617.57
48N-TOE	408925.59	2523521.42	617.03
48N-TOP	408926.28	2523521.56	617.92
48S-TOE	408675.64	2523570.38	614.21
48S-TOP	408675.06	2523569.96	617.82
49N-TOE	409030.92	2523876.12	631.58
49N-TOP	409040.34	2523872.52	618.60
49S-TOE	408792.35	2523967.15	614.90
49S-TOP	408791.16	2523969.11	618.03
49N-TOE	409030.92	2523876.12	631.58
49N-TOP	409040.34	2523872.52	618.60
50N-TOE	409178.26	2524215.48	616.11
50N-TOP	409180.26	2524215.48	618.11
50S-TOE	408903.95	2524258.83	614.84
50S-TOP	408902.99	2524259.25	617.59
51N-TOE	409214.65	2524556.69	616.46
51N-TOP	409217.47	2524556.74	619.66
51S-TOE	408947.05	2524562.24	615.57
51S-TOP	408943.56	2524562.96	618.39

TABLE 2
Defined Bank Survey Data
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Location ID	Northing (WI SPS)	Easting (WI SPS)	Surface Elevation (NGVD29)
52N-TOE	409207.78	2524686.86	615.64
52N-TOP	409221.92	2524686.33	623.02
52S-TOE	408942.86	2524702.00	612.95
52S-TOP	408921.32	2524699.67	620.32
53N-TOE	409100.07	2525160.01	616.53
53N-TOP	409107.87	2525166.70	620.55
53S-TOE	408840.63	2525008.05	616.71
53S-TOP	408838.89	2525000.08	620.62
54N-TOE	408857.69	2525494.15	623.79
54N-TOP	408863.59	2525502.33	620.58
54S-TOE	408648.04	2525329.67	616.18
54S-TOP	408645.27	2525323.98	619.48
55N-TOE	408724.14	2525657.09	616.18
55N-TOP	408737.05	2525668.26	625.32
55S-TOE	408506.70	2525481.84	613.33
55S-TOP	408500.02	2525473.78	619.64
56S-TOE	408361.41	2525644.58	616.94
56S-TOP	408359.60	2525642.05	619.98
57N-TOE	408735.04	2525869.61	615.55
57N-TOP	408736.31	2525867.94	618.16
57S-TOE	408566.58	2525970.12	615.30
57S-TOP	408561.75	2525971.41	618.30
58N-TOE	408516.18	2525960.57	614.35
58N-TOP	408524.08	2525966.10	617.73
58S-TOE	408260.30	2525831.32	616.29
58S-TOP	408258.68	2525829.44	618.67

TABLE 3
Sediment Core Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-01E-A	E4SG8	413138.63	2522925.53	612.32	0	1	612.32	611.32
SD-02E-C	E4SP3	412750.26	2522821.65	609.42	0	0.5	609.42	608.92
SD-02E-C	E4SP4	412750.26	2522821.65	609.42	0.5	1.5	608.92	607.92
SD-03E-A	E4SG9	412331.23	2522893.11	614.61	0	0.8	614.61	613.81
SD-04E-A	E4SH2	411970.21	2523009.17	611.20	0	1	611.20	610.20
SD-04E-E	E4SH1	411958.93	2522911.42	610.70	0	0.5	610.70	610.20
SD-05W-E	E4S59	411749.52	2522931.67	614.04	0	0.5	614.04	613.54
SD-05W-E	E4S60	411749.52	2522931.67	614.04	0.5	1.5	613.54	612.54
SD-05W-E	E4S61	411749.52	2522931.67	614.04	1.5	2.5	612.54	611.54
SD-05W-E	E4S62	411749.52	2522931.67	614.04	2.5	3.5	611.54	610.54
SD-05W-I	E4S49	411741.80	2522823.59	613.65	0	0.5	613.65	613.15
SD-05W-I	E4S50	411741.80	2522823.59	613.65	0.5	1.5	613.15	612.15
SD-05W-I	E4S51	411741.80	2522823.59	613.65	1.5	2.5	612.15	611.15
SD-05W-I	E4S52	411741.80	2522823.59	613.65	2.5	3.9	611.15	609.75
SD-06W-C	E4S63	411623.97	2522828.95	613.76	0	0.5	613.76	613.26
SD-06W-C	E4S64	411623.97	2522828.95	613.76	0.5	1.5	613.26	612.26
SD-06W-C	E4S65	411623.97	2522828.95	613.76	1.5	3.1	612.26	610.66
SD-06W-H	E4S80	411569.50	2522942.53	616.16	0	0.5	616.16	615.66
SD-06W-H	E4S81	411569.50	2522942.53	616.16	0.5	1.5	615.66	614.66
SD-06W-H	E4S83	411569.50	2522942.53	616.16	1.5	2.5	614.66	613.66
SD-06W-H	E4S84	411569.50	2522942.53	616.16	2.5	3.5	613.66	612.66
SD-06W-H	E4S85	411569.50	2522942.53	616.16	3.5	4.5	612.66	611.66
SD-06W-H	E4S86	411569.50	2522942.53	616.16	4.5	5.6	611.66	610.56
SD-07E-G	E4SE9	411494.56	2522810.19	613.82	0	0.5	613.82	613.32
SD-07E-G	E4SF0	411494.56	2522810.19	613.82	0.5	1.5	613.32	612.32
SD-07E-G	E4SF1	411494.56	2522810.19	613.82	1.5	2.5	612.32	611.32
SD-07E-G	E4SF2	411494.56	2522810.19	613.82	2.5	3.5	611.32	610.32
SD-07E-G	E4SF3	411494.56	2522810.19	613.82	3.5	4.5	610.32	609.32
SD-07E-G	E4SF4	411494.56	2522810.19	613.82	4.5	5.5	609.32	608.32
SD-08E-C	E4SB5	411329.51	2522771.41	610.42	0	0.5	610.42	609.92
SD-08E-C	E4SB6	411329.51	2522771.41	610.42	0.5	1.5	609.92	608.92
SD-08E-C	E4SB7	411329.51	2522771.41	610.42	1.5	3.1	608.92	607.32
SD-08E-C	E4SB8	411329.51	2522771.41	610.42	3.1	4.5	607.32	605.92
SD-08E-H	E4SD4	411430.23	2522697.09	613.03	0	0.5	613.03	612.53
SD-08E-H	E4SD5	411430.23	2522697.09	613.03	0.5	1.5	612.53	611.53
SD-08E-H	E4SD6	411430.23	2522697.09	613.03	1.5	2.5	611.53	610.53
SD-08E-H	E4SD7	411430.23	2522697.09	613.03	2.5	3.4	610.53	609.63

TABLE 3
Sediment Core Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-09S-C	E4S67	411792.61	2522748.30	611.77	0	0.5	611.77	611.27
SD-09S-C	E4S68	411792.61	2522748.30	611.77	0.5	1.5	611.27	610.27
SD-09S-C	E4S69	411792.61	2522748.30	611.77	1.5	2.9	610.27	608.87
SD-10S-D	E4SJ8	411816.83	2522554.46	611.60	0	0.9	611.60	610.70
SD-11N-E	E4SH4	411682.90	2522477.14	612.86	0	0.7	612.86	612.16
SD-12S-B	E4SH5	411619.27	2522331.81	609.85	0	0.5	609.85	609.35
SD-12S-B	E4SH6	411619.27	2522331.81	609.85	0.5	1.5	609.35	608.35
SD-13E-A	E4SA7	411576.86	2522493.49	613.03	0	0.5	613.03	612.53
SD-13E-A	E4SA8	411576.86	2522493.49	613.03	0.5	1.7	612.53	611.33
SD-13E-A	E4SA9	411576.86	2522493.49	613.03	1.7	2.9	611.33	610.13
SD-13E-A	E4SB0	411576.86	2522493.49	613.03	2.9	4.2	610.13	608.83
SD-14E-C	E4SA2	411471.87	2522535.83	613.61	0	0.5	613.61	613.11
SD-14E-C	E4SA3	411471.87	2522535.83	613.61	0.5	1.5	613.11	612.11
SD-14E-C	E4SA4	411471.87	2522535.83	613.61	1.5	3.2	612.11	610.41
SD-14E-C	E4SA5	411471.87	2522535.83	613.61	3.2	4	610.41	609.61
SD-15E-A	E4S70	411265.13	2522777.58	610.70	0	0.5	610.70	610.20
SD-15E-A	E4S71	411265.13	2522777.58	610.70	0.5	2.1	610.20	608.60
SD-15E-A	E4S72	411265.13	2522777.58	610.70	2.1	2.8	608.60	607.90
SD-15E-I	E4S98	411289.35	2522578.67	613.34	0	0.5	613.34	612.84
SD-15E-I	E4S99	411289.35	2522578.67	613.34	0.5	1.5	612.84	611.84
SD-15E-I	E4SA0	411289.35	2522578.67	613.34	1.5	2.5	611.84	610.84
SD-15E-I	E4SA1	411289.35	2522578.67	613.34	2.5	3.5	610.84	609.84
SD-15W-A	E4SH7	411339.49	2522449.82	610.81	0	0.9	610.81	609.91
SD-16E-A	E4S73	411105.48	2522786.88	614.58	0	0.5	614.58	614.08
SD-16E-A	E4S74	411105.48	2522786.88	614.58	0.5	1.5	614.08	613.08
SD-16E-A	E4S75	411105.48	2522786.88	614.58	1.5	2.5	613.08	612.08
SD-16E-A	E4S76	411105.48	2522786.88	614.58	2.5	3.5	612.08	611.08
SD-16E-A	E4S77	411105.48	2522786.88	614.58	3.5	4.5	611.08	610.08
SD-16E-A	E4S78	411105.48	2522786.88	614.58	4.5	6.1	610.08	608.48
SD-16W-C	E4SC9	411138.92	2522453.30	614.14	0	0.5	614.14	613.64
SD-16W-C	E4SD0	411138.92	2522453.30	614.14	0.5	1.5	613.64	612.64
SD-16W-C	E4SD2	411138.92	2522453.30	614.14	1.5	2.4	612.64	611.74
SD-16W-C	E4SD3	411138.92	2522453.30	614.14	2.4	3.6	611.74	610.54
SD-16W-H	E4SH8	411128.01	2522581.28	611.58	0	0.5	611.58	611.08
SD-16W-H	E4SH9	411128.01	2522581.28	611.58	0.5	1.8	611.08	609.78
SD-17E-D	E4RZ2	410961.35	2522742.31	613.74	0	0.5	613.74	613.24
SD-17E-D	E4RZ3	410961.35	2522742.31	613.74	0.5	1.5	613.24	612.24

TABLE 3
Sediment Core Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-17E-D	E4RZ5	410961.35	2522742.31	613.74	1.5	2.5	612.24	611.24
SD-17E-D	E4RZ6	410961.35	2522742.31	613.74	2.5	3.5	611.24	610.24
SD-17W-E	E4SE4	410976.82	2522411.71	614.23	0	0.5	614.23	613.73
SD-17W-E	E4SE5	410976.82	2522411.71	614.23	0.5	1.5	613.73	612.73
SD-17W-E	E4SE6	410976.82	2522411.71	614.23	1.5	2.5	612.73	611.73
SD-17W-E	E4SE7	410976.82	2522411.71	614.23	2.5	3.5	611.73	610.73
SD-17W-E	E4SE8	410976.82	2522411.71	614.23	3.5	4.4	610.73	609.83
SD-17W-L	E4SJ0	410972.82	2522613.39	611.30	0	0.5	611.30	610.80
SD-17W-L	E4SJ1	410972.82	2522613.39	611.30	0.5	1.5	610.80	609.80
SD-17W-L	E4SJ2	410972.82	2522613.39	611.30	1.5	2.1	609.80	609.20
SD-18E-E	E4S06	410791.53	2522750.74	614.11	0	0.5	614.11	613.61
SD-18E-E	E4S07	410791.53	2522750.74	614.11	0.5	1.5	613.61	612.61
SD-18E-E	E4S09	410791.53	2522750.74	614.11	1.5	2.5	612.61	611.61
SD-18E-E	E4S10	410791.53	2522750.74	614.11	2.5	4.1	611.61	610.01
SD-18E-I	E4SJ3	410790.95	2522664.94	611.45	0.5	1.9	610.95	609.55
SD-18E-I	E4SJ5	410790.95	2522664.94	611.45	0	0.5	611.45	610.95
SD-18W-B	E4SD9	410738.61	2522323.96	614.42	0	0.5	614.42	613.92
SD-18W-B	E4SE0	410738.61	2522323.96	614.42	0.5	1.5	613.92	612.92
SD-18W-B	E4SE1	410738.61	2522323.96	614.42	1.5	2.5	612.92	611.92
SD-18W-B	E4SE3	410738.61	2522323.96	614.42	2.5	3.5	611.92	610.92
SD-19E-B	E4RZ7	410608.35	2522793.78	612.93	0	0.5	612.93	612.43
SD-19E-B	E4RZ8	410608.35	2522793.78	612.93	0.5	1.5	612.43	611.43
SD-19E-B	E4RZ9	410608.35	2522793.78	612.93	1.5	2.5	611.43	610.43
SD-19E-B	E4S00	410608.35	2522793.78	612.93	2.5	3.5	610.43	609.43
SD-19E-B	E4S01	410608.35	2522793.78	612.93	3.5	5.1	609.43	607.83
SD-19E-I	E4RY8	410575.75	2522621.67	613.21	0	0.5	613.21	612.71
SD-19E-I	E4RY9	410575.75	2522621.67	613.21	0.5	1.5	612.71	611.71
SD-19E-I	E4RZ0	410575.75	2522621.67	613.21	1.5	2.5	611.71	610.71
SD-19E-I	E4RZ1	410575.75	2522621.67	613.21	2.5	3.6	610.71	609.61
SD-19E-N	E4RY5	410552.72	2522498.51	611.56	0	0.5	611.56	611.06
SD-19E-N	E4RY6	410552.72	2522498.51	611.56	0.5	1.5	611.06	610.06
SD-19E-N	E4RY7	410552.72	2522498.51	611.56	1.5	2.6	610.06	608.96
SD-19E-S	E4SJ6	410528.44	2522377.59	612.32	0	0.5	612.32	611.82
SD-19E-S	E4SJ7	410528.44	2522377.59	612.32	0.5	1.3	611.82	611.02
SD-20E-D	E4RS0	410382.94	2522761.42	613.61	0	0.5	613.61	613.11
SD-20E-D	E4RS1	410382.94	2522761.42	613.61	0.5	1.5	613.11	612.11
SD-20E-D	E4RS2	410382.94	2522761.42	613.61	1.5	2.5	612.11	611.11

TABLE 3
Sediment Core Sample Summary
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Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-20E-D	E4RS3	410382.94	2522761.42	613.61	2.5	3.7	611.11	609.91
SD-20E-I	E4RS4	410373.71	2522636.69	613.84	0	0.5	613.84	613.34
SD-20E-I	E4RS5	410373.71	2522636.69	613.84	0.5	1.5	613.34	612.34
SD-20E-I	E4RS6	410373.71	2522636.69	613.84	1.5	2.5	612.34	611.34
SD-20E-I	E4RS7	410373.71	2522636.69	613.84	2.5	3.5	611.34	610.34
SD-20E-I	E4RS8	410373.71	2522636.69	613.84	3.5	4.5	610.34	609.34
SD-20E-M	E4S02	410365.99	2522537.29	612.23	0	0.5	612.23	611.73
SD-20E-M	E4S03	410365.99	2522537.29	612.23	0.5	1.5	611.73	610.73
SD-20E-M	E4S05	410365.99	2522537.29	612.23	1.5	2.7	610.73	609.53
SD-20W-A	E4SK2	410356.79	2522412.59	613.25	0	0.5	613.25	612.75
SD-20W-A	E4SK3	410356.79	2522412.59	613.25	0.5	1.5	612.75	611.75
SD-20W-A	E4SK4	410356.79	2522412.59	613.25	1.5	2.5	611.75	610.75
SD-21E-F	E4RS9	410186.37	2522655.28	613.79	0	0.5	613.79	613.29
SD-21E-F	E4RT0	410186.37	2522655.28	613.79	0.5	1.5	613.29	612.29
SD-21E-F	E4RT1	410186.37	2522655.28	613.79	1.5	2.5	612.29	611.29
SD-21E-F	E4RT2	410186.37	2522655.28	613.79	2.5	3.5	611.29	610.29
SD-21E-F	E4RT3	410186.37	2522655.28	613.79	3.5	4.5	610.29	609.29
SD-21E-J	E4RT4	410204.79	2522557.33	613.08	0	0.5	613.08	612.58
SD-21E-J	E4RT5	410204.79	2522557.33	613.08	0.5	1.5	612.58	611.58
SD-21E-J	E4RT7	410204.79	2522557.33	613.08	1.5	2.5	611.58	610.58
SD-21E-J	E4RT8	410204.79	2522557.33	613.08	2.5	3.6	610.58	609.48
SD-22S-G	E4S25	411558.23	2523086.49	613.83	0	0.5	613.83	613.33
SD-22S-G	E4S26	411558.23	2523086.49	613.83	0.5	1.5	613.33	612.33
SD-22S-G	E4S27	411558.23	2523086.49	613.83	1.5	2.5	612.33	611.33
SD-22S-G	E4S29	411558.23	2523086.49	613.83	2.5	4	611.33	609.83
SD-23N-C	E4S30	411468.28	2523181.40	615.19	0	0.5	615.19	614.69
SD-23N-C	E4S31	411468.28	2523181.40	615.19	0.5	1.5	614.69	613.69
SD-23N-C	E4S32	411468.28	2523181.40	615.19	1.5	2.5	613.69	612.69
SD-23N-C	E4S33	411468.28	2523181.40	615.19	2.5	3.5	612.69	611.69
SD-24S-D	E4S34	411322.11	2523324.44	613.98	0	0.5	613.98	613.48
SD-24S-D	E4S35	411322.11	2523324.44	613.98	0.5	1.5	613.48	612.48
SD-24S-D	E4S36	411322.11	2523324.44	613.98	1.5	2.5	612.48	611.48
SD-24S-D	E4S38	411322.11	2523324.44	613.98	3.5	4.5	610.48	609.48
SD-24S-D	E4S39	411322.11	2523324.44	613.98	4.5	5.5	609.48	608.48
SD-24S-D	E4S41	411322.11	2523324.44	613.98	5.5	6.5	608.48	607.48
SD-24S-D	E4S42	411322.11	2523324.44	613.98	6.5	7.5	607.48	606.48
SD-25W-E	E4S43	411187.33	2523472.43	613.72	0	0.5	613.72	613.22

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Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-25W-E	E4S44	411187.33	2523472.43	613.72	0.5	1.5	613.22	612.22
SD-25W-E	E4S46	411187.33	2523472.43	613.72	1.5	2.5	612.22	611.22
SD-25W-E	E4S48	411187.33	2523472.43	613.72	2.5	3.5	611.22	610.22
SD-26W-D	E4S11	410993.70	2523553.78	614.38	0	0.5	614.38	613.88
SD-26W-D	E4S12	410993.70	2523553.78	614.38	0.5	1.5	613.88	612.88
SD-26W-D	E4S13	410993.70	2523553.78	614.38	1.5	2.5	612.88	611.88
SD-26W-D	E4S14	410993.70	2523553.78	614.38	2.5	3.8	611.88	610.58
SD-27W-A	E4S16	410798.76	2523557.19	615.19	0	0.5	615.19	614.69
SD-27W-A	E4S17	410798.76	2523557.19	615.19	0.5	1.5	614.69	613.69
SD-27W-A	E4S18	410798.76	2523557.19	615.19	1.5	2.5	613.69	612.69
SD-27W-A	E4S19	410798.76	2523557.19	615.19	2.5	3.5	612.69	611.69
SD-27W-A	E4S20	410798.76	2523557.19	615.19	3.5	4.5	611.69	610.69
SD-27W-A	E4S21	410798.76	2523557.19	615.19	4.5	5.5	610.69	609.69
SD-27W-A	E4S22	410798.76	2523557.19	615.19	5.5	6.5	609.69	608.69
SD-27W-A	E4S23	410798.76	2523557.19	615.19	6.5	7.5	608.69	607.69
SD-27W-A	E4S24	410798.76	2523557.19	615.19	7.5	8.9	607.69	606.29
SD-28W-A	E4S53	410628.14	2523591.79	615.02	0	0.5	615.02	614.52
SD-28W-A	E4S54	410628.14	2523591.79	615.02	0.5	1.5	614.52	613.52
SD-28W-A	E4S55	410628.14	2523591.79	615.02	1.5	2.5	613.52	612.52
SD-28W-A	E4S56	410628.14	2523591.79	615.02	2.5	3.5	612.52	611.52
SD-28W-A	E4S58	410628.14	2523591.79	615.02	3.5	4.3	611.52	610.72
SD-29W-A	E4SB1	410449.46	2523560.74	615.02	0	0.5	615.02	614.52
SD-29W-A	E4SB2	410449.46	2523560.74	615.02	0.5	1.8	614.52	613.22
SD-29W-A	E4SB3	410449.46	2523560.74	615.02	1.8	2.9	613.22	612.12
SD-30W-B	E4S87	410283.61	2523482.81	614.16	0	0.5	614.16	613.66
SD-30W-B	E4S88	410283.61	2523482.81	614.16	0.5	1.5	613.66	612.66
SD-30W-B	E4S90	410283.61	2523482.81	614.16	1.5	2.5	612.66	611.66
SD-30W-B	E4S91	410283.61	2523482.81	614.16	2.5	3.5	611.66	610.66
SD-31W-A	E4S92	410197.84	2523326.86	615.66	0	0.5	615.66	615.16
SD-31W-A	E4S93	410197.84	2523326.86	615.66	0.5	1.5	615.16	614.16
SD-31W-A	E4S94	410197.84	2523326.86	615.66	1.5	2.5	614.16	613.16
SD-31W-A	E4S95	410197.84	2523326.86	615.66	2.5	3.5	613.16	612.16
SD-31W-A	E4S96	410197.84	2523326.86	615.66	3.5	4.5	612.16	611.16
SD-31W-A	E4S97	410197.84	2523326.86	615.66	4.5	5.5	611.16	610.16
SD-32N-C	E4RT9	410109.29	2523156.49	612.72	0	0.5	612.72	612.22
SD-32N-C	E4RW1	410109.29	2523156.49	612.72	0.5	1.5	612.22	611.22
SD-32N-C	E4RW3	410109.29	2523156.49	612.72	1.5	2.5	611.22	610.22

TABLE 3
Sediment Core Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-32N-C	E4RW5	410109.29	2523156.49	612.72	2.5	3.5	610.22	609.22
SD-32N-C	E4RW6	410109.29	2523156.49	612.72	3.5	4.5	609.22	608.22
SD-32N-C	E4RW7	410109.29	2523156.49	612.72	4.5	5.5	608.22	607.22
SD-32N-C	E4RW8	410109.29	2523156.49	612.72	5.5	6.5	607.22	606.22
SD-32N-C	E4RW9	410109.29	2523156.49	612.72	6.5	7.7	606.22	605.02
SD-33N-E	E4RX0	410124.67	2522953.43	612.78	0	0.5	612.78	612.28
SD-33N-E	E4RX1	410124.67	2522953.43	612.78	0.5	1.5	612.28	611.28
SD-33N-E	E4RX2	410124.67	2522953.43	612.78	1.5	2.5	611.28	610.28
SD-33N-E	E4RX3	410124.67	2522953.43	612.78	2.5	3.5	610.28	609.28
SD-33N-E	E4RX4	410124.67	2522953.43	612.78	3.5	4.5	609.28	608.28
SD-33N-E	E4RX5	410124.67	2522953.43	612.78	4.5	5.5	608.28	607.28
SD-33N-E	E4RX6	410124.67	2522953.43	612.78	5.5	6.6	607.28	606.18
SD-34N-D	E4RX7	410290.31	2522846.30	613.98	0	0.5	613.98	613.48
SD-34N-D	E4RX8	410290.31	2522846.30	613.98	0.5	1.5	613.48	612.48
SD-34N-D	E4RX9	410290.31	2522846.30	613.98	1.5	2.5	612.48	611.48
SD-34N-D	E4RY0	410290.31	2522846.30	613.98	2.5	3.8	611.48	610.18
SD-34N-H	E4RY1	410195.72	2522815.41	614.26	0	0.5	614.26	613.76
SD-34N-H	E4RY2	410195.72	2522815.41	614.26	0.5	1.5	613.76	612.76
SD-34N-H	E4RY3	410195.72	2522815.41	614.26	1.5	2.5	612.76	611.76
SD-34N-H	E4RY4	410195.72	2522815.41	614.26	2.5	3.9	611.76	610.36
SD-35E-A	E4SM0	410059.61	2522437.37	610.23	0	0.5	610.23	609.73
SD-35E-A	E4SM2	410059.61	2522437.37	610.23	0.5	1.7	609.73	608.53
SD-35W-A	E4SB9	410181.90	2522358.71	614.57	0	0.5	614.57	614.07
SD-35W-A	E4SC0	410181.90	2522358.71	614.57	0.5	1.5	614.07	613.07
SD-35W-A	E4SC1	410181.90	2522358.71	614.57	1.5	2.5	613.07	612.07
SD-35W-A	E4SC3	410181.90	2522358.71	614.57	2.5	3.9	612.07	610.67
SD-36N-C	E4SC4	410082.21	2522282.84	614.68	0	0.5	614.68	614.18
SD-36N-C	E4SC5	410082.21	2522282.84	614.68	0.5	1.5	614.18	613.18
SD-36N-C	E4SC7	410082.21	2522282.84	614.68	1.5	2.5	613.18	612.18
SD-36N-C	E4SC8	410082.21	2522282.84	614.68	2.5	3.5	612.18	611.18
SD-36N-C	E4SG7	410082.21	2522282.84	614.68	3.5	4.5	611.18	610.18
SD-36S-B	E4SJ9	409889.07	2522217.62	613.18	0	0.5	613.18	612.68
SD-36S-B	E4SK0	409889.07	2522217.62	613.18	0.5	1.5	612.68	611.68
SD-36S-B	E4SK1	409889.07	2522217.62	613.18	1.5	2.4	611.68	610.78
SD-37E-A	E4SK5	409873.32	2522502.12	611.30	0	1.3	611.30	610.00
SD-37E-I	E4SK8	409845.83	2522298.52	611.10	0	0.5	611.10	610.60
SD-37E-I	E4SK9	409845.83	2522298.52	611.10	0.5	1.4	610.60	609.70

TABLE 3
Sediment Core Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-38W-B	E4SL0	409697.92	2522305.48	609.53	0	0.5	609.53	609.03
SD-38W-B	E4SL1	409697.92	2522305.48	609.53	0.5	1.9	609.03	607.63
SD-39W-D	E4SL2	409500.55	2522384.32	608.67	0	0.5	608.67	608.17
SD-39W-D	E4SL4	409500.55	2522384.32	608.67	0.5	1.1	608.17	607.57
SD-39W-H	E4SL5	409502.02	2522487.50	610.07	0	0.4	610.07	609.67
SD-40E-B	E4SK6	409278.03	2522490.64	610.17	0	0.6	610.17	609.57
SD-40E-H	E4SL9	409261.78	2522341.45	609.27	0	1	609.27	608.27
SD-41E-C	E4SL6	409091.14	2522486.08	609.61	0	0.7	609.61	608.91
SD-42E-A	E4SL7	408935.40	2522561.19	612.79	0	0.4	612.79	612.39
SD-42E-A	E4SL8	408935.40	2522561.19	612.79	0.4	1	612.39	611.79
SD-42E-I	E4SM3	408869.99	2522368.62	610.78	0	0.6	610.78	610.18
SD-43N-A	E4SM5	408835.24	2522641.22	613.72	0	0.5	613.72	613.22
SD-43N-A	E4SM6	408835.24	2522641.22	613.72	0.5	1.7	613.22	612.02
SD-43S-A	E4SM4	408647.19	2522492.68	613.16	0	0.8	613.16	612.36
SD-44N-A	E4SF5	408781.07	2522767.76	614.41	0	0.5	614.41	613.91
SD-44N-A	E4SF6	408781.07	2522767.76	614.41	0.5	1.5	613.91	612.91
SD-44N-A	E4SF7	408781.07	2522767.76	614.41	1.5	2.5	612.91	611.91
SD-44N-A	E4SF8	408781.07	2522767.76	614.41	2.5	3.2	611.91	611.21
SD-45N-A	E4SG0	408792.47	2522936.08	615.96	0	0.5	615.96	615.46
SD-45N-A	E4SG1	408792.47	2522936.08	615.96	0.5	1.5	615.46	614.46
SD-45N-A	E4SG2	408792.47	2522936.08	615.96	1.5	2.5	614.46	613.46
SD-45N-A	E4SG3	408792.47	2522936.08	615.96	2.5	3.6	613.46	612.36
SD-46N-A	E4SM8	408809.50	2523134.52	614.62	0	0.5	614.62	614.12
SD-46N-A	E4SM9	408809.50	2523134.52	614.62	0.5	1.8	614.12	612.82
SD-47S-I	E4SN0	408846.59	2523328.87	613.14	0	0.5	613.14	612.64
SD-47S-I	E4SN1	408846.59	2523328.87	613.14	0.5	1	612.64	612.14
SD-48N-B	E4SN5	408872.88	2523531.41	610.99	0	0.8	610.99	610.19
SD-49N-A	E4SN3	409013.88	2523882.27	613.69	0	0.5	613.69	613.19
SD-49N-A	E4SN4	409013.88	2523882.27	613.69	0.5	1.3	613.19	612.39
SD-50N-A	E4SN2	409153.63	2524220.83	611.89	0	0.8	611.89	611.09
SD-50N-J	E4SN7	408917.79	2524252.61	610.99	0	0.8	610.99	610.19
SD-51N-B	E4SN9	409155.04	2524549.89	610.02	0	0.5	610.02	609.52
SD-51N-I	E4SP2	408972.18	2524562.81	610.42	0	0.7	610.42	609.72
SD-52N-B	E4SP0	409166.03	2524673.83	610.04	0	1	610.04	609.04
SD-53N-I	E4SN8	408890.14	2525021.93	610.94	0	0.8	610.94	610.14
SD-54N-I	E4SQ1	408673.10	2525354.56	610.93	0	0.9	610.93	610.03
SD-55N-J	E4SP6	408520.54	2525492.79	612.46	0	0.5	612.46	611.96

TABLE 3
Sediment Core Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Station ID	CLP Sample ID	Northing (WI SPS)	Easting (WI SPS)	Sed Top Elevation (NGVD29)	Sample Top Depth Interval (ft)	Sample Bottom Depth Interval (ft)	Sample Top Elevation (NGVD29)	Sample Bottom Elevation (NGVD29)
SD-55N-J	E4SP7	408520.54	2525492.79	612.46	0.5	1.6	611.96	610.86
SD-56S-A	E4SP8	408385.30	2525654.01	612.88	0	0.5	612.88	612.38
SD-56S-A	E4SQ0	408385.30	2525654.01	612.88	0.5	1.3	612.38	611.58
SD-56S-K	E4SQ2	408618.67	2525794.23	607.93	0	0.5	607.93	607.43
SD-58S-B	E4SQ3	408305.59	2525856.35	612.35	0	0.5	612.35	611.85
SD-58S-B	E4SQ4	408305.59	2525856.35	612.35	0.5	1.5	611.85	610.85
SD-58S-B	E4SQ5	408305.59	2525856.35	612.35	1.5	2.3	610.85	610.05
SD-58S-G	E4SP5	408420.40	2525915.75	610.45	0	0.8	610.45	609.65

TABLE 4
Summary of PCB RAL Exceedances
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Sample ID	Depth Interval (ft)	Total Detected PCBs (mg/kg)
SD-07E-G	4.5 - 5.5	3.02
SD-15E-I	1.5 - 2.5	6.348
SD-17W-E	1.5 - 2.5	2.551
SD-18W-B	1.5 - 2.5	7.1051
SD-20E-I	1.5 - 2.5	1.50495
SD-21E-F	2.5 - 3.5	1.1051
SD-21E-J	0.5 - 1.5	2.448
SD-23N-C	1.5 - 2.5	1.013
SD-35W-A	0.5 - 1.5	1.2405
SD-36N-C	0.5 - 1.5	1.554
SD-44N-A	0 - 0.5	1.37
SD-46N-A	0 - 0.5	1.5405
SD-46N-A	0.5 - 1.8	1.4885
SD-47S-I	0 - 0.5	1.8905
SD-50N-J	0 - 0.8	3.925
SD-55N-J	0 - 0.5	25.835
SD-56S-A	0.5 - 1.3	1.198
SD-58S-B	0.5 - 1.5	1.598

TABLE 5
Summary Statistics - PCBs
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min (mg/kg)	Max (mg/kg)	Mean (mg/kg)	Median (mg/kg)
Grouped by Aroclor							
PCB-1016	6	254	98%	0.003	0.130	0.040	0.011
PCB-1221	0	260	100%	N/A	N/A	N/A	N/A
PCB-1232	0	260	100%	N/A	N/A	N/A	N/A
PCB-1242	0	260	100%	N/A	N/A	N/A	N/A
PCB-1248	124	136	52%	0.001	23.000	0.585	0.140
PCB-1254	21	239	92%	0.029	2.900	0.319	0.130
PCB-1260	100	160	62%	0.001	2.800	0.082	0.023
PCB-1262	0	260	100%	N/A	N/A	N/A	N/A
PCB-1268	0	260	100%	N/A	N/A	N/A	N/A
Total PCB	**185**	**75**	**29%**	**0.004**	**25.835**	**0.498**	**0.089**
Grouped by Aroclor and Sample Depth							
PCB-1016 (0.0-0.5)	3	79	96%	0.006	0.110	0.043	0.012
PCB-1016 (0.5-1.5)	1	62	98%	0.003	0.003	0.003	0.003
PCB-1016 (1.5-2.5)	3	44	94%	0.010	0.130	0.069	0.067
PCB-1016 (2.5-3.5)	2	34	94%	0.008	0.011	0.010	0.010
PCB-1016 (3.5-4.5)	0	16	100%	N/A	N/A	N/A	N/A
PCB-1016 (4.5-5.5)	0	8	100%	N/A	N/A	N/A	N/A
PCB-1016 (5.5-6.5)	0	4	100%	N/A	N/A	N/A	N/A
PCB-1016 (6.5-7.5)	0	3	100%	N/A	N/A	N/A	N/A
PCB-1016 (7.5-8.5)	0	1	100%	N/A	N/A	N/A	N/A
PCB-1248 (0.0-0.5)	44	38	46%	0.005	23.000	0.737	0.115
PCB-1248 (0.5-1.5)	37	26	41%	0.007	2.400	0.393	0.190
PCB-1248 (1.5-2.5)	25	22	47%	0.004	7.100	0.831	0.120
PCB-1248 (2.5-3.5)	10	26	72%	0.001	1.100	0.185	0.010
PCB-1248 (3.5-4.5)	6	10	63%	0.003	0.280	0.054	0.010
PCB-1248 (4.5-5.5)	1	7	88%	2.600	2.600	2.600	2.600
PCB-1248 (5.5-6.5)	1	3	75%	0.002	0.002	0.002	0.002
PCB-1248 (6.5-7.5)	0	3	100%	N/A	N/A	N/A	N/A
PCB-1248 (7.5-8.5)	0	1	100%	N/A	N/A	N/A	N/A
PCB-1254 (0.0-0.5)	8	74	90%	0.029	2.900	0.473	0.109
PCB-1254 (0.5-1.5)	10	53	84%	0.052	0.590	0.257	0.180
PCB-1254 (1.5-2.5)	3	44	94%	0.090	0.130	0.117	0.130
PCB-1254 (2.5-3.5)	0	36	100%	N/A	N/A	N/A	N/A
PCB-1254 (3.5-4.5)	0	16	100%	N/A	N/A	N/A	N/A
PCB-1254 (4.5-5.5)	0	8	100%	N/A	N/A	N/A	N/A
PCB-1254 (5.5-6.5)	0	4	100%	N/A	N/A	N/A	N/A
PCB-1254 (6.5-7.5)	0	3	100%	N/A	N/A	N/A	N/A
PCB-1254 (7.5-8.5)	0	1	100%	N/A	N/A	N/A	N/A
PCB-1260 (0.0-0.5)	40	42	51%	0.003	2.800	0.124	0.022
PCB-1260 (0.5-1.5)	30	33	52%	0.002	0.310	0.074	0.042
PCB-1260 (1.5-2.5)	12	35	74%	0.001	0.420	0.064	0.018
PCB-1260 (2.5-3.5)	10	26	72%	0.001	0.061	0.014	0.006
PCB-1260 (3.5-4.5)	4	12	75%	0.006	0.028	0.015	0.014
PCB-1260 (4.5-5.5)	2	6	75%	0.001	0.004	0.002	0.002
PCB-1260 (5.5-6.5)	1	3	75%	0.002	0.002	0.002	0.002
PCB-1260 (6.5-7.5)	1	2	67%	0.001	0.001	0.001	0.001
PCB-1260 (7.5-8.5)	0	1	100%	N/A	N/A	N/A	N/A
Total PCB (0.0-0.5)	62	20	24%	0.006	25.835	0.701	0.105
Total PCB (0.5-1.5)	55	8	13%	0.006	2.448	0.372	0.172
Total PCB (1.5-2.5)	33	14	30%	0.004	7.105	0.683	0.155
Total PCB (2.5-3.5)	20	16	44%	0.004	1.105	0.106	0.015
Total PCB (3.5-4.5)	9	7	44%	0.007	0.324	0.054	0.014
Total PCB (4.5-5.5)	3	5	63%	0.004	3.020	1.011	0.008
Total PCB (5.5-6.5)	2	2	50%	0.005	0.006	0.005	0.005
Total PCB (6.5-7.5)	1	2	67%	0.004	0.004	0.004	0.004
Total PCB (7.5-8.5)	0	1	100%	N/A	N/A	N/A	N/A

TABLE 6
Final PCB Congener Sample Selection Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Date	Total aroclor PCB (mg/kg)
LP2-SD34N-D1.5/2.5	E4RX9	24-Feb-10	0.09465
LP2-SD18E-E0.5/1.5	E4S07	26-Feb-10	0.2738
LP2-SD27W-A0.5/1.5	E4S17	01-Mar-10	0.09965
LP2-SD30W-B0.5/1.5	E4S88	03-Mar-10	0.37
LP2-SD15E-I0.5/1.5	E4S99	03-Mar-10	0.691
LP2-SD15E-I1.5/2.5	E4SA0	03-Mar-10	6.348
LP2-SD13E-A0.5/1.7	E4SA8	03-Mar-10	0.08245
LP2-SD35W-A0.5/1.5	E4SC0	04-Mar-10	1.2405
LP2-SD44N-A0.0/0.5	E4SF5	05-Mar-10	1.37
LP2-SD04E-A0.0/1.0	E4SH2	14-Apr-10	0.09 ND
LP2-SD04E-A0.0/1.0R	E4SH3	14-Apr-10	0.084 ND
LP2-SD12S-B0.5/1.5	E4SH6	14-Apr-10	0.4455
LP2-SD17W-L0.5/1.5	E4SJ1	14-Apr-10	0.843
LP2-SD36S-B0.0/0.5	E4SJ9	14-Apr-10	0.5785
LP2-SD38W-B0.5/1.9	E4SL1	15-Apr-10	0.134
LP2-SD42E-A0.0/0.4	E4SL7	15-Apr-10	0.201
LP2-SD43N-A0.5/1.7	E4SM6	15-Apr-10	0.516
LP2-SD43N-A0.5/1.7R	E4SM7	15-Apr-10	0.728
LP2-SD46N-A0.0/0.5	E4SM8	15-Apr-10	1.5405
LP2-SD46N-A0.5/1.8	E4SM9	15-Apr-10	1.4885
LP2-SD47S-I0.0/0.5	E4SN0	15-Apr-10	1.8905
LP2-SD49N-A0.5/1.3	E4SN4	15-Apr-10	0.191
LP2-SD50N-J0.0/0.8	E4SN7	15-Apr-10	3.925
LP2-SD55N-J0.0/0.5	E4SP6	16-Apr-10	25.835
LP2-SD56S-A0.5/1.3	E4SQ0	16-Apr-10	1.198
LP2-SD56S-K0.0/0.5	E4SQ2	16-Apr-10	0.3295
LP2-SD58S-B0.0/0.5	E4SQ3	16-Apr-10	0.358
LP2-SD58S-B0.5/1.5	E4SQ4	16-Apr-10	1.598
LP2-SD58S-B1.5/2.3	E4SQ5	16-Apr-10	0.2805

TABLE 7
Summary of Sediment Volume >1 mg/kg total PCBs
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Deposit ID	>1 mg/kg Volume (yd^3)	>1 mg/kg Removal Volume (yd^3) w/ Overburden[a]	>1 mg/kg Removal Area (ft^2) w/ Overburden[a]
3a-1	160	560	14,400
4-1	40	40	7,100
4-2	470	470	43,500
4-3	60	60	31,900
5-1	3,890	6,810	122,300
7-1	40	3,960	50,200
7-2	260	1,210	26,000
7-3	1,320	3,800	62,100
7-4	710	2,090	42,700
TOTAL	6,950	19,000	400,200

Notes:
ft^2 - square feet
mg/kg - milligrams per kilogram
yd^3 - cubic yards

[a] Overburden represents the volume of sediment required to be removed for excavation stability (estimated at 1:1 side slope) and quantity of sediment < 1 mg/kg necessary for removal of sediments > 1 mg/kg.

Figures

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Figure 1
Phase 2 Project Boundary
Lincoln Park Phase 2 - Remedial Investigation
Glendale, WI

CH2MHILL

Legend

Sediment Data

- Sediment Probe Location
- Sediment Probe and Core Location
- Sediment Thickness Contours

Sediment Thickness (ft)

- 0 - .5
- .5 - 1
- 1 - 1.5
- 1.5 - 2
- 2 - 2.5
- 2.5 - 3
- 3 - 3.5
- 3.5 - 4
- 4 - 4.5
- 4.5 - 5
- 5 - 5.5
- 5.5 - 6
- 6 - 6.5
- 6.5 - 7
- 7 - 7.5
- 7.5 - 8
- 8 - 8.5
- 8.5 - 9
- 9 - 9.5
- 9.5 - 10
- 10 - 10.5
- 10.5 - 11

Milwaukee River

Zone 7

Zone 6

Zone 3a (Phase I)

Zone 3b

Blatz Pavilion

Zone 4

Zone 5

Estabrook Park Dam

Milwaukee River Parkway

N. Port Washington Rd.

W. Hampton Avenue

I-43

N

0 450 900

Feet

DRAFT

Figure 2
Sediment Thickness Data and Contour
Lincoln Park Phase 2 - Remedial Investigation
Glendale, WI

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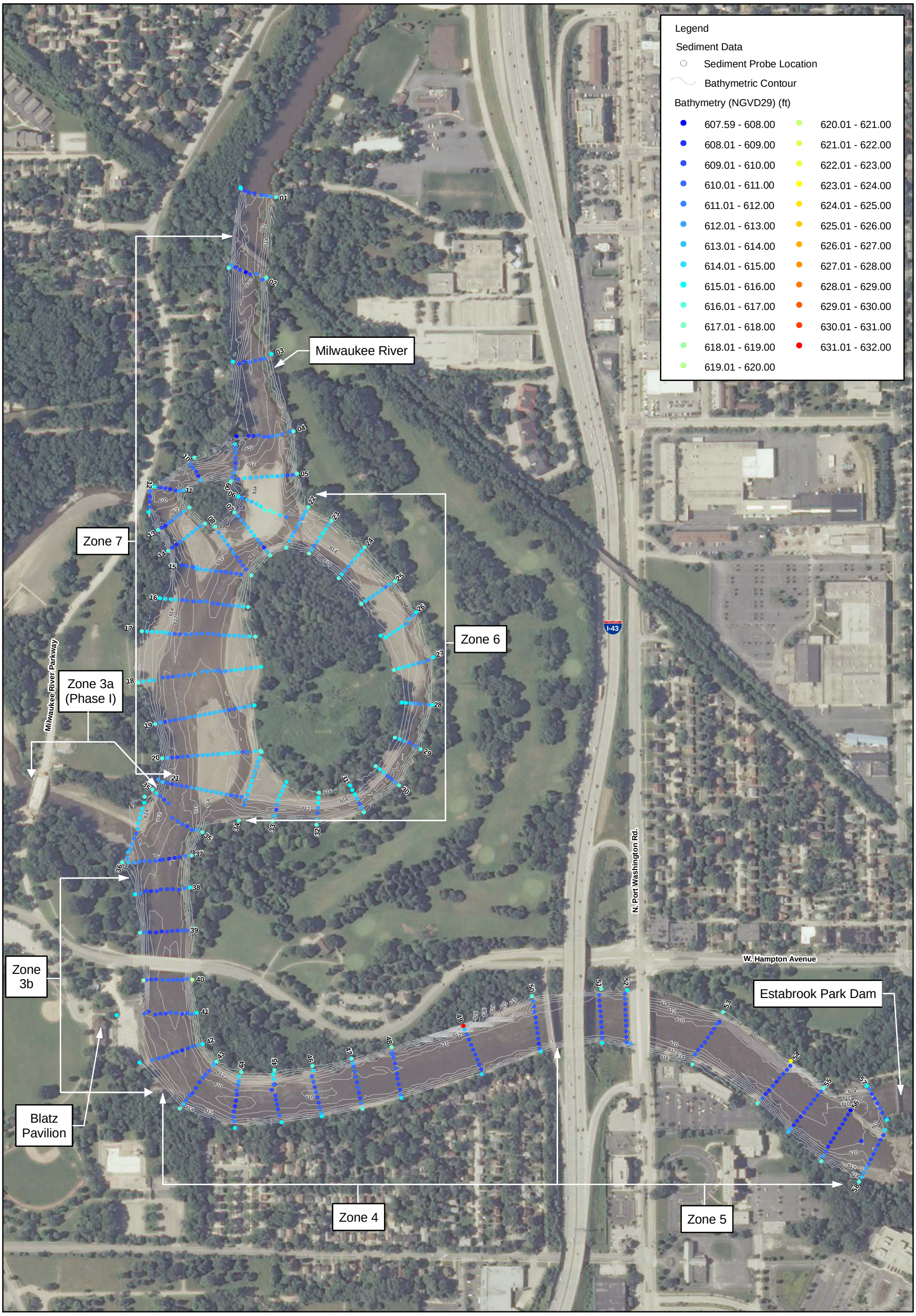


DRAFT

Figure 3
Existing Top of Sediment Bathymetry
Lincoln Park Phase 2 - Remedial Investigation
Glendale, WI

CH2MHILL

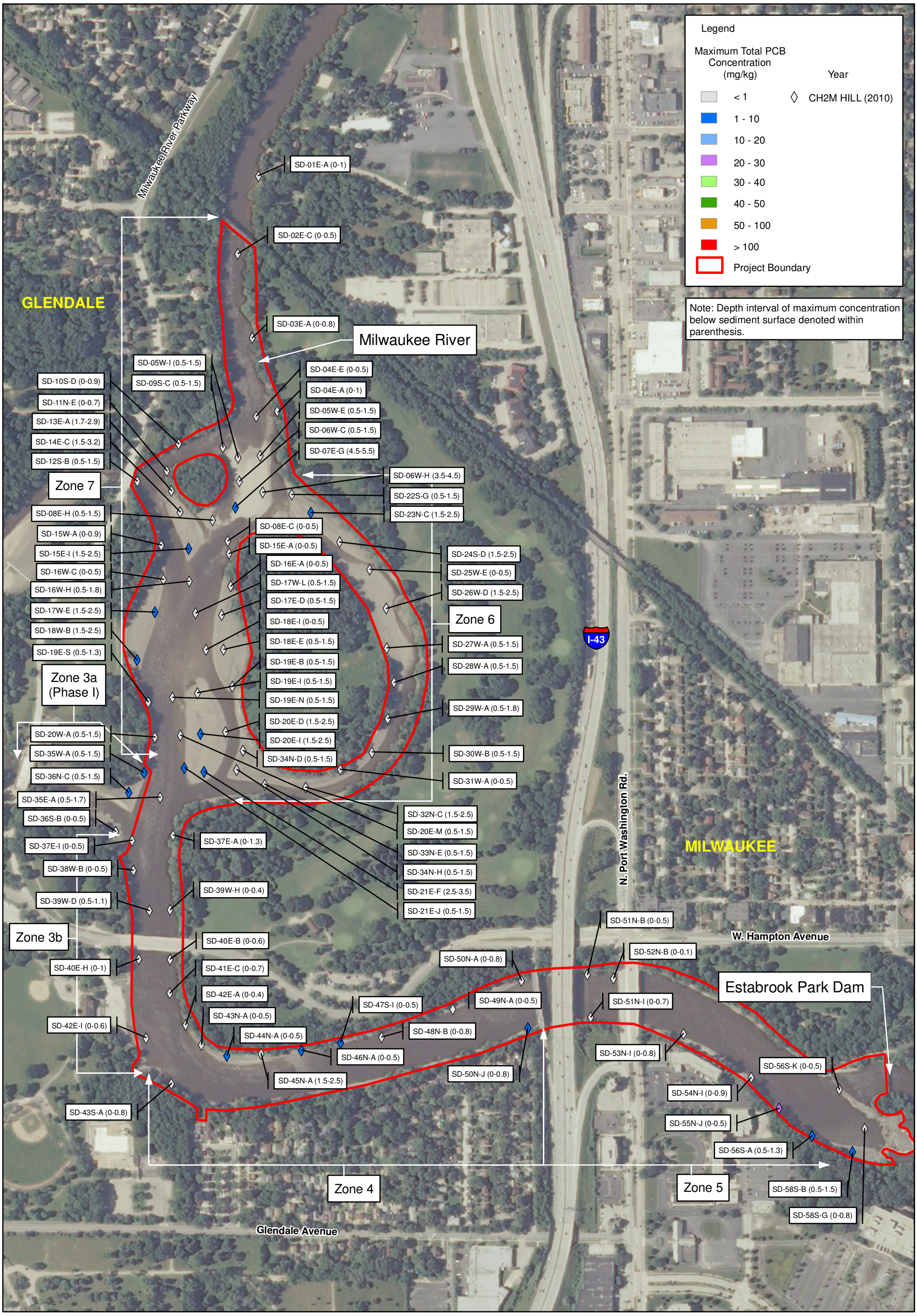
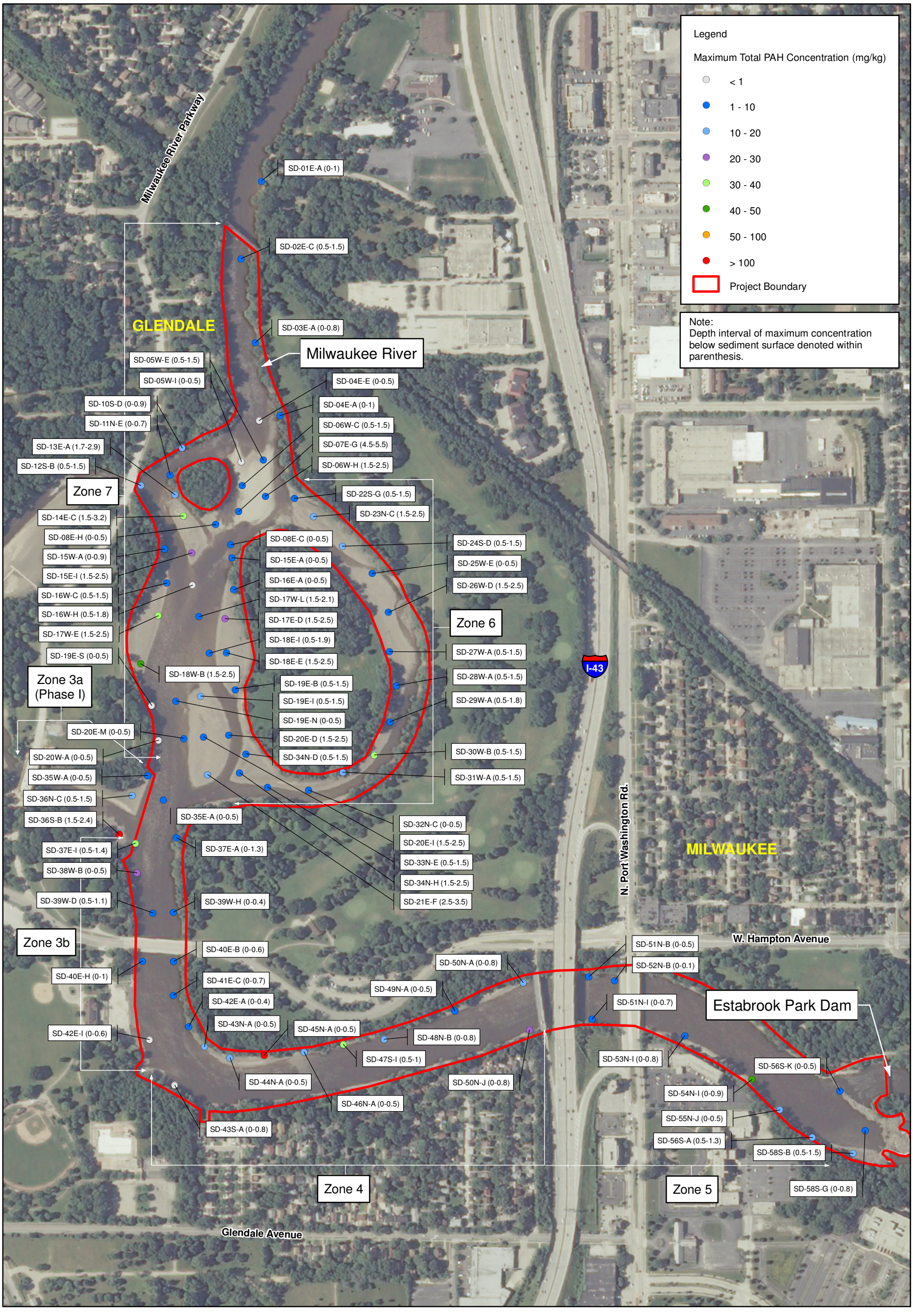


Figure 4
Maximum Total PCB Concentrations
Lincoln Park Phase 2 – Remedial Investigation
Glendale, WI

CH2MHILL



0 450 900

Feet

N

Figure 5
Maximum Total PAH Concentrations
Lincoln Park Phase 2 – Remedial Investigation
Glendale, WI

CH2MHILL

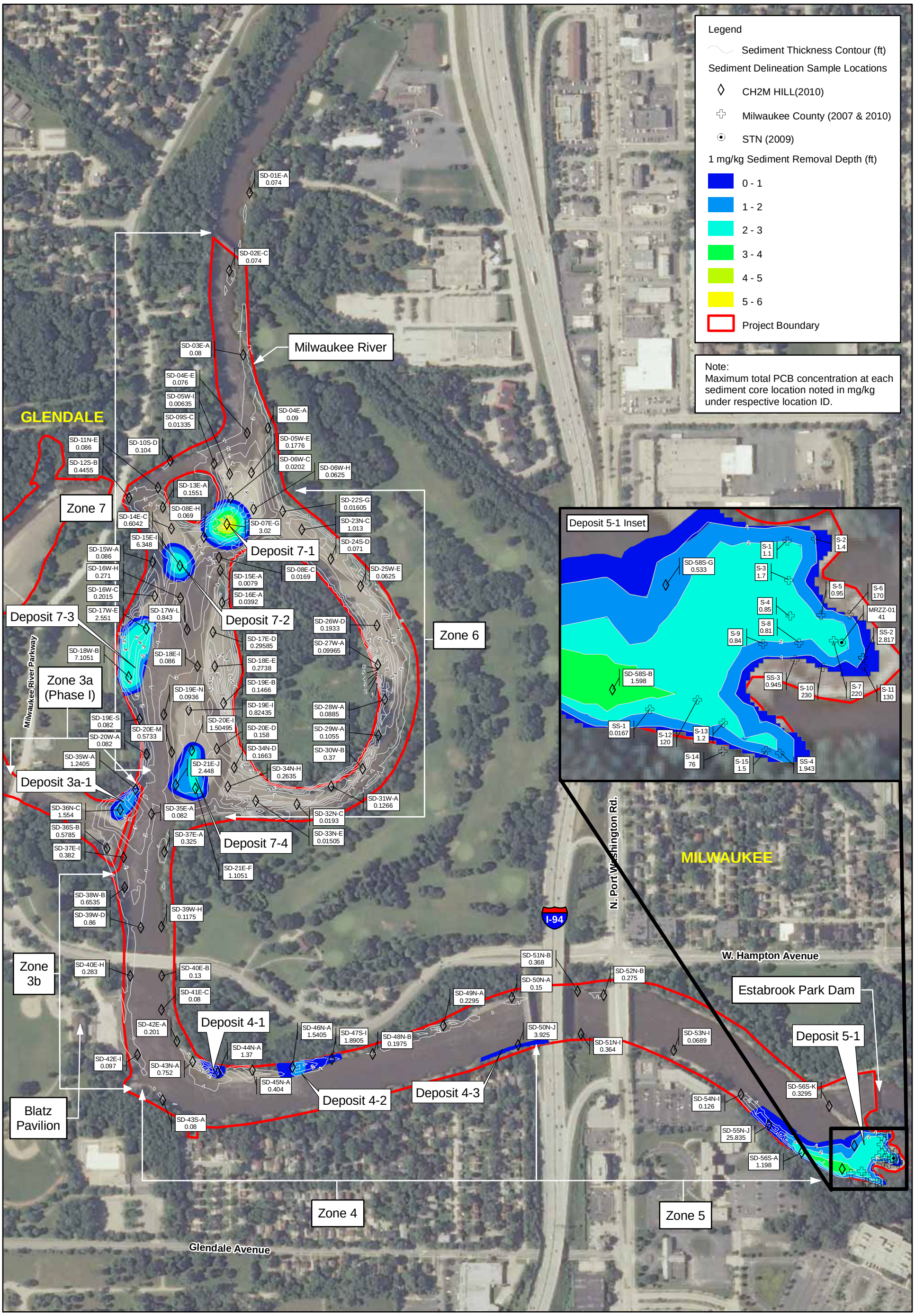


Figure 6
Vertical and Horizontal Extent of 1 mg/kg Total PCB
Lincoln Park Phase 2 - Remedial Investigation
Glendale, WI

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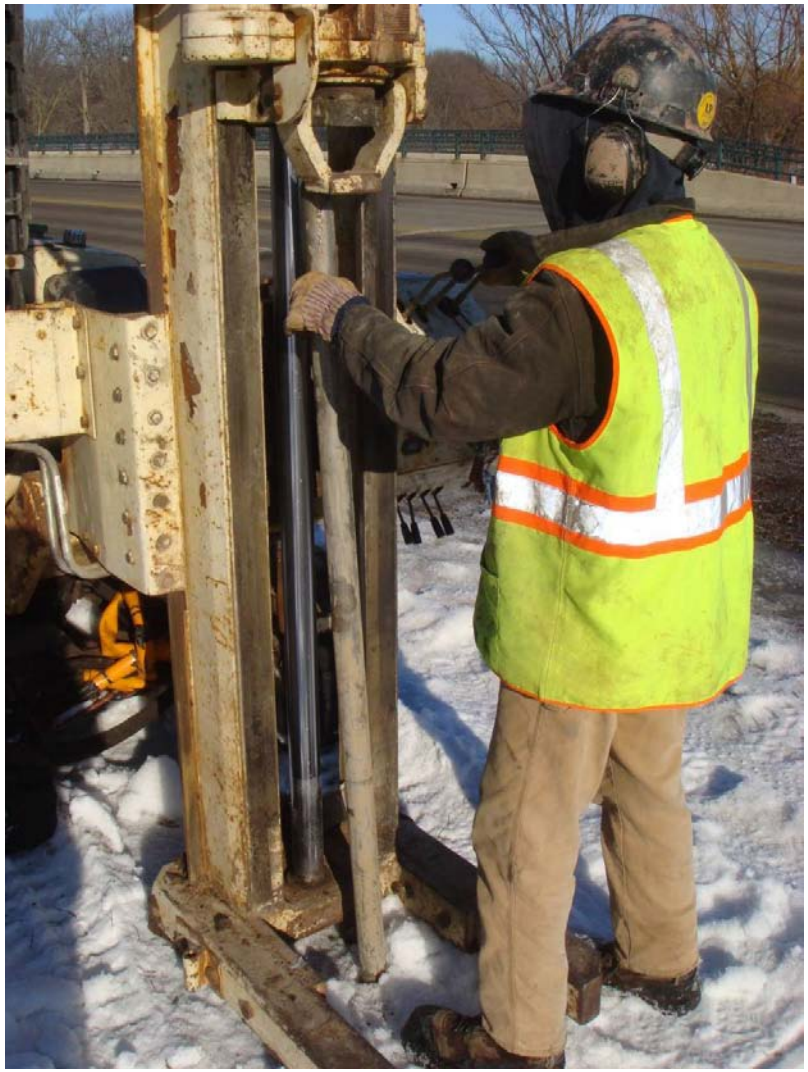
Appendix A
Coring Photograph Log

ATV-mounted Geoprobe rig used for sediment probing and core collection

Solid drive-point used for sediment probing with Geoprobe rig



Macro-core discrete sampler loaded with acetate sleeve for sediment core collection.

Solid point attached to rods prior to probing.

Discrete sampler can be driven to desired depth, opened, and then driven up to 5ft for sample collection into acetate sleeve.

Lexan core tubes used for manual core collection. Once driven to refusal, they are filled with water and capped to create vacuum.

Lexane is driven to desired depth or refusal using a fence post driver.

Lexane is capped to create vacuum to hold sediment in.

Lexane manually removed sediment and measured for recovery.

Retrieval of sediment sample using ponar device.

Ponar samples were collected for 0.0-0.5′ interval.

Removal of sample from ponar device.

Appendix B
Sediment Core Logs

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 01E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.9
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT):	614.89
EQUIPMENT :	Manual core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.3
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.4
DATE :	4/14/10 START : 8:55 END : 9:10	SEDIMENT SURFACE ELEVATION :	611.99

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	1.6	1.0	MC-1	0.0-0.4: Light brown fine to coarse sand and gravel with some silt, medium dense, non-plastic 0.4-1.0: Light brown clay with coarse sand and trace gravel, very stiff, medium plasticity	01E-A0.0/1.0, Congener

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 02E-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	5.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION	614.8
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	6.9
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.2
DATE :	4/16/10 START : 8:30 END : 9:20	SEDIMENT SURFACE ELEVATION :	609.09

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	1.7	1.7	MC-1	0.0-0.6: Brown coarse sand with gravel, loose, unconsolidated	02E-C0.0/0.5, Congener and Particle size
				0.6-1.5: Coarse sand with a 0.1' thick gravel lense at 1.1 ft bgs	02E-C0.5/1.5, Congener and Particle size
				1.5-1.7: Medium brown clay, very dense, non-plastic	

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 03E-A2

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	3.2
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.7
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.7
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.5
DATE :	4/14/10 START : 9:20 END : 9:40	SEDIMENT SURFACE ELEVATION :	614.68

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.4	0.8	MC-1	0.0-0.5: Light brown fine to coarse sand with gravel and trace silt and trace organics, loose to medium dense, non-plastic 0.5-0.8: Light brown clay with trace sand and gravel, stiff to v. stiff, medium plasticity	03E-A0.0/0.8, Congener 03E-A0.0/0.8R, Congener and field duplicate
1					
2					
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 04E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.2
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT):	613.1
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.75
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.55
DATE :	4/14/10 START : 10:40 END : 11:00	SEDIMENT SURFACE ELEVATION :	610.87

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	2.0	1.0	MC-1	0.0-0.5: Grey fine to medium sand with some silt, loose to medium dense, non-plastic 0.5-0.7: Light grey coarse sand, loose, non-plastic 0.7-1.0: Silty fine-coarse sand and gravel with trace organics/shells, med. dense	04E-A0.0/1.0, Congner 04E-A0.0/1.0R, Congener and field duplicate

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 04E-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION(FT) :	613.07
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.25
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.55
DATE :	4/14/10 START : 10:35 END : 10:45	SEDIMENT SURFACE ELEVATION :	610.37

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
	0.9	0.5	MC-1	0.0-0.5: Fine to coarse sand and gravel, trace silt and organics, loose, non-plastic	04E-E0.0/0.5, Congener

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 05W-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT):	614.52
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	6.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	5.2
DATE :	3/2/10 START : 12:20 END : 13:00	SEDIMENT SURFACE ELEVATION :	613.720

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	7.0	4.5	GP-1	0.0-1.0: Ice	
				1.0-1.5: Medium and coarse sand with gravel, loose, unconsolidated	05W-E0.0/0.5
2				1.5-1.7: Medium brown silt, medium dense, soft, somewhat palstic	05W-E0.5/1.5
				1.7-2.4: Medium and coarse sand with gravel, loose, unconsolidated	
3				2.4-3.0: Black silt with trace gravel, soft, somewhat plastic	05W-E1.5/2.5
4				3.0-4.5: Light grey medium and coarse sand with gravel, loose, unconsolidated	05W-E2.5/3.5
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 05W-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.32
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.9
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.9
DATE :	3/2/10 START : 10:10 END : 10:50	SEDIMENT SURFACE ELEVATION :	613.32

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.5: Ice	
1	6.0	4.4	GP-1	0.5-3.2: Brown medium and coarse sand with gravel, loose, unsorted,	05W-I0.0/0.5
2					05W-I0.5/1.5
3					05W-I1.5/2.5
4				3.2-4.4: Light grey clayey fine sand, firm, dense	05W-I2.5/3.9
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 06W-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.23
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.9
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	5.1
DATE :	3/2/10 START : 13:00:00 PM END : 13:35:00 PM	SEDIMENT SURFACE ELEVATION :	613.43

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	7.0	4.1	GP-1	0.0-1.0: Snow/ice	
2				1.0-2.5: Light brown silty fine to coarse sand and gravel with shell fragments, loose, non-plastic	06W-C0.0/0.5, Congener 06W-C0.5/1.5, Congener
3				2.5-2.8: Med. brown-grey silty fine sand, med. dense, low plasticity 2.8-3.0: Med. to light brown gravel, uniform, loose, non-plastic 3.0-3.5: Medium to light brown fine to medium sand with trace gravel and shell fragments, loose, non-plastic	06W-C1.5/3.1, Congener 06W-C1.5/3.1R, Congener and Field Duplicate.
4				3.5-4.1: Light brown-grey silty very fine sand, dense to very dense, low plasticity	
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 06W-H

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	615.84
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	7.2
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	7.2
DATE :	3/3/10 START : 8:15 END : 8:55	SEDIMENT SURFACE ELEVATION :	615.84

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	4.0	2.6	GP-1	0.0-1.8: Light brown fine to coarse sand and gravel with some silt, loose to medium denes, non-plastic	06W-H0.0/0.5, Congener 06W-H0.5/1.5, Congener 06W H0.5/1.5R, Congener duplicate only
2				1.8-1.9: Dark brown sandy silt with trace gravel, dense, medium plasticity 1.9-2.5: Light brown fine to medium silty sand with trace coarse sand and gravel, dense, non- to low plasticity	06W-H1.5/2.5, Congener
3				2.5-4.0: Dark grey to black clayey silty, dense to very dense, medium to high plasticity	06W-H2.5/3.5, Congener
4					06W-H3.5/4.5, Congener
5	4.0	3.0	GP-2	4.0-4.4: Light to medium brown sand and gravel with some silt, very loose, non-plastic 4.4-6.6: Grey to dark grey fine to medium sand with some silt and trace gravel, loose to medium dense, non-plastic, silt seam at 5.9'	06W-H4.5/5.6, Congener
6					
7				6.6-7.0: Light brown to grey silty very fine sand, very dense, low plasticity	

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 07E-G

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.5
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	8.3
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	7.3
DATE :	3/4/10 START : 9:25 END : 10:00	SEDIMENT SURFACE ELEVATION :	613.49

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	4.0	2.0	GP-1	0.0-1.3: Light brown fine to coarse sand and gravel, very loose, non-plastic	07E-G0.0/0.5
1					07E-G0.5/1.5
				1.3-1.7: Dark gray to black sandy silt with trace organics, medium dense, low to medium plasticity	
2					07E-G1.5/2.5
3					07E-G2.5/3.5
4				1.7-5.5: Dark gray to black silty fine to coarse sand and gravel, loose, non-plastic	07E-G3.5/4.5
5	5.0	3.5	GP-2		07E-G4.5/5.5
6				5.5-6.1: Dark gray silty fine to medium sand, dense, low plasticity	
				6.1-6.8: Dark brown silt with trace sand, dense, medium plasticity	
7				6.8-7.2: Gray silty fine to medium sand, dense, low plasticity	
				7.2-7.5: Light brown-gray silty very fine sand, very dnese, low plasticity	

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 08E-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.90
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.5
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	1.7
DATE :	3/3/10 START : 16:15 END : 16:40	SEDIMENT SURFACE ELEVATION :	610.1

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	4.5	GP-1	0.0-1.0: Grey fine sand coarsening downward, dense, hard/stiff, non-plastic	08E-C0.0/0.5, Congener
1				1.0-1.7: Grey coarse sand with fine gravel, loose, medium hard-stiff, non-plastic	08E-C0.5/1.5, Congener
2				1.7-3.1: Brown fine sand with siltm dense, hard/stiff, medium to low plasticity	08E-C1.5/3.1, Congener
3					
4				3.1-4.5: Greyish silty clay, dense, very hard/stiff, low plasticity	08E-C3.1/4.5, Congener
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 08E-H

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.1
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.5
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.1
DATE :	3/4/10 START : 10:30 END : 10:55	SEDIMENT SURFACE ELEVATION :	612.7

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	7.0	3.4	GP-1	0.0-0.5: Light brown gravel with sand (mostly coarse sand), very loose	08E-H0.0/0.5, Congener
1				0.5-1.3: Dark gray fine to coarse sand with silt, medium dense, non- to low plasticity, silty sand seam at 1'	08E-H0.5/1.5, Congener 08E-H0.5/1.5R, Congener duplicate only
2				1.3-2.0: Gray to dark gray gravel with sand, some silt, and trace shell fragments, medium dense, non-plastic, silt seam at 1.3'	08E-H1.5/2.5, Congener
				2.0-2.5: Light brown fine to coarse sand with some silt, dense, non-plastic	
3				2.5-3.4: Light brown-gray silty very fine sand, very dense, non- to low plasticity	08E-H2.5/3.4, Congener
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 09S-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT)	613.14
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	6.0
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.3
DATE :	3/2/10 START : 14:00 END : 14:15	SEDIMENT SURFACE ELEVATION :	611.44

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	7.0	3.4	GP-1	0.0-0.5: Ice/snow/water	
1				0.5-2.1: Light brown fine to coarse sand and gravel with some silt, loose, non-plastic	09S-C0.0/0.5
2					09S-C0.5/1.5, slight fuel odor
				2.1-2.6: Dark gray-brown silt with trace sand and shell fragments, medium dense, medium plasticity	
3				2.6-3.2: Light brown-gray silty medium to coarse sand and gravel, medium dense, non-plastic	09S-C1.5/2.9
				3.2-3.4: Light brown-gray sitly very fine sand, very dense, low plasticity	
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 10S-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.9
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.18
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.1
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.2
DATE :	4/14/10 START : 15:45 END : 15:55	SEDIMENT SURFACE ELEVATION :	611.28

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	1.3	0.9	MC-1	0.0-0.3: Dark brown silt with organics, v. soft, low plasticity, sheen 0.3-0.4: Dark brown silty sand with organics, medium soft, low plasticity 0.4-0.8: Dark brown silt with trace organics, soft, low to medium plasticity 0.8-0.9: Dark brown silty sand with organics, medium soft, low plasticity	10S-D0.0/0.9, Congener NOTE: Sheen in top 0.3' of core

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 11N-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.14
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	2.5
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	0.9
DATE :	4/14/10 START : 14:10 END : 14:20	SEDIMENT SURFACE ELEVATION :	612.54

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.1	0.7	MC-1	0.0-0.2: Dark brown silt with organins and trace sand, soft, low plasticity 0.2-0.7: Light brown v. fine to coarse sand and gravel, loose, non-plastic, layer of organics at 0.5'	11N-E0.0/0.7, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 12S-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	4.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT)	614.12
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	7.3
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.7
DATE :	4/14/10 START : 13:25 END : 13:40	SEDIMENT SURFACE ELEVATION :	609.52

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	3.7	2.2	MC-1	0.0-0.3: Light brown medium-coarse sand and gravel, loose to medium dense	12S-B0.0/0.5, Congener and Particle size
				0.3-0.6: Grey - dark grey fine-medium sand with trace gravel and silt, med. dense	
1				0.6-1.1: Dark grey silt with trace organics, soft, low plasticity	12S-B0.5/1.5, Congener and Particle size
				1.1-2.0: Grey fine to coarse sand with trace gravel, mediume dense, non-plastic	
2				2.0-2.2: SAA with color change to light brown	
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 13E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT):	613.5
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	6.1
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	5.3
DATE :	3/3/10 START : 15:10 END : 15:35	SEDIMENT SURFACE ELEVATION :	612.7

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	7.0	4.2	GP-1	0.0-0.9: Light brown coarse sand with trace gravel, medium dense, soft, plastic	13E-A0.0/0.5, Congeners
1				0.9-1.8: Greyish coarse sand with fine gravel, loose and less dense, plastic	13E-A0.5/1.7, Congener
2				1.8-2.9: Greyish black silt with fine sand, medium dense, medium hard/stiff, medium to low plasticity	13E-A1.7/2.9, Congener
3				2.9-4.0: Greyish coarse sand with fine gravel, loose and less dense, plastic	13E-A2.9/4.2, Congener
4				4.0-4.2: Greyish fine sand with silt and clay, dense/stiff, med-low plasticity	
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 14E-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.9
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.19
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.4
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.5
DATE :	3/3/10 START : 14:10 END : 14:30	SEDIMENT SURFACE ELEVATION :	613.29

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	7.0	4.1	GP-1	0.0-1.2: Brown medium sand with trace silt, loose, non-plastic	14E-C0.0/0.5
1					14E-C0.5/1.5 14E-C0.5/1.5R
2				1.2-2.4: Dark grey medium sand with gravel, loose, soft, non-plastic	14E-C1.5/3.2, fuel odor
3				2.4-2.8: Dark grey silt with find sand, soft, low plasticity 2.8-3.2: Brown coarse sand with gravel, non-plastic	
4				3.2-4.1: Light grey clayey fine sand, firm, dense, low plasticity	14E-C3.2/4.0
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 15E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.5
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.87
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	6.4
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	3.9
DATE :	3/2/10 START : 14:45 END : 15:00	SEDIMENT SURFACE ELEVATION :	610.37

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	7.0	2.8	GP-1	0.0-2.1: Brownish black medium to coarse sand with trace gravel with depth, loose, soft	15E-A0.0/0.5, Congener
1					15E-A0.5/2.1, Congener
2				2.1-2.8: Light grey clayey fine sand, dense, firm, low plasticity	15E-A2.1/2.8, Congener
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 15E-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.31
EQUIPMENT :	Geoprobe _ ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.3
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.0
DATE :	3/3/10 START : 13:30 END : 14:10	SEDIMENT SURFACE ELEVATION :	613.0

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	3.6	GP-1	0.0-2.7: Medium brown fine to medium sand with gravel increasing with depth, soft, non-plastic	15E-I0.0/0.5, Congener and Particle size
1					15E-I0.5/1.5. Congener and Particle size
2					15E-I1.5/2.5, Congener and Particle size, fuel odor at 2.0'
3				2.7-3.6: Light grey fine sandy clay, firm, very dense/stiff	15E-I2.5/3.6, Congener and particle size
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 15W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.89
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.9
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.5
DATE :	4/14/10 START : 15:20 END : 15:30	SEDIMENT SURFACE ELEVATION :	610.49

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	0.9	0.9	MC-1	0.0-0.1: Medium brown medium sand 0.1-0.9: Brown medium to coarse sand with trace gravel	15W-A0.0/0.9, Congener

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 16E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.2
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.46
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	7.5
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	7.3
DATE :	3/2/10 START : 15:05 END : 15:40	SEDIMENT SURFACE ELEVATION :	614.26

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.6: Ice	16E-A0.0/0.5
1				0.6-2.1: Medium brown medium sand with silt	16E-A0.5/1.5
2					16E-A1.5/2.5
3	5.0	3.1	GP-1		16E-A2.5/3.5
4					16E-A3.5/4.5
5				2.1-7.8: Brown-grey medium sand with trace gravel, unconsolidated, loose	16E-A4.5/6.1 16E-A4.5/6.1R, Field duplicate
6					
7	3.0	3.0	GP-2		
8				7.8-8.0: Light grey clayey fine sand, medium dense, medium firm	

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 16W-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.81
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.6
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.6
DATE :	3/4/10 START : 12:10 END : 12:45	SEDIMENT SURFACE ELEVATION :	613.81

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	5.0	3.6	GP-1	0.0-0.9: Medium to dark brown silt with organics, medium dense, low to medium plasticity	16W-C0.0/0.5, Congener
1				0.9-1.1: Med.-dark brown silty sand and gravel with organics, med. dense, low plasticity	16W-C0.5/1.5, Congener, 16W-C0.5/1.5R, Congener duplicate only, fuel odor
				1.1-1.5: Medium to dark brown silt, medium dense, medium plasticity	
2				1.5-2.4: Light brown-gray sand and gravel with silt (fine to coarse sand), dense, non-plastic	16W-C1.5/2.4, Congener
3				2.4-3.6: Light brown-gray sitly very fine sand, very dense, medium plasticity	16W-C2.4/3.6, Congener
4				**EOB @ 3.6'**	
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 16W-H

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.85
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	5.65
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.05
DATE :	4/14/10 START : 13:45 END : 14:05	SEDIMENT SURFACE ELEVATION :	611.25

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	3.8	1.8	MC-1	0.0-0.9: Light to medium brown fine to coarse sand and gravel with shells/shell fragments, loose to medium dense, non-plastic	16W-H0.0/0.5, Congener
				0.9-1.1: Light brown gravel, very loose, non-plastic	16W-H0.5/1.8, Congener
				1.1-1.8: Light brown - grey fine to coarse sand and gravel with shells, loose to medium dense, non-plastic	

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 17E-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.5
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.91
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.0
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.5
DATE :	2/26/10 START : 12:50 END : 13:20	SEDIMENT SURFACE ELEVATION :	613.41

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	5.5	4.6	GP-1	0.0-1.1: Ice	
2				1.1-2.4: Black silt, soft, medium dense, plastic	17E-D0.0/0.5, Congener 17E-D0.5/1.5, Congener 17E-D0.5/1.5R, Congener duplicate only
3				2.4-3.3: Dark brown medium sand, loose, soft	17E-D1.5/2.5, Congener
4				3.3-4.6: Light brown clay with fine sand, dense, firm	17E-D2.5/3.5, Congener
5				**EOB @ 4.6'**	
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 17W-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.1
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.01
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	6.9
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	6.8
DATE :	3/4/10 START : 12:55 END : 13:25	SEDIMENT SURFACE ELEVATION :	613.91

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	5.0	2.4	GP-1	0.0-2.1: Medium brown silt with trace sand and organics, medium dense, medium plastiticy, color change to dark brown at 1.5'	17W-E0.0/0.5, Particle size 17W-E0.5/1.5, Particle size 17W-E1.5/2.5, Particle size
2					
3				2.1-5.4: Dark brown silty fine to medium sand, medium dense, low to medium plasticity	17W-E2.5/3.5, Particle size
4					17W-E3.5/4.4, Particle size
5					
6	8.0	2.4	GP-2	5.4-8.0: light brown-grey sand and gravel with shell fragments, loose to medium dense, non-plastic	
7					
8					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 17W-L

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.9
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.88
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	5.2
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	3.3
DATE :	4/14/10 START : 14:40 END : 15:00	SEDIMENT SURFACE ELEVATION :	610.98

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	2.4	2.1	MC-1	0.0-0.7: Brown fine to medium sand with some gravel and shells, medium dense, non-plastic, color change to dark grey at 0.4'	17W-L0.0/0.5, Congener
1				0.7-1.1: Dark grey very fine to fine silty sand, medium soft, low plasticity	17W-L0.5/1.5, Congener
				1.1-1.4: Grey fine to medium sand with trace coarse sand and gravel, trace shell fragments, medium dense, non-plastic	
2				1.4-2.1: Medium brown silty, soft, low to medium plasticity, layer of sand and organics at 1.7'	17W-L1.5/2.1, Congener
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 18E-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.18
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	6.0
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	5.6
DATE :	2/26/10 START : 10:55 END : 11:45	SEDIMENT SURFACE ELEVATION :	613.78

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	5.0	2.9	GP-1	0.0-0.8: Snow/ice	18E-E0.0/0.5, Congener
1				0.8-1.0: Organics - grass	18E-E0.5/1.5, Congener 18E-E0.5/1.5R, Congener and Field duplicate, Staining, slight sheen, and fuel odor
2				1.0-2.0: Medium brown silt with trace organics, semi-soft, low plasticity	18E-E1.5/2.5, Congener, Staining, slight sheen, and fuel odor
3					
4				2.0-5.2: Dark brown silt with fine to medium sand and trace organics, soft/loose, low plasticity	18E-E2.5/4.1, Congener
5					
6	2.0	2.0	GP-2	5.2-5.4: Dark brown silty with fine-medium sand with trace organics, loose, low plasticity	
7				5.4-7.0: Light brown very fine sand, very dense, non-plastic	

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 18E-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.92
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.8
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.0
DATE :	4/14/10 START : 15:00 END : 15:15	SEDIMENT SURFACE ELEVATION :	611.12

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	2.5	1.9	MC-1	0.0-0.5: Brown fine to medium sand with trace gravel and shells, trace organics, medium dense, non-plastic	18E-I0.0/0.5, Congener 18E-I0.0/0.5R, Congener and field duplicate
				0.5-0.9: Light grey fine sand with trace gravel and shells, trace organics, medium dense, non-plastic	
				0.9-1.1: Brown-grey silt with trace shells, medium stiff, medium plasticity	18E-I0.5/1.9, Congener
2				1.1-1.9: Light grey fine sand with trace gravel and shells, trace organics, medium dense, non-plastic	
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 18W-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.09
EQUIPMENT :	Geoprobe -Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.8
LOGGER :	N.Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.8
DATE :	3/4/10 START : 11:30 END : 12:00	SEDIMENT SURFACE ELEVATION :	614.09

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	6.0	3.7	GP-1	0.0-1.7: Brown silty clay with fine sand, medium dense, hard/stiff, non-plastic, 2" black silty clay layer	18W-B0.0/0.5 18W-B0.5/1.5
2					18W-B1.5/2.5 18W-B1.5/2.5R
3				1.7-3.7: Greyish black silty clay with fine sand, very dense, very hard/stiff, medium plasticity	18W-B2.5/3.5
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 19E-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.9
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.60
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	11.5
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	10.6
DATE :	2/26/10 START : 8:40 END : 9:40	SEDIMENT SURFACE ELEVATION :	612.60

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1				0.0-1.4: Snow/ice	
2				1.4-2.0: Medium brown silt with organics, soft	19E-B0.0/0.5
3	5.0	2.6	GP-1		19E-B0.5/1.5
4				2.0-5.0: Dark brown-black silt with trace organics, soft to very soft	19E-B1.5/2.5
5					19E-B2.5/3.5
6				5.0-5.8: Grey fine to coarse sand with shell fragments, loose	19E-B3.5/5.1
				5.8-6.7: Grey medium to coarse sand and gravel, coarsening downward, very loose	
7	4.0	4.0	GP-2		
8				6.7-9.0: Bown-grey silty clay, dense, medium to high plasticity	
9					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 19E-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.49
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.2
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	4.6
DATE :	2/26/10 START : 13:50 END : 14:20	SEDIMENT SURFACE ELEVATION :	612.89

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	4.6	GP-1	0.0-0.7: Ice	
1				0.7-1.7: Medium brown medium sand, loose, soft	19E-I0.0/0.5, Congener
2				1.7-2.5: Dark brown silt, medium dense, soft, plastic	19E-I0.5/1.5, Congener
3				2.5-3.3: Dark brown silt sand	19E-I1.5/2.5, Congener
4				3.3-4.6: Light brown-grey very fine sand, very dense, firm, non-plastic	19E-I2.5/3.6, Congener
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 19E-N

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.54
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	3.0
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	1.7
DATE :	2/26/10 START : 14:50 END : 15:10	SEDIMENT SURFACE ELEVATION :	611.24

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	5.0	3.6	GP-1	0.0-0.9: Ice	
2				0.9-1.9: Black coarse sand with fine gravel, loose, soft, plastic	19E-N0.0/0.5
					19E-N0.5/1.5
3				1.9-2.7: Brown fine sandy silt, dense, medium hard, plastic	
				2.7-3.6: Brown clayey silt, very dense, hard, plastic, few cobbles at 3.6'	19E-N1.5/2.6
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 19E-S

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.29
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.2
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.9
DATE :	4/14/10 START : 15:25 END : 15:35	SEDIMENT SURFACE ELEVATION :	611.99

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	2.4	1.7	MC-1	0.0-0.2: Grey-brown fine-coarse sand with gravel and some silt and shells, loose	19E-S0.0/0.5, Congener
				0.2-0.4: Grey sandy silt, medium stiff, medium plasticity	
1				0.4-1.1: Grey very fine sandy silt, stiff, low plasticity, yellow/gold streaks on exterior of sediment in core	19E-S0.5/1.3, Congener
				1.1-1.3: Light brown fine sand with trace shells, stiff, non-plastic	
				1.3-1.7: Wood	
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 20E-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.88
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.3
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	3.7
DATE :	2/25/10 START : 12:30 END : 13:30	SEDIMENT SURFACE ELEVATION :	613.28

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	6.0	4.8	GP-1	0.0-0.9: Ice	
2				0.9-1.9: Dark brown medium sandy silt, medium dense, soft	20E-D0.0/0.5, Congener
3				1.9-3.1: Black silt with fine sand, medium dense, soft	20E-D0.5/1.5, Congener
4				3.1-4.8: Light grey clay, dense, firm	20E-D1.5/2.5, Congener
					20E-D2.5/3.7, Congener
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 20E-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT):	613.92
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.1
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.7
DATE :	2/25/10 START : 12:00 END : 12:40	SEDIMENT SURFACE ELEVATION :	613.52

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.7: Ice	
1					20E-I0.0/0.5
2				0.7-2.9: Medium brown silty medium sand, medium dense, soft	20E-I0.5/1.5
3	5.0	3.9	GP-1		20E-I1.5/2.5
4				2.9-4.9: Black fine sandy silt, low density, soft	20E-I2.5/3.5
5					20E-I3.5/4.5
6	1.0	1.0	GP-2	4.9-6.0: Greyish black fine silty clay, high density, hard	
7					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 20E-M

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.5
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT):	612.4
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	3.4
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.9
DATE :	2/26/10 START : 10:10 END : 10:35	SEDIMENT SURFACE ELEVATION :	611.9

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-1.0: Snow and ice	
1				1.0-1.7: Dark brown fine to medium sand with trace gravel and shell fragments, loose	20E-M0.0/0.5, Congener
2	5.0	3.7	GP-1	1.7-2.2: Dark brown silty fine sand, medium dense	20E-M0.5/1.5, Congener 20E-M0.5/1.5R, Congener duplicate only, Fuel odor and sheen
				2.2-2.8: Dark brown silt with trace organics, medium dense	
3				2.8-3.7: Medium brown very fine sand with trace shell fragments, very dense, non-plastic, dry	20E-M1.5/2.7, Congener
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 20W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.53
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	6.9
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	6.3
DATE :	4/15/10 START : 8:35 END : 8:55	SEDIMENT SURFACE ELEVATION :	612.93

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	5.8	2.5	MC-1	0.0-0.5: Brown to dark grey silt with large angular gravel at surface, stiff to very stiff, low to medium plasticity	20W-A0.0/0.5, Congener
1				0.5-1.0: Light to dark brey fine to medium sandy silt, stiff, low palsticity	20W-A0.5/1.5, Congener
				1.0-1.5: Dark grey very fine to fine sandy silt, stiff to very stiff, medium plasticity	
2				1.5-2.2: Light brown-grey silty fine to medium sand, loose, non-plastic	20W-A1.5/2.5, Congener
				2.2-2.5: Light brown-grey fine to coarse sand and gravel, very loose, non-plastic	
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 21E-F

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.86
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.9
LOGGER :	H. RaddEmann	SED THICKNESS TO REFUSAL (FT) :	4.5
DATE :	2/25/10 START : 15:00 END : 16:10	SEDIMENT SURFACE ELEVATION :	613.5

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.5: Ice	
1	6.0	5.0	GP-1	0.5-4.2: Dark brown sandy silt, medium dense, soft	21E-F0.0/0.5
2					21E-F0.5/1.5
3					21E-F1.5/2.5
4					21E-F2.5/3.5
5				4.2-5.0: Lgiht grey clay with very fine sand, dense, very firm	21E-F3.5/4.5
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 21E-J

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.06
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.3
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	4.0
DATE :	2/25/10 START : 14:15 END : 14:40	SEDIMENT SURFACE ELEVATION :	612.76

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	6.0	4.8	GP-1	0.0-1.2: Ice	
				1.2-1.7: Brown coarse sandy silt, medium dense, soft	21E-J0.0/0.5
2				1.7-2.2: Dark brown coarse sandy silt, medium dense, soft	21E-J0.5/1.5 21E-J0.5/1.5R
3				2.2-3.4: Black fine sandy silt, very soft and low density	21E-J1.5/2.5
4				3.4-4.8: Brown fine sandy clay, dense, medium-hard to firm	21E-J2.5/3.6
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 22S-G

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	COING SURFACE ELEVATION (FT) :	614.11
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.7
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.1
DATE :	3/1/10 START : 12:00 END : 12:30	SEDIMENT SURFACE ELEVATION :	613.5

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	7.0	5.0	GP-1	0.0-1.0: Ice	
2				1.0-2.0: Medium brown silt, medium dense, medium plasticity	22S-G0.0/0.5, Congener and particle size
3				2.0-2.8: Dark brown medium sand and gravel with trace silt, loose	22S-G0.5/1.5, Congener and particle size 22S-G1.5/2.5, Congener and particle size 22S G1.5/2.5R, Congener duplicate only
4				2.8-5.0: Light grey fine sand, very dense, firm	22S-G2.5/4.0, Congener and particle size
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 23N-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.86
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.1
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	5.1
DATE :	3/1/10 START : 12:45 END : 13:10	SEDIMENT SURFACE ELEVATION :	614.86

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.3: Ice	
1	6.0	4.0	GP-1	0.3-1.7: Medium brown silt, medium dense, soft	23N-C0.0/0.5 23N-C0.5/1.5
2				1.7-3.2: Dark brown-black fine to medium sand with gravel, unconsolidated, loose	23N-C1.5/2.5
3					23N-C2.5/3.5
4				3.2-4.0: Light grey fine sand, very dense, firm, dry	
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 24S-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.36
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.8
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	5.1
DATE :	3/1/10 START : 13:20 END : 14:00	SEDIMENT SURFACE ELEVATION :	613.6

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	5.0	3.5	GP-1	0.0-1.0: Ice	
2				1.0-2.4: Medium brown silt with trace medium sand, medium density, loose	24S-D0.0/0.5, Congener 24S-D0.5/1.5, Congener
3				2.4-4.0: Black silt, medium dense, soft, low plasticity	24S-D1.5/2.5, Congener
4					24S-D2.5/3.5, Congener
5				4.0-6.0: Medium brown gravel with medium sand, unconsolidated, loose	24S-D3.5/4.5, Congener
6	5.0	5.0	GP-2		24S-D4.5/5.5, Congener 24S-D4.5/5.5R, Congener duplicate only
7					24S-D5.5/6.5, Congener
8				6.0-10.0: Light grey fine sandy clay, dense, low plasticity, firm	24S-D6.5/7.5, Congener
9					
10					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 25W-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.79
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	4.8
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.4
DATE :	3/1/10 START : 9:10 END : 9:45	SEDIMENT SURFACE ELEVATION :	613.39

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	6.0	4.7	GP-1	0.0-1.2: Ice/snow	
				1.2-1.7: Medium brown sandy silt with organcis, medium dense, low plasticity	25W-E0.0/0.5, Congener
2				1.7-2.4: Medium brown silt with trace sand and organics, medium dense, medium plasticity	25W-E0.5/1.5, Congener
				2.4-3.1: Dark brown silt, medium dense, medium plasticity	
3				3.1-4.1: Light brown-grey fine to medium sand with trace silt, shells, and shell fragments, loose, non-plastic	25W-E1.5/1.5, Congener 25W-E1.5/2.5R, Congener duplicate only
4				4.1-4.7: Light brown-grey very fine sand with silt, firm to very firm	25W-E2.5/3.5, Congener
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 26W-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.06
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.6
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.6
DATE :	3/1/10 START : 14:30 END : 14:55	SEDIMENT SURFACE ELEVATION :	614.06

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	4.7	GP-1	0.0-0.9: Ice	
1				0.9-2.2: Medium brown medium sand with trace silt, medium dense, soft	26W-D0.0/0.5
2					26W-D0.5/1.5, Fuel odor
3				2.2-3.8: Dark brown-black medium sandy silt, low plasticity, soft	26W-D1.5/2.5
4				3.8-4.2: Medium brown coarse sand with gravel, unconsolidated, loose	26W-D2.5/3.8 26W-D2.5/3.8R, Field duplicate only
				4.2-4.7: Light grey fine sandy clay, dense, firm, low plastiticy	
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 27W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.87
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	10.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	10.0
DATE :	3/1/10 START : 15:15 END : 16:15	SEDIMENT SURFACE ELEVATION :	614.87

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	6.0	5.0	GP-1	0.0-1.1: Ice	
2				1.1-3.4: Medium brown silt with fine sand , medium dense, soft	27W-A0.0/0.5, Congener & particle size
3					27W-A0.5/1.5, Congener & particle size
4					27W-A1.5/2.5, Congener & particle size
5					27W-A2.5/3.5, Congener & particle size
6					27W-A3.5/4.5, Congener & particle size
7	5.0	5.0	GP-2		27W-A4.5/5.5, Congener & particle size
8				3.4-9.7: Brown medium sand with gravel, unconsolidated, loose	27W-A5.5/6.5, Congener & particle size
9					27W-A6.5/7.5, Congener & particle size
10					27W-A7.5/8.9, Congener & particle size
11				9.7-11.0: Light grey find sandy clay, dense/firm, low plasticity	

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 28W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.70
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	5.4
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	5.4
DATE :	3/2/10 START : 10:50 END : 11:30	SEDIMENT SURFACE ELEVATION :	614.70

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	7.0	4.8	GP-1	0.0-0.6: Ice/snow	
1				0.6-1.8: Dark brown silt with organics and trace sand and shells, medium dense, medium plasticity	28W-A0.0/0.5, Congener
2				1.8-2.4: Medium brown sandy silty clay with trace shells and gravel, medium dense, medium plasticity	28W-A0.5/1.5, Congener
3				2.4-3.0: Medium brown silty clay with trace sand and shell fragments, dense, high plasticity	28W-A1.5/2.5, Congener
4				3.0-4.3: Medium brown fine to coarse sand with gravel and some silt and shells/shell fragments, coarsens downward, losse to very loose, non-plastic	28W-A2.5/3.5, Congener 28W-A2.5/3.5R, Congener duplicate only
5				4.3-4.8: Light brown-grey silty very fine sand, dense to very dense, low plasticity	28W-A3.5/4.3, Congener
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 29W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.42
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	3.6
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	3.6
DATE :	3/3/10 START : 15:50 END : 16:10	SEDIMENT SURFACE ELEVATION :	614.42

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.7: Brown silt with fine sand, medium dense, soft, medium to low plasticity	29W-A0.0/0.5
1				0.7-1.1: Brown coarse sand with silt, medium dense, soft, non-plastic	
	5.0	2.9	GP-1	1.1-1.8: Brown fine sand with silt, dense, hard, medium to low plasticity	29W-A0.5/1.8 29W-A0.5/1.8R, Field duplicate
2				1.8-2.9: Coarse sand with little fine gravel, dense, medium hard, non-plastic	29W-A1.8/2.9
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 30W-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.83
EQUIPMENT :	Geoprobe - Track mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.2
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	5.2
DATE :	3/3/10 START : 10:50 END : 11:25	SEDIMENT SURFACE ELEVATION :	613.83

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	4.3	GP-1	0.0-0.8: Snow/ice	
1				0.8-2.7: Dark brown silt with trace sand and organics, medium dense, medium plasticity, seam of organics at 1.7' and sand seam at 2.4'	30W-B0.0/0.5, Congener
2					30W-B0.5/1.5, Congener 30W-B0.5/1.5R, Congener (duplicate sample for all analyses)
3				2.7-2.8: Dark brown silty gravel with sand, loose, low plasticity	30W-B1.5/2.5, Congener
4				2.8-4.3: Light brown silty clay, dense to very dense, high plasticity, mottled	30W-B2.5/3.5, Congener
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 31W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	7.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	615.33
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	0.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	7.3
DATE :	3/3/10 START : 12:20 END : 13:00	SEDIMENT SURFACE ELEVATION :	615.33

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	5.0	3.0	GP-1	0.0-0.7: Medium brown clayey silt, medium dense, soft	31W-A0.0/0.5
1				0.7-1.8: Brown fine and medium sand, soft, loose	31W-A0.5/1.5
2				1.8-2.7: Dark brown-black silt with fine sand, medium dnese, soft, low plasticity	31W-A1.5/2.5
3					31W-A2.5/3.5
4					31W-A3.5/4.5
5				2.7-6.8: Grey-brown fine to medium sand with gravel, unconsolidated, soft, loose	31W-A4.5/5.5
6	3.0	3.0	GP-2		
7				6.8-8.0: Light grey clay with fine sand, very dense/stiff, hard, dry	
8					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 32N-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	9.2
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.6
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	1.2
LOGGER :	A. Unger	SED THICKNESS TO REFUSAL (FT) :	8.0
DATE :	2/25/10 START : 10:55 END : 11:50	SEDIMENT SURFACE ELEVATION :	612.4

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.7: Ice	
1				0.7-0.9: Dark grey silt with organics, medium sand, and shell fragments, soft, non-plastic	32N-C0.0/0.5, 32N-C0.0/0.5R, Field duplicate only
2				0.9-2.1: Medium brown silty clay, firm to very firm, high plasticity	32N-C0.5/1.5 32N-C0.5/1.5R, Field duplicate only
3	5.0	3.4	GP-1	2.1-3.2: Dark grey medium sand with silt, organics, and shell fragments, loose, non-plastic	32N-C1.5/2.5 32N-C1.5/2.5R, Field duplicate only
4				3.2-10.0: Medium brown silty clay with trace gravel, mottled, very firm, high plasticity	32N-C2.5/3.5
5					32N-C3.5/4.5
6					32N-C4.5/5.5
7					32N-C5.5/6.5
8	5.0	5.0	GP-2		32N-C6.5/7.7
9					
10					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 33N-E

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	9.5
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.85
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	0.4
LOGGER :	A. Unger	SED THICKNESS TO REFUSAL (FT) :	9.1
DATE :	2/25/10 START : 13:10 END : 13:50	SEDIMENT SURFACE ELEVATION :	612.5

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.5: Ice	
1	5.0	2.3	GP-1	0.5-1.5: Dark grey-black silt, soft	33N-E0.0/0.5, Congener
2					33N-E0.5/1.5, Congener
3				1.5-5.0: Medium brown silty clay, firm	33N-E1.5/2.5, Congener
4					33N-E2.5/3.5, Congener
5					33N-E3.5/4.5, Congener
6	5.0	4.3	GP-2	5.0-6.0: Dark brown silt with fine sand, very soft, low density	33N-E4.5/5.5, Congener
7					33N-E5.5/6.6, Congener
8				6.0-9.3: Light brown silty clay, very hard, high plasticity	
9					
10					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 34N-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.05
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	4.4
LOGGER :	A. Unger	SED THICKNESS TO REFUSAL (FT) :	4.0
DATE :	2/24/10 START : 14:00 END : 14:30	SEDIMENT SURFACE ELEVATION :	613.65

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	5.5	3.8	GP-1	0.0-0.3: Ice	
0				0.3-3.2: Medium brown silt	34N-D0.0/0.5, Congener
1					34N-D0.5/1.5, Congener
2					34N-D1.5/2.5, Congener
3					34N-D2.5/3.8, Congener
3				3.2-3.8: Light brown clay	
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 34N-H

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.34
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	5.7
LOGGER :	A. Unger	SED THICKNESS TO REFUSAL (FT) :	5.3
DATE :	2/24/10 START : --- ---	SEDIMENT SURFACE ELEVATION (FT) :	613.94

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				0.0-0.4: Ice	
1				0.4-1.2: Medium brown medium sand, medium density, loose	34N-H0.0/0.5
2	5.5	3.9	GP-1	1.2-2.7: Dark brown silt, medium dense, firm	34N-H0.5/1.5
					34N-H1.5/2.5
3				2.7-3.2: Very dark brown silt, medium dense, firm	
4				3.2-3.9: Light brown silty clay	34N-H2.5/3.9
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 35E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	4.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.90
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	6.0
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.0
DATE :	4/15/10 START : 12:25 END : 12:35	SEDIMENT SURFACE ELEVATION :	609.90

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	2.0	1.7	MC-1	0.0-0.3: Medium brown fine to coarse sand with trace shells and gravel, loose, non-plastic	35E-A0.0/0.5, Congener 35E-A0.0/0.5R, Congener and field duplicate
				0.3-0.7: SAA but color change to grey	
1				0.7-1.3: Light brown-grey clayey silt with trace coarse sand and gravel, soft, medium plasticity	35E-A0.05/1.7, Congener
				1.3-1.7: Light brown-grey silty clay with trace coarse sand and gravel, stiff, high plasticity	
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 35W-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.25
EQUIPMENT :	Geoprobe - Track Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.0
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	4.0
DATE :	3/4/10 START : 13:45 END : 14:15	SEDIMENT SURFACE ELEVATION :	614.25

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	5.0	3.9	GP-1	0.0-1.0: Medium brown sandy silt, medium dense, low to medium plasticity	35W-A0.0/0.5, Congener
				1.0-1.2: Light to medium brown sitly fine to coarse sand, dense, low plasticity	35W-A0.5/1.5, Congener
				1.2-1.4: Light brown silty clay, dense to very dense, medium to high plasticity	
2				1.4-2.0: Light brown silty fine to coarse sand, dense, non- to low plasticity, coarsens downward	35W-A1.5/2.5, Congener 35W-A1.5/2.5R, Field duplicate only
3				2.0-3.9: Light brown-grey silty very fine sand, very dense, low plasticity	35W-A2.5/3.9, Congener
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 36N-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.35
EQUIPMENT :	Geoprobe	TOP OF ICE/WATER TO REFUSAL (FT) :	6.7
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	6.7
DATE :	3/5/10 START : 14:25 END : 15:00	SEDIMENT SURFACE ELEVATION :	614.35

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0					36N-C0.0/0.5
1					36N-C0.5/1.5 36N-C0.5/1.5R, Field duplicate only
2	5.0	3.6	GP-1	0.0-2.9: Medium brown silt with organic and trace sand, medium dense, medium plasticity, color change to dark brown-gray at 2.1', organics seam at 2.4'	36N-C1.5/2.5, Fuel odor
3				2.9-3.2: Medium brown sandy silt, dense, low plasticity	36N-C2.5/3.5
				3.2-3.5: Fine to medium sand with trace silt, dense to very dense, non-plastic	
4					36N-C3.5/4.5
5					
6	3.0	2.0	GP-2	3.5-7.0: Light brown-grey silty clay, very dense, high plasticity, mottled	
7					

NOTES : Sample depths reflect total recovery and do not correspond to the stratigraphic depths

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 36S-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.05
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613,90
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.65
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	3.60
DATE :	4/14/10 START : 16:05 END : 16:25	SEDIMENT SURFACE ELEVATION :	612.850

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	3.6	2.4	MC-1	0.0-1.9: Light brown fine to medium sand with trace coarse sand and gravel, medium stiff, non-plastic, color change to dark grey at 1.4', layer of shells and wood at 0.6'	36S-B0.0/0.5, Congener
1					36S-B0.5/1.5, Congener
2				1.9-2.3: Dark grey fine sandy silt, soft, medium plasticity 2.3-2.4: Grey gravel, loose, non-plastic	36S-B1.5/2.4, Congener NOTE: Sheen and strong fuel odor from 1.9 - 2.3'
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 37E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.9
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.87
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.8
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.9
DATE :	4/15/10 START : 10:50 END : 11:00	SEDIMENT SURFACE ELEVATION :	610.97

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	2.1	1.3	MC-1	0.0-0.1: Organics 0.1-0.9: Grey silty fine to medium sand with trace organics, loose, non-plastic 0.9-1.3: Grey silty very fine to fine sand, medium dense, non-plastic	37E-A0.0/1.3, Congener

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 37E-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	3.1
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.87
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.8
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.7
DATE :	4/15/10 START : 10:40 END : 10:55	SEDIMENT SURFACE ELEVATION :	610.77

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	1.7	1.4	MC-1	0.0-0.6: Brown medium sand, well sorted, loose	37E-I0.0/0.5, Congener
				0.6-1.4: Dark grey fine to medium sand	37E-I0.5/1.4, Congener NOTE: Chemical odor in lower portion of core

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 38W-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	3.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.51
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	6.1
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.8
DATE :	4/15/10 START : 11:00 END : 11:15	SEDIMENT SURFACE ELEVATION :	609.21

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	2.7	1.9	MC-1	0.0-0.3: Grey fine to coarse sand with trace gravel, veryloose, non-plastic	38W-B0.0/0.5, Congener and Particle size
				0.3-1.7: Dark grey silt with trace sand and trace organics, soft, low to medium plasticity	38W-B0.5/1.9, Congener and Particle size NOTE: Fuel odor in silt
2				1.7-1.9: Dark grey medium to coarse sand and gravel, very loose, non-plastic	
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 39W-D

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	3.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.14
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.9
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.1
DATE :	4/15/10 START : 11:15 END : 11:30	SEDIMENT SURFACE ELEVATION :	608.34

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	2.3	1.1	MC-1	0.0-1.1: Medium brown fine to coarse sand with trace gravel and shells, intermitent layers of coarse sand, very loose, non-plastic	39W-D0.0/0.5, Congener 39W-D0.0/0.5R, Congener and field duplicate 39W-D0.5/1.1, Congener
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 39W-H

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.4
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFAC ELEVATION (FT) :	612.14
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.4
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.0
DATE :	4/15/10 START : 9:20 END : 9:30	SEDIMENT SURFACE ELEVATION :	609.74

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.7	0.8	MC-1	0.0-0.4: Medium brown fine to medium sand with trace organics and trace shells, loose, non-plastic	39W-H0.0/0.4, Congener
1				0.4-0.8: Grey sandy silty clay with trace gravel, soft to medium soft, medium to high plasticity	
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 40E-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.1
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.95
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.4
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.3
DATE :	4/15/10 START : 9:35 END : 9:45	SEDIMENT SURFACE ELEVATION :	609.85

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	0.6	0.6	MC-1	0.0-0.6: Medium brown fine to coarse sand with gravel and trace organics and shells, loose to very loose, non-plastic	40E-B0.0/0.6, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 40E-H

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	3.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.95
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	5.2
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	2.2
DATE :	4/15/10 START : 10:20 END : 10:30	SEDIMENT SURFACE ELEVATION :	608.95

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	1.7	1.0	MC-1	0.0-0.2: Light brown fine to medium sand and gravel with shells, loose, non-plastic 0.2-0.5: Light brown-grey sandy silty clay, medium soft, med-high plasticity 0.5-1.0: Silty fine to medium sand with trace gravel, low plasticity	40E-H0.0/1.0, Congener

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 41E-C

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.08
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.8
LOGGER :	N.Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.0
DATE :	4/15/10 START : 11:30 END : 11:40	SEDIMENT SURFACE ELEVATION :	609.28

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.0	0.7	MC-1	0.0-0.1: Dark brown-grey sandy silt, soft, low to medium plasticity 0.1-0.5: Dark brown silty sand and gravel with trace shells, non tolow plasticity 0.5-0.7: Lifht brown-grey silty clay, very stiff, high plasticity	41E-C0.0/0.7, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 42E-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.1
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.56
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	1.25
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.15
DATE :	4/15/10 START : 11:35 END : 11:45	SEDIMENT SURFACE ELEVATION :	612.46

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.0	1.0	MC-1	0.0-0.7: Dark grey sitly fine to medium sand with trace organics and gravel, soft, low plasticity	42E-A0.0/0.4, Congener
1				0.7-1.0: Dark grey to black fine to medium sand, medium dense, non-plastic	42E-A0.4/1.0, Congener
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 42E-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.06
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.2
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.6
DATE :	4/15/10 START : 12:00 END : 12:20	SEDIMENT SURFACE ELEVATION :	610.46

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.4	0.6	MC-1	0.0-0.2: Brown fine to coarse sand with gravel, loose, non-plastic 0.2-0.6: Light brown-grey silty clay with trace sand and gravel, high plasticity	42E-I0.0/0.6, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 43N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.39
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	6.1
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	6.1
DATE :	4/15/10 START : 13:55 END : 14:20	SEDIMENT SURFACE ELEVATION :	613.39

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	4.0	1.7	MC-1	0.0-1.7: Light brown medium grained sand, loose	43N-A0.0/0.5, Congener 43N-A1.5/1.7, Congener 43N-A1.5/1.7R, Field and Congener duplicate

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 43S-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.83
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	1.4
LOGGER :	N. Wilbur	SED THICKNESS TO REFUSAL (FT) :	1.4
DATE :	4/15/10 START : 12:50 END : 13:10	SEDIMENT SURFACE ELEVATION :	612.83

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.1	0.8	MC-1	0.0-0.1: Dark brown sand and gravel with organics, very loose, non-plastic 0.1-0.8: Light brown-grey silty clay with trace sand and gravel, stiff to very stiff	43S-A0.0/0.8, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 44N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.1
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.18
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	4.5
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	4.4
DATE :	3/5/10 START : 8:00 END : 8:20	SEDIMENT SURFACE ELEVATION :	614.18

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	4.1	GP-1	0.0-0.5: Brown clayey silt with fine sand, soft, loose, medium to low plasticity	44N-A0.0/0.5, Congener
1					44N-A0.5/1.5, Congener 44N-A0.5/1.5R, Congener duplicate only
2				0.5-3.2: Greyish brown fine to medium sand with fine gravel, dense, hard/stiff, plastic	44N-A1.5/2.5, Congener
3					44N-A2.5/3.2, Congener
4				3.2-4.1: Grey silty clay, very hard/stiff, very dense	
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 45N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	615.64
EQUIPMENT :	Geoprobe - ATV Mounted	TOP OF ICE/WATER TO REFUSAL (FT) :	5.4
LOGGER :	S. Ramamurthy	SED THICKNESS TO REFUSAL (FT) :	5.4
DATE :	3/5/10 START : 8:30 END : 8:45	SEDIMENT SURFACE ELEVATION :	615.64

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	6.0	4.1	GP-1	0.0-0.6: Dark brown silt with some fine sand, loose, medium soft, low to medium plasticity	45N-A0.0/0.5, Congener
1				0.6-1.5: Reddish brown silt with some fine sand, dense, hard/stiff, plastic	45N-A0.5/1.5, Congener 45N-A0.5/1.5R, Congener and Field Duplicate
2					45N-A1.5/2.5, Congener
3				1.5-3.6: Greyish black fine to medium sand with some silt, dense, hard/stiff, plastic	45N-A2.5/3.6, Congener
4				3.6-4.1: Grey clay with some silt, dense, very hard/stiff, low plasticity	
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 46N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	614.29
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.3
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.3
DATE :	4/15/10 START : 14:25 END : 14:40	SEDIMENT SURFACE ELEVATION :	614.29

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	4.2	1.8	MC-1	0.0-0.9: Medium brown sandy silt, loose, soft	46N-A0.0/0.5, Congener
				0.9-1.1: Light brown medium sand, well sorted, loose	
				1.1-1.8: Dark brown-grey clayey silt, soft, plastic	46N-A0.5/1.8, Congener

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 47S-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.82
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	1.3
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.3
DATE :	4/15/10 START : 14:35 END : 15:00	SEDIMENT SURFACE ELEVATION :	612.82

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.3	1.0	MC-1	0.0-0.4: Medium brown sandy silt, soft, medium plsaticity	47S-I0.0/0.5, Congener
1				0.4-1.0: Light brown fine sand, well sorted, loose	47S-I0.5/1.0, Congener
2					
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 48N-B1

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	WATER DEPTH (FT) :	611.87
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.2
DATE :	4/15/10 START : 15:45 END : 16:00	SEDIMENT SURFACE ELEVATION :	609.87

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.0	0.8	MC-1	0.0-0.5: Brown-grey medium sand, loose 0.5-0.8: Dark grey silty medium sand, loose, very soft	48N-B0.0/0.8, Congener 48N-B0.0/0.8R, Field and Congener duplicate
1					
2					
3					
4					
5					
6					
7					

NOTES : New location about 40' from shoreline

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 48N-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.67
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	1.9
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.1
DATE :	4/15/10 START : 13:25 END : 13:25	SEDIMENT SURFACE ELEVATION :	610.87

DEPTH BELOW SURFACE (FT)	PENETRATION (FT) / RECOVERY (FT) / #/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1		** No sample collected due to lack of sediment at this location	
2			
3			
4			
5			
6			
7			

NOTES : Reprobed location and found only 0.1 to 0.4' of sediment

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 49N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	613.4
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	3.0
DATE :	4/15/10 START : 15:25 END : 15:40	SEDIMENT SURFACE ELEVATION :	613.36

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	3.2	1.3	MC-1	0.0-0.9: Medium brown clayey silt, soft, medium plasticity	49N-A0.0/0.5, Congener
				0.9-1.3: dark grey medium sand with trace silt and gravel	49N-A0.5/1.3, Congener
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 50N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.56
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	1.1
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.1
DATE :	4/15/10 START : 15:10 END : 15:20	SEDIMENT SURFACE ELEVATION :	611.56

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.1	0.8	MC-1	0.0-0.5: Dark grey silt with very fine sand, loose, very soft 0.5-0.8: Medium to coarse sand with gravel	50N-A0.0/0.8, Congener

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 50N-J

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.47
EQUIPMENT :	Manual Core and Ponar	TOP OF ICE/WATER TO REFUSAL (FT) :	1.4
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.6
DATE :	4/15/10 START : 13:50 END : 14:10	SEDIMENT SURFACE ELEVATION :	610.67

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	0.6	0.8	MC-1	0.0-0.8: Dark grey fine sandy silt, Increasing plasticity at 0.4'	50N-J0.0/0.8, Congener NOTE: odor and slight sheen
1					
2					
3					
4					
5					
6					
7					

NOTES :

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SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 51N-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.40
EQUIPMENT :	Mannual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	2.25
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.55
DATE :	4/16/10 START : 9:55 END : 10:05	SEDIMENT SURFACE ELEVATION :	609.70

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
	0.5	0.5	MC-1	0.0-0.5: Brown medium well sorted sand, loose	51N-B0.0/0.5

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 51N-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.3
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.40
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	2.1
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.8
DATE :	4/15/10 START : 14:20 END : 14:45	SEDIMENT SURFACE ELEVATION :	610.10

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.0	0.7	MC-1	0.0-0.7: Grey to dark grey fine sandy silt, loose, very soft	51N-I0.0/0.7, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 52N-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.42
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.45
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.75
DATE :	4/15/10 START : 14:40 END : 14:55	SEDIMENT SURFACE ELEVATION :	609.72

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.4	1.0	MC-1	0.0-0.7: Light grey-brown medium sand, loose	52N-B0.0/1.0, Congener 52N-B0.0/1.0R, Congener and Field Duplicate
1				0.7-1.0: SAA with trace coarse sand and gravel	
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 53N-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.31
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	1.4
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.7
DATE :	4/15/10 START : 14:45 END : 14:55	SEDIMENT SURFACE ELEVATION :	610.61

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	0.8	0.5	MC-1	0.0-0.3: Brown coarse sand with gravel 0.3-0.5: Medium and coarse sand with trace gravel	53N-I0.0/0.8, Congener
1					
2					
3					
4					
5					
6					
7					

NOTES : The sample date and time varies because it was processed the next morning.

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 54N-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.2
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	2.2
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.5
DATE :	4/16/10 START : 9:30 END : 9:30	SEDIMENT SURFACE ELEVATION :	609.51

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0				** No sample collected from this location due to lack of sediment**	
1					
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 54N-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.6
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.21
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	2.4
DATE :	4/16/10 START : 12:40 END : 12:55	SEDIMENT SURFACE ELEVATION :	610.61

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	2.4	0.9	MC-1	0.0-0.9: Dark grey silty fine sand with organic material, very soft, very loose	54N-I0.0/0.9, Congener and Particle Size

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 55N-I

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	2.8
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.16
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.2
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.4
DATE :	4/16/10 START : 12:10 END : 12:20	SEDIMENT SURFACE ELEVATION :	608.36

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	3.2	1.6	MC-1	0.0-0.9: Medium brown fine sandy silt, very soft, medium plasticity 0.9-1.6: Dark grey fine sandy silt, soft, plastic	55N-I0.0/0.5, Congener 55N-I0.5/1.6, Congener

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 56S-A

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.55
EQUIPMENT :	Manual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	3.5
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	3.5
DATE :	4/16/10 START : 12:20 END : 12:40	SEDIMENT SURFACE ELEVATION :	612.55

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	3.3	1.3	MC--1	0.0-1.1: Brown-grey fine sandy silt, soft, low plasticity	56S-A0.0/0.5, Congener 56S-A0.0/0.5, Congener and Field duplicate
1				1.1-1.3: Dark grey fine sandy silt, soft, low plasticity	56S-A0.5/1.3, Congener
2					
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 56S-K

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	3.5
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.11
EQUIPMENT :	Mannual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.3
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	0.8
DATE :	4/16/10 START : 13:00 END : 13:10	SEDIMENT SURFACE ELEVATION :	607.61

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
	0.5	0.5	MC-1	0.0-0.5: Dark brown medium unconsolidated sand, very loose	56S-K0.0/0.5, Congener

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 58S-B

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	0.0
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	612.03
EQUIPMENT :	Mannual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	4.0
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	4.0
DATE :	4/16/10 START : 12:10 END : 12:25	SEDIMENT SURFACE ELEVATION :	612.03

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
1	4.2	2.3	MC-1	0.0-1.8: Brown fine sandy silt, very soft, plastic	58S-B0.0/0.5, Congener and Particle size 58S-B0.5/1.5, Congener and Particle size
2				1.8-2.3: Dark grey fine sandy silt, soft, plastic	58S-B1.5/2.3, Congener and Particle size
3					
4					
5					
6					
7					

NOTES :

CH2MHILL

SEDIMENT CORE LOG

SHEET 1 OF 1

STATION ID: 58S-G

PROJECT :	Lincoln Park Phase 2 - Remedial Investigation	TOP OF ICE/WATER TO SED SURF (FT) :	1.7
PROJECT NUMBER :	400423.FI.03	TOP OF BARGE TO WATER (FT) :	N/A
CONTRACTOR :	Coleman Engineering Co.	CORING SURFACE ELEVATION (FT) :	611.82
EQUIPMENT :	Mannual Core	TOP OF ICE/WATER TO REFUSAL (FT) :	2.9
LOGGER :	H. Raddemann	SED THICKNESS TO REFUSAL (FT) :	1.2
DATE :	4/16/10 START : 11:50 END : 12:00	SEDIMENT SURFACE ELEVATION :	610.12

DEPTH BELOW SURFACE (FT)	PENETRATION (FT)	RECOVERY (FT)	#/TYPE	SEDIMENT DESCRIPTION SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & STRUCTURE	COMMENTS SAMPLE ID, QA/QC, ETC
0	1.4	0.8	MC-1	0.0-0.8: Fine sandy silt, dark brown transitioning to dark grey with depth, very soft, medium plasticity	58S-G0.0/0.8, Congener NOTE: Fuel odor
1					
2					
3					
4					
5					
6					
7					

NOTES :

Appendix C
Analytical Data Summary

TABLE C-1

Summary of Grain Size Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

			% Retained									
Field Sample ID	CRL Sample ID	Sample Interval (ft)	Sieve 10	Sieve 16	Sieve 35	Sieve 50	Sieve 100	Sieve 200	Sieve Bottom	% Coarse Sand and Gravel	% Fine and Medium Sand	% Fines
LP2-SD02E-C0.0/0.5	10CL10-86	0 - 0.5	52.5	34.2	7	4.5	1.3	0.1	0.4	52.5	47.1	0.4
LP2-SD02E-C0.5/1.5	10CL10-87	0.5 - 1.5	63.3	5.1	8.8	10.2	4	0.2	8.3	63.3	28.3	8.3
LP2-SD12S-B0.0/0.5	10CL10-28	0 - 0.5	67.8	7.8	11.4	7	4	0.6	1.6	67.8	30.8	1.6
LP2-SD12S-B0.5/1.5	10CL10-29	0.5 - 1.5	36.8	8.7	19.1	11.7	7	4.7	12	36.8	51.2	12
LP2-SD15E-I0.0/0.5	10CL09-55	0 - 0.5	0	0.1	6	12.5	19.3	11.7	50.4	0	49.6	50.4
LP2-SD15E-I0.5/1.5	10CL09-56	0.5 - 1.5	0	0	3.8	7.5	11.8	10.9	65.9	0	34	65.9
LP2-SD15E-I1.5/2.5	10CL09-57	1.5 - 2.5	0.001	0.6	7.2	9.6	8.5	6	68.1	0.001	31.9	68.1
LP2-SD15E-I2.5/3.5	10CL09-58	2.5 - 3.5	18.9	2.8	2.7	4.9	3.3	2	62.6	18.9	15.7	62.6
LP2-SD17W-E0.0/0.5	10CL09-98	0 - 0.5	0	0	1	3.4	14.2	17.3	64.1	0	35.9	64.1
LP2-SD17W-E0.5/1.5	10CL09-99	0.5 - 1.5	0	0	0.4	1	9.8	13.2	75.5	0	24.4	75.5
LP2-SD17W-E1.5/2.5	10CL10-01	1.5 - 2.5	0	0	0.6	1.3	8.9	9.5	79.7	0	20.3	79.7
LP2-SD17W-E2.5/3.5	10CL10-02	2.5 - 3.5	39.2	15.5	21.9	10.7	4.5	0.6	7.6	39.2	53.2	7.6
LP2-SD17W-E3.5/4.4	10CL10-03	3.5 - 4.4	20.1	14.3	24	11.4	6.6	2	3.1	20.1	58.3	3.1
LP2-SD22S-G0.0/0.5	10CL08-85	0 - 0.5	0	0.1	1.4	1.5	8.5	12.2	76.3	0	23.7	76.3
LP2-SD22S-G0.5/1.5	10CL08-86	0.5 - 1.5	51.9	6.1	10.2	6.9	6.2	4.1	14.4	51.9	33.5	14.4
LP2-SD22S-G1.5/2.5	10CL08-87	1.5 - 2.5	24.4	5.2	6.5	4.1	2.3	2.6	58.3	24.4	20.7	58.3
LP2-SD22S-G2.5/4.0	10CL08-88	2.5 - 4	0	0	0	0.1	5.1	13.3	81.6	0	18.5	81.6
LP2-SD27W-A0.0/0.5	10CL08-76	0 - 0.5	0	0	0.6	1.8	12.6	17.2	67.7	0	32.2	67.7
LP2-SD27W-A0.5/1.5	10CL08-77	0.5 - 1.5	0	0	0.5	3.4	13.4	13.4	69.5	0	30.7	69.5
LP2-SD27W-A1.5/2.5	10CL08-78	1.5 - 2.5	0	0.4	9.4	15.1	15.3	6.5	53.6	0	46.7	53.6
LP2-SD27W-A2.5/3.5	10CL08-79	2.5 - 3.5	29.8	11	19	15.1	20.3	1.6	3.2	29.8	67	3.2
LP2-SD27W-A3.5/4.5	10CL08-80	3.5 - 4.5	28.5	10.6	20.5	16.9	16.1	2.1	5.8	28.5	66.2	5.8
LP2-SD27W-A4.5/5.5	10CL08-81	4.5 - 5.5	40.1	14.1	21.4	12.5	8.7	0.9	2.3	40.1	57.6	2.3
LP2-SD27W-A5.5/6.5	10CL08-82	5.5 - 6.5	52.8	5.2	12.9	17.7	9.4	0.8	1.2	52.8	46	1.2
LP2-SD27W-A6.5/7.5	10CL08-83	6.5 - 7.5	19.3	5.6	19.6	39.1	12	0.8	2.6	19.3	77.1	2.6
LP2-SD27W-A7.5/8.9	10CL08-84	7.5 - 8.9	30.1	3.9	9.3	14	10.2	3.6	29.4	30.1	41	29.4
LP2-SD38W-B0.0/0.5	10CL10-53	0 - 0.5	18.9	7.4	28.9	25.3	6.4	1.5	11.4	18.9	69.5	11.4
LP2-SD38W-B0.5/1.9	10CL10-54	0.5 - 1.9	0.5	2	4.6	3	5	6.3	78.5	0.5	20.9	78.5
LP2-SD49N-A0.0/0.5	10CL10-76	0 - 0.5	0.2	0.3	0.8	1.3	7.3	12	78.8	0.2	21.7	78.8

TABLE C-1

Summary of Grain Size Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

			% Retained									
Field Sample ID	**CRL Sample ID**	**Sample Interval (ft)**	**Sieve 10**	**Sieve 16**	**Sieve 35**	**Sieve 50**	**Sieve 100**	**Sieve 200**	**Sieve Bottom**	**% Coarse Sand and Gravel**	**% Fine and Medium Sand**	**% Fines**
LP2-SD49N-A0.5/1.3	10CL10-77	0.5 - 1.3	13.6	1.3	1.8	2	7.6	6.8	66.8	13.6	19.5	66.8
LP2-SD54N-I0.0/0.9	10CL10-94	0 - 0.9	8.5	3.4	6.9	10.8	50.1	10.9	10	8.5	82.1	10
LP2-SD58S-B0.0/0.5	10CL10-96	0 - 0.5	0.2	0.4	1.1	1.1	6.2	10.3	80.5	0.2	19.1	80.5
LP2-SD58S-B0.5/1.5	10CL10-97	0.5 - 1.5	0.4	0.3	0.5	0.6	7	8.8	82.4	0.4	17.2	82.4
LP2-SD58S-B1.5/2.3	10CL10-98	1.5 - 2.3	0.4	0.8	3.9	4.8	4	4.7	81.4	0.4	18.2	81.4

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD01E-A0.0/1.0	10CL10-21	0 - 1	1.8
LP2-SD02E-C0.0/0.5	10CL10-86	0 - 0.5	2.1
LP2-SD02E-C0.5/1.5	10CL10-87	0.5 - 1.5	3
LP2-SD03E-A0.0/0.8	10CL10-22	0 - 0.8	1.5
LP2-SD03E-A0.0/0.8R	10CL10-23	0 - 0.8	1.4
LP2-SD04E-A0.0/1.0	10CL10-25	0 - 1	2.1
LP2-SD04E-A0.0/1.0R	10CL10-26	0 - 1	2
LP2-SD04E-E0.0/0.5	10CL10-24	0 - 0.5	1.3
LP2-SD05W-E0.0/0.5	10CL09-17	0 - 0.5	6.9
LP2-SD05W-E0.5/1.5	10CL09-18	0.5 - 1.5	9
LP2-SD05W-E1.5/2.5	10CL09-19	1.5 - 2.5	6.3
LP2-SD05W-E2.5/3.5	10CL09-20	2.5 - 3.5	6.1
LP2-SD05W-I0.0/0.5	10CL09-07	0 - 0.5	7.4
LP2-SD05W-I0.5/1.5	10CL09-08	0.5 - 1.5	7.3
LP2-SD05W-I1.5/2.5	10CL09-09	1.5 - 2.5	6.5
LP2-SD05W-I2.5/3.9	10CL09-10	2.5 - 3.9	5.8
LP2-SD06W-C0.0/0.5	10CL09-21	0 - 0.5	6.9
LP2-SD06W-C0.5/1.5	10CL09-22	0.5 - 1.5	5.3
LP2-SD06W-C1.5/3.1	10CL09-23	1.5 - 3.1	5.5
LP2-SD06W-C1.5/3.1R	10CL09-24	1.5 - 3.1	6.5
LP2-SD06W-H0.0/0.5	10CL09-38	0 - 0.5	7.1
LP2-SD06W-H0.5/1.5	10CL09-39	0.5 - 1.5	8.1
LP2-SD06W-H1.5/2.5	10CL09-41	1.5 - 2.5	0.3
LP2-SD06W-H2.5/3.5	10CL09-42	2.5 - 3.5	4.8
LP2-SD06W-H3.5/4.5	10CL09-43	3.5 - 4.5	4.6
LP2-SD06W-H4.5/5.6	10CL09-44	4.5 - 5.6	5.2
LP2-SD07E-G0.0/0.5	10CL10-04	0 - 0.5	3.7
LP2-SD07E-G0.5/1.5	10CL10-05	0.5 - 1.5	4.7
LP2-SD07E-G1.5/2.5	10CL10-06	1.5 - 2.5	3.3
LP2-SD07E-G2.5/3.5	10CL10-07	2.5 - 3.5	5.5
LP2-SD07E-G3.5/4.5	10CL10-08	3.5 - 4.5	4.3
LP2-SD07E-G4.5/5.5	10CL10-09	4.5 - 5.5	4.8
LP2-SD08E-C0.0/0.5	10CL09-72	0 - 0.5	4.7
LP2-SD08E-C0.5/1.5	10CL09-73	0.5 - 1.5	4.4
LP2-SD08E-C1.5/3.1	10CL09-74	1.5 - 3.1	5.1
LP2-SD08E-C3.1/4.5	10CL09-75	3.1 - 4.5	6.7
LP2-SD08E-H0.0/0.5	10CL09-89	0 - 0.5	5.4
LP2-SD08E-H0.5/1.5	10CL09-90	0.5 - 1.5	1.5
LP2-SD08E-H1.5/2.5	10CL09-91	1.5 - 2.5	4.1
LP2-SD08E-H2.5/3.4	10CL09-92	2.5 - 3.4	3.5
LP2-SD09S-C0.0/0.5	10CL09-25	0 - 0.5	6.2

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD09S-C0.5/1.5	10CL09-26	0.5 - 1.5	8
LP2-SD09S-C1.5/2.9	10CL09-27	1.5 - 2.9	5.9
LP2-SD10S-D0.0/0.9	10CL10-41	0 - 0.9	4.2
LP2-SD11N-E0.0/0.7	10CL10-27	0 - 0.7	1.1
LP2-SD12S-B0.0/0.5	10CL10-28	0 - 0.5	3.2
LP2-SD12S-B0.5/1.5	10CL10-29	0.5 - 1.5	2.7
LP2-SD13E-A0.0/0.5	10CL09-64	0 - 0.5	5.1
LP2-SD13E-A0.5/1.7	10CL09-65	0.5 - 1.7	6.1
LP2-SD13E-A1.7/2.9	10CL09-66	1.7 - 2.9	7.4
LP2-SD13E-A2.9/4.2	10CL09-67	2.9 - 4.2	5.9
LP2-SD14E-C0.0/0.5	10CL09-59	0 - 0.5	7.9
LP2-SD14E-C0.5/1.5	10CL09-60	0.5 - 1.5	5.8
LP2-SD14E-C0.5/1.5R	10CL09-63	0.5 - 1.5	7
LP2-SD14E-C1.5/3.2	10CL09-61	1.5 - 3.2	6.1
LP2-SD14E-C3.2/4.0	10CL09-62	3.2 - 4	5.9
LP2-SD15E-A0.0/0.5	10CL09-28	0 - 0.5	4.9
LP2-SD15E-A0.5/2.1	10CL09-29	0.5 - 2.1	6.3
LP2-SD15E-A2.1/2.8	10CL09-30	2.1 - 2.8	5.9
LP2-SD15E-I0.0/0.5	10CL09-55	0 - 0.5	7.2
LP2-SD15E-I0.5/1.5	10CL09-56	0.5 - 1.5	6.9
LP2-SD15E-I1.5/2.5	10CL09-57	1.5 - 2.5	7
LP2-SD15E-I2.5/3.5	10CL09-58	2.5 - 3.5	5.8
LP2-SD15W-A0.0/0.9	10CL10-30	0 - 0.9	2.6
LP2-SD16E-A0.0/0.5	10CL09-31	0 - 0.5	8
LP2-SD16E-A0.5/1.5	10CL09-32	0.5 - 1.5	7.3
LP2-SD16E-A1.5/2.5	10CL09-33	1.5 - 2.5	5.4
LP2-SD16E-A2.5/3.5	10CL09-34	2.5 - 3.5	1
LP2-SD16E-A3.5/4.5	10CL09-35	3.5 - 4.5	3.9
LP2-SD16E-A4.5/6.1	10CL09-36	4.5 - 6.1	4.3
LP2-SD16E-A4.5/6.1R	10CL09-37	4.5 - 6.1	4.1
LP2-SD16W-C0.0/0.5	10CL09-85	0 - 0.5	8.5
LP2-SD16W-C0.5/1.5	10CL09-86	0.5 - 1.5	5.4
LP2-SD16W-C1.5/2.4	10CL09-87	1.5 - 2.4	3.8
LP2-SD16W-C2.4/3.6	10CL09-88	2.4 - 3.6	2.4
LP2-SD16W-H0.0/0.5	10CL10-31	0 - 0.5	3.5
LP2-SD16W-H0.5/1.8	10CL10-32	0.5 - 1.8	1.7
LP2-SD17E-D0.0/0.5	10CL08-53	0 - 0.5	8.9
LP2-SD17E-D0.5/1.5	10CL08-54	0.5 - 1.5	8
LP2-SD17E-D0.5/1.5R	10CL08-55	0.5 - 1.5	7
LP2-SD17E-D1.5/2.5	10CL08-56	1.5 - 2.5	5.1
LP2-SD17E-D2.5/3.5	10CL08-57	2.5 - 3.5	5.9

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD17W-E0.0/0.5	10CL09-98	0 - 0.5	7.8
LP2-SD17W-E0.5/1.5	10CL09-99	0.5 - 1.5	3.9
LP2-SD17W-E1.5/2.5	10CL10-01	1.5 - 2.5	8.2
LP2-SD17W-E2.5/3.5	10CL10-02	2.5 - 3.5	2.9
LP2-SD17W-E3.5/4.4	10CL10-03	3.5 - 4.4	6.2
LP2-SD17W-L0.0/0.5	10CL10-33	0 - 0.5	1.3
LP2-SD17W-L0.5/1.5	10CL10-34	0.5 - 1.5	2.6
LP2-SD17W-L1.5/2.1	10CL10-35	1.5 - 2.1	6.5
LP2-SD18E-E0.0/0.5	10CL08-66	0 - 0.5	10.1
LP2-SD18E-E0.5/1.5	10CL08-67	0.5 - 1.5	8.8
LP2-SD18E-E0.5/1.5R	10CL08-68	0.5 - 1.5	9
LP2-SD18E-E1.5/2.5	10CL08-69	1.5 - 2.5	7.5
LP2-SD18E-E2.5/4.1	10CL08-70	2.5 - 4.1	5.6
LP2-SD18E-I0.0/0.5	10CL10-36	0 - 0.5	2.3
LP2-SD18E-I0.0/0.5R	10CL10-37	0 - 0.5	2
LP2-SD18E-I0.5/1.9	10CL10-38	0.5 - 1.9	2.5
LP2-SD18W-B0.0/0.5	10CL09-93	0 - 0.5	7.1
LP2-SD18W-B0.5/1.5	10CL09-94	0.5 - 1.5	4.2
LP2-SD18W-B1.5/2.5	10CL09-95	1.5 - 2.5	5.4
LP2-SD18W-B1.5/2.5R	10CL09-96	1.5 - 2.5	4.9
LP2-SD18W-B2.5/3.5	10CL09-97	2.5 - 3.5	3.1
LP2-SD19E-B0.0/0.5	10CL08-58	0 - 0.5	10.7
LP2-SD19E-B0.5/1.5	10CL08-59	0.5 - 1.5	7
LP2-SD19E-B1.5/2.5	10CL08-60	1.5 - 2.5	5
LP2-SD19E-B2.5/3.5	10CL08-61	2.5 - 3.5	5.6
LP2-SD19E-B3.5/5.1	10CL08-62	3.5 - 5.1	5.9
LP2-SD19E-I0.0/0.5	10CL08-49	0 - 0.5	5.7
LP2-SD19E-I0.5/1.5	10CL08-50	0.5 - 1.5	5.5
LP2-SD19E-I1.5/2.5	10CL08-51	1.5 - 2.5	5.4
LP2-SD19E-I2.5/3.6	10CL08-52	2.5 - 3.6	6
LP2-SD19E-N0.0/0.5	10CL08-46	0 - 0.5	5.1
LP2-SD19E-N0.5/1.5	10CL08-47	0.5 - 1.5	5.9
LP2-SD19E-N1.5/2.6	10CL08-48	1.5 - 2.6	6
LP2-SD19E-S0.0/0.5	10CL10-39	0 - 0.5	3.3
LP2-SD19E-S0.5/1.3	10CL10-40	0.5 - 1.3	3.1
LP2-SD20E-D0.0/0.5	10CL08-01	0 - 0.5	5.6
LP2-SD20E-D0.5/1.5	10CL08-02	0.5 - 1.5	9.8
LP2-SD20E-D1.5/2.5	10CL08-03	1.5 - 2.5	2.2
LP2-SD20E-D2.5/3.7	10CL08-04	2.5 - 3.7	2.8
LP2-SD20E-I0.0/0.5	10CL08-05	0 - 0.5	13.8
LP2-SD20E-I0.5/1.5	10CL08-06	0.5 - 1.5	2.7

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD20E-I1.5/2.5	10CL08-07	1.5 - 2.5	1.7
LP2-SD20E-I2.5/3.5	10CL08-08	2.5 - 3.5	2.5
LP2-SD20E-I3.5/4.5	10CL08-09	3.5 - 4.5	1.6
LP2-SD20E-M0.0/0.5	10CL08-63	0 - 0.5	5.1
LP2-SD20E-M0.5/1.5	10CL08-64	0.5 - 1.5	6.4
LP2-SD20E-M1.5/2.7	10CL08-65	1.5 - 2.7	6.1
LP2-SD20W-A0.0/0.5	10CL10-45	0 - 0.5	2.3
LP2-SD20W-A0.5/1.5	10CL10-46	0.5 - 1.5	2.7
LP2-SD20W-A1.5/2.5	10CL10-47	1.5 - 2.5	0.9
LP2-SD21E-F0.0/0.5	10CL08-10	0 - 0.5	2.3
LP2-SD21E-F0.5/1.5	10CL08-11	0.5 - 1.5	6.8
LP2-SD21E-F1.5/2.5	10CL08-12	1.5 - 2.5	3.2
LP2-SD21E-F2.5/3.5	10CL08-13	2.5 - 3.5	5.3
LP2-SD21E-F3.5/4.5	10CL08-14	3.5 - 4.5	2.6
LP2-SD21E-J0.0/0.5	10CL08-15	0 - 0.5	5.5
LP2-SD21E-J0.5/1.5	10CL08-16	0.5 - 1.5	6.3
LP2-SD21E-J0.5/1.5R	10CL08-17	0.5 - 1.5	3.1
LP2-SD21E-J1.5/2.5	10CL08-18	1.5 - 2.5	0.6
LP2-SD21E-J2.5/3.6	10CL08-19	2.5 - 3.6	0.3
LP2-SD22S-G0.0/0.5	10CL08-85	0 - 0.5	9.4
LP2-SD22S-G0.5/1.5	10CL08-86	0.5 - 1.5	6.9
LP2-SD22S-G1.5/2.5	10CL08-87	1.5 - 2.5	5.1
LP2-SD22S-G2.5/4.0	10CL08-88	2.5 - 4	4.6
LP2-SD23N-C0.0/0.5	10CL08-89	0 - 0.5	11.2
LP2-SD23N-C0.5/1.5	10CL08-90	0.5 - 1.5	9
LP2-SD23N-C1.5/2.5	10CL08-91	1.5 - 2.5	7.5
LP2-SD23N-C2.5/3.5	10CL08-92	2.5 - 3.5	6
LP2-SD24S-D0.0/0.5	10CL08-93	0 - 0.5	8.9
LP2-SD24S-D0.5/1.5	10CL08-94	0.5 - 1.5	8
LP2-SD24S-D1.5/2.5	10CL08-95	1.5 - 2.5	7.2
LP2-SD24S-D3.5/4.5	10CL08-97	3.5 - 4.5	5.8
LP2-SD24S-D4.5/5.5	10CL08-98	4.5 - 5.5	5.8
LP2-SD24S-D4.5/5.5R	10CL08-99	4.5 - 5.5	6.8
LP2-SD24S-D5.5/6.5	10CL09-01	5.5 - 6.5	6.3
LP2-SD24S-D6.5/7.5	10CL09-02	6.5 - 7.5	5.4
LP2-SD25W-E0.0/0.5	10CL09-03	0 - 0.5	6.6
LP2-SD25W-E0.5/1.5	10CL09-04	0.5 - 1.5	6.6
LP2-SD25W-E1.5/2.5	10CL09-05	1.5 - 2.5	6.1
LP2-SD25W-E2.5/3.5	10CL09-06	2.5 - 3.5	5.2
LP2-SD26W-D0.0/0.5	10CL08-71	0 - 0.5	7.6
LP2-SD26W-D0.5/1.5	10CL08-72	0.5 - 1.5	8.2

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD26W-D1.5/2.5	10CL08-73	1.5 - 2.5	7.3
LP2-SD26W-D2.5/3.8	10CL08-74	2.5 - 3.8	6.7
LP2-SD26W-D2.5/3.8R	10CL08-75	2.5 - 3.8	6.1
LP2-SD27W-A0.0/0.5	10CL08-76	0 - 0.5	8.5
LP2-SD27W-A0.5/1.5	10CL08-77	0.5 - 1.5	8.1
LP2-SD27W-A1.5/2.5	10CL08-78	1.5 - 2.5	5.5
LP2-SD27W-A2.5/3.5	10CL08-79	2.5 - 3.5	4.7
LP2-SD27W-A3.5/4.5	10CL08-80	3.5 - 4.5	6
LP2-SD27W-A4.5/5.5	10CL08-81	4.5 - 5.5	4.8
LP2-SD27W-A5.5/6.5	10CL08-82	5.5 - 6.5	4
LP2-SD27W-A6.5/7.5	10CL08-83	6.5 - 7.5	3.8
LP2-SD27W-A7.5/8.9	10CL08-84	7.5 - 8.9	5.7
LP2-SD28W-A0.0/0.5	10CL09-11	0 - 0.5	9.1
LP2-SD28W-A0.5/1.5	10CL09-12	0.5 - 1.5	6.1
LP2-SD28W-A1.5/2.5	10CL09-13	1.5 - 2.5	4.9
LP2-SD28W-A2.5/3.5	10CL09-14	2.5 - 3.5	6.5
LP2-SD28W-A2.5/3.5R	10CL09-15	2.5 - 3.5	6
LP2-SD28W-A3.5/4.3	10CL09-16	3.5 - 4.3	5
LP2-SD29W-A0.0/0.5	10CL09-68	0 - 0.5	13.2
LP2-SD29W-A0.5/1.8	10CL09-69	0.5 - 1.8	9
LP2-SD29W-A0.5/1.8R	10CL09-71	0.5 - 1.8	8.2
LP2-SD29W-A1.8/2.9	10CL09-70	1.8 - 2.9	5.5
LP2-SD30W-B0.0/0.5	10CL09-45	0 - 0.5	9.7
LP2-SD30W-B0.5/1.5	10CL09-46	0.5 - 1.5	8.6
LP2-SD30W-B0.5/1.5R	10CL09-47	0.5 - 1.5	8.5
LP2-SD30W-B1.5/2.5	10CL09-48	1.5 - 2.5	5.5
LP2-SD30W-B2.5/3.5	10CL09-49	2.5 - 3.5	4.4
LP2-SD31W-A0.0/0.5	10CL09-50	0 - 0.5	11.5
LP2-SD31W-A0.5/1.5	10CL09-40	0.5 - 1.5	5.5
LP2-SD31W-A1.5/2.5	10CL09-51	1.5 - 2.5	8.9
LP2-SD31W-A2.5/3.5	10CL09-52	2.5 - 3.5	6.3
LP2-SD31W-A3.5/4.5	10CL09-53	3.5 - 4.5	5.7
LP2-SD31W-A4.5/5.5	10CL09-54	4.5 - 5.5	4.5
LP2-SD32N-C0.0/0.5	10CL08-20	0 - 0.5	2.7
LP2-SD32N-C0.0/0.5R	10CL08-21	0 - 0.5	2.5
LP2-SD32N-C0.5/1.5	10CL08-22	0.5 - 1.5	1.8
LP2-SD32N-C0.5/1.5R	10CL08-23	0.5 - 1.5	2.2
LP2-SD32N-C1.5/2.5	10CL08-24	1.5 - 2.5	1
LP2-SD32N-C1.5/2.5R	10CL08-25	1.5 - 2.5	0.6
LP2-SD32N-C2.5/3.5	10CL08-26	2.5 - 3.5	2.4
LP2-SD32N-C3.5/4.5	10CL08-27	3.5 - 4.5	1

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD32N-C4.5/5.5	10CL08-28	4.5 - 5.5	0.8
LP2-SD32N-C5.5/6.5	10CL08-29	5.5 - 6.5	1
LP2-SD32N-C6.5/7.7	10CL08-30	6.5 - 7.7	1.2
LP2-SD33N-E0.0/0.5	10CL08-31	0 - 0.5	5
LP2-SD33N-E0.5/1.5	10CL08-32	0.5 - 1.5	4.3
LP2-SD33N-E1.5/2.5	10CL08-33	1.5 - 2.5	5.9
LP2-SD33N-E2.5/3.5	10CL08-34	2.5 - 3.5	3.8
LP2-SD33N-E3.5/4.5	10CL08-35	3.5 - 4.5	2.7
LP2-SD33N-E4.5/5.5	10CL08-36	4.5 - 5.5	3.6
LP2-SD33N-E5.5/6.6	10CL08-37	5.5 - 6.6	2.8
LP2-SD34N-D0.0/0.5	10CL08-38	0 - 0.5	7.5
LP2-SD34N-D0.5/1.5	10CL08-39	0.5 - 1.5	9.2
LP2-SD34N-D1.5/2.5	10CL08-40	1.5 - 2.5	7.7
LP2-SD34N-D2.5/3.8	10CL08-41	2.5 - 3.8	4.7
LP2-SD34N-H0.0/0.5	10CL08-42	0 - 0.5	11.3
LP2-SD34N-H0.5/1.5	10CL08-43	0.5 - 1.5	9.5
LP2-SD34N-H1.5/2.5	10CL08-44	1.5 - 2.5	7.8
LP2-SD34N-H2.5/3.9	10CL08-45	2.5 - 3.9	4.2
LP2-SD35E-A0.0/0.5	10CL10-63	0 - 0.5	1
LP2-SD35E-A0.0/0.5R	10CL10-64	0 - 0.5	1.4
LP2-SD35E-A0.5/1.7	10CL10-65	0.5 - 1.7	2
LP2-SD35W-A0.0/0.5	10CL09-76	0 - 0.5	2.7
LP2-SD35W-A0.5/1.5	10CL09-77	0.5 - 1.5	3.2
LP2-SD35W-A1.5/2.5	10CL09-78	1.5 - 2.5	2.6
LP2-SD35W-A1.5/2.5R	10CL10-20	1.5 - 2.5	0.1
LP2-SD35W-A2.5/3.9	10CL09-79	2.5 - 3.9	2.5
LP2-SD36N-C0.0/0.5	10CL09-80	0 - 0.5	7.9
LP2-SD36N-C0.5/1.5	10CL09-81	0.5 - 1.5	7.1
LP2-SD36N-C0.5/1.5R	10CL09-82	0.5 - 1.5	6
LP2-SD36N-C1.5/2.5	10CL09-83	1.5 - 2.5	3.6
LP2-SD36N-C2.5/3.5	10CL09-84	2.5 - 3.5	2.4
LP2-SD36N-C3.5/4.5	10CL10-19	3.5 - 4.5	3.4
LP2-SD36S-B0.0/0.5	10CL10-42	0 - 0.5	2.6
LP2-SD36S-B0.5/1.5	10CL10-43	0.5 - 1.5	2.4
LP2-SD36S-B1.5/2.4	10CL10-44	1.5 - 2.4	3.8
LP2-SD37E-A0.0/1.3	10CL10-48	0 - 1.3	2.2
LP2-SD37E-I0.0/0.5	10CL10-51	0 - 0.5	2.3
LP2-SD37E-I0.5/1.4	10CL10-52	0.5 - 1.4	1.1
LP2-SD38W-B0.0/0.5	10CL10-53	0 - 0.5	2.3
LP2-SD38W-B0.5/1.9	10CL10-54	0.5 - 1.9	6
LP2-SD39W-D0.0/0.5	10CL10-55	0 - 0.5	1.3

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD39W-D0.0/0.5R	10CL10-56	0 - 0.5	0.7
LP2-SD39W-D0.5/1.1	10CL10-57	0.5 - 1.1	3.7
LP2-SD39W-H0.0/0.4	10CL10-58	0 - 0.4	1.3
LP2-SD40E-B0.0/0.6	10CL10-49	0 - 0.6	1.1
LP2-SD40E-H0.0/1.0	10CL10-62	0 - 1	0.8
LP2-SD41E-C0.0/0.7	10CL10-59	0 - 0.7	2.5
LP2-SD42E-A0.0/0.4	10CL10-60	0 - 0.4	0.8
LP2-SD42E-A0.4/1.0	10CL10-61	0.4 - 1	1.1
LP2-SD42E-I0.0/0.6	10CL10-66	0 - 0.6	1.6
LP2-SD43N-A0.0/0.5	10CL10-68	0 - 0.5	2.6
LP2-SD43N-A0.5/1.7	10CL10-69	0.5 - 1.7	1.7
LP2-SD43N-A0.5/1.7R	10CL10-70	0.5 - 1.7	2.9
LP2-SD43S-A0.0/0.8	10CL10-67	0 - 0.8	1.2
LP2-SD44N-A0.0/0.5	10CL10-10	0 - 0.5	1.9
LP2-SD44N-A0.5/1.5	10CL10-11	0.5 - 1.5	4
LP2-SD44N-A1.5/2.5	10CL10-12	1.5 - 2.5	2.5
LP2-SD44N-A2.5/3.2	10CL10-13	2.5 - 3.2	7.2
LP2-SD45N-A0.0/0.5	10CL10-14	0 - 0.5	0.2
LP2-SD45N-A0.5/1.5	10CL10-15	0.5 - 1.5	6.4
LP2-SD45N-A0.5/1.5R	10CL10-18	0.5 - 1.5	7.2
LP2-SD45N-A1.5/2.5	10CL10-16	1.5 - 2.5	4.9
LP2-SD45N-A2.5/3.6	10CL10-17	2.5 - 3.6	0.9
LP2-SD46N-A0.0/0.5	10CL10-71	0 - 0.5	5.6
LP2-SD46N-A0.5/1.8	10CL10-72	0.5 - 1.8	3.7
LP2-SD47S-I0.0/0.5	10CL10-73	0 - 0.5	4.6
LP2-SD47S-I0.5/1.0	10CL10-74	0.5 - 1	0.2
LP2-SD48N-B10.0/0.8	10CL10-78	0 - 0.8	0.9
LP2-SD48N-B10.0/0.8R	10CL10-79	0 - 0.8	1.1
LP2-SD49N-A0.0/0.5	10CL10-76	0 - 0.5	4.6
LP2-SD49N-A0.5/1.3	10CL10-77	0.5 - 1.3	5.9
LP2-SD50N-A0.0/0.8	10CL10-75	0 - 0.8	6
LP2-SD50N-J0.0/0.8	10CL10-80	0 - 0.8	1.9
LP2-SD51N-B0.0/0.5	10CL10-82	0 - 0.5	0.9
LP2-SD51N-I0.0/0.7	10CL10-85	0 - 0.7	8.5
LP2-SD52N-B0.0/1.0	10CL10-83	0 - 1	0.6
LP2-SD52N-B0.0/1.0R	10CL10-84	0 - 1	0.5
LP2-SD53N-I0.0/0.8	10CL10-81	0 - 0.8	1
LP2-SD54N-I0.0/0.9	10CL10-94	0 - 0.9	7.9
LP2-SD55N-J0.0/0.5	10CL10-89	0 - 0.5	3.8
LP2-SD55N-J0.5/1.6	10CL10-90	0.5 - 1.6	6.9
LP2-SD56S-A0.0/0.5	10CL10-91	0 - 0.5	7.5

TABLE C-2

Summary of Total Organic Carbon Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Organic Carbon [%]
LP2-SD56S-A0.0/0.5R	10CL10-92	0 - 0.5	6.4
LP2-SD56S-A0.5/1.3	10CL10-93	0.5 -1.3	4.8
LP2-SD56S-K0.0/0.5	10CL10-95	0 - 0.5	4.8
LP2-SD58S-B0.0/0.5	10CL10-96	0 - 0.5	1.1
LP2-SD58S-B0.5/1.5	10CL10-97	0.5 - 1.5	3.3
LP2-SD58S-B1.5/2.3	10CL10-98	1.5 - 2.3	3.5
LP2-SD58S-G0.0/0.8	10CL10-88	0 - 0.8	3.9

TABLE C-3

Summary of Percent Solids Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Volatile Solids [%]	Dry Solids at 105C [%]	Dry Solids at 60C [%]
LP2-SD01E-A0.0/1.0	10CL10-21	0 - 1	2.3	81.6	81.8
LP2-SD03E-A0.0/0.8	10CL10-22	0 - 0.8	2.1	80.6	80.7
LP2-SD03E-A0.0/0.8R	10CL10-23	0 - 0.8	2.3	80.7	80.7
LP2-SD04E-A0.0/1.0	10CL10-25	0 - 1	2	80.4	80.5
LP2-SD04E-A0.0/1.0R	10CL10-26	0 - 1	2.4	79	79.1
LP2-SD04E-E0.0/0.5	10CL10-24	0 - 0.5	1.2	86.9	87
LP2-SD05W-E0.0/0.5	10CL09-17	0 - 0.5	2.9	74	74.1
LP2-SD05W-E0.5/1.5	10CL09-18	0.5 - 1.5	3.1	75.3	75.4
LP2-SD05W-E1.5/2.5	10CL09-19	1.5 - 2.5	2.2	82.7	82.7
LP2-SD05W-E2.5/3.5	10CL09-20	2.5 - 3.5		87	87
LP2-SD05W-I2.5/3.9	10CL09-10	2.5 - 3.9		86.8	86.8
LP2-SD06W-C0.0/0.5	10CL09-21	0 - 0.5	1.4	88	88.1
LP2-SD06W-C0.5/1.5	10CL09-22	0.5 - 1.5	1.3	85.4	85.5
LP2-SD06W-C1.5/3.1	10CL09-23	1.5 - 3.1	1.2	85.3	85.4
LP2-SD06W-H0.0/0.5	10CL09-38	0 - 0.5	1	95.1	95.1
LP2-SD06W-H0.5/1.5	10CL09-39	0.5 - 1.5	1	92	92
LP2-SD06W-H2.5/3.5	10CL09-42	2.5 - 3.5	1.5	87	87
LP2-SD06W-H3.5/4.5	10CL09-43	3.5 - 4.5	1.4	85.2	85.3
LP2-SD06W-H4.5/5.6	10CL09-44	4.5 - 5.6	1.1	86.9	86.9
LP2-SD08E-H0.0/0.5	10CL09-89	0 - 0.5	1.1	88.8	88.8
LP2-SD08E-H0.5/1.5	10CL09-90	0.5 - 1.5	1.8	79.9	80
LP2-SD08E-H1.5/2.5	10CL09-91	1.5 - 2.5		87.4	87.4
LP2-SD08E-H2.5/3.4	10CL09-92	2.5 - 3.4	1.4	86.4	86.5
LP2-SD10S-D0.0/0.9	10CL10-41	0 - 0.9	3.7	66.6	66.7
LP2-SD11N-E0.0/0.7	10CL10-27	0 - 0.7	1.5	84	84
LP2-SD12S-B0.0/0.5	10CL10-28	0 - 0.5	1.9	90.8	90.9
LP2-SD12S-B0.5/1.5	10CL10-29	0.5 - 1.5	3.2	78.7	78.8
LP2-SD15E-I0.0/0.5	10CL09-55	0 - 0.5	5	67.5	67.6
LP2-SD15E-I0.5/1.5	10CL09-56	0.5 - 1.5	5.2	62.8	63
LP2-SD15E-I1.5/2.5	10CL09-57	1.5 - 2.5	5.3	60.1	60.3
LP2-SD15W-A0.0/0.9	10CL10-30	0 - 0.9	2.2	80.2	80.3
LP2-SD16W-C0.0/0.5	10CL09-85	0 - 0.5	9.6	49.9	50.3
LP2-SD16W-C0.5/1.5	10CL09-86	0.5 - 1.5	4.9	65.8	66.1
LP2-SD16W-C1.5/2.4	10CL09-87	1.5 - 2.4		91.3	91.3
LP2-SD16W-C2.4/3.6	10CL09-88	2.4 - 3.6	1.9	83.2	83.4
LP2-SD16W-H0.0/0.5	10CL10-31	0 - 0.5	3.1	86.9	87
LP2-SD16W-H0.5/1.8	10CL10-32	0.5 - 1.8	2.2	85.6	85.7
LP2-SD17E-D0.0/0.5	10CL08-53	0 - 0.5	8.4	50.7	50.9
LP2-SD17E-D0.5/1.5	10CL08-54	0.5 - 1.5	6.1	61.1	61.3
LP2-SD17E-D0.5/1.5R	10CL08-55	0.5 - 1.5	6.8	58	58.2
LP2-SD17E-D1.5/2.5	10CL08-56	1.5 - 2.5	1.8	79.5	79.6

TABLE C-3

Summary of Percent Solids Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Volatile Solids [%]	Dry Solids at 105C [%]	Dry Solids at 60C [%]
LP2-SD17E-D2.5/3.5	10CL08-57	2.5 - 3.5	1.9	83.6	83.7
LP2-SD17W-L0.0/0.5	10CL10-33	0 - 0.5	2.2	85.8	85.9
LP2-SD17W-L0.5/1.5	10CL10-34	0.5 - 1.5	2	79.3	79.4
LP2-SD17W-L1.5/2.1	10CL10-35	1.5 - 2.1	5.2	63.9	64.2
LP2-SD18E-E0.0/0.5	10CL08-66	0 - 0.5	10.6	45.3	45.5
LP2-SD18E-E0.5/1.5	10CL08-67	0.5 - 1.5	9.9	51.1	51.4
LP2-SD18E-E0.5/1.5R	10CL08-68	0.5 - 1.5	8.3	52.3	52.6
LP2-SD18E-E1.5/2.5	10CL08-69	1.5 - 2.5	6.7	55.6	55.8
LP2-SD18E-E2.5/4.1	10CL08-70	2.5 - 4.1	1.4	80.3	80.3
LP2-SD18E-I0.0/0.5	10CL10-36	0 - 0.5	2	79.8	79.9
LP2-SD18E-I0.0/0.5R	10CL10-37	0 - 0.5	1.6	79.7	79.7
LP2-SD18E-I0.5/1.9	10CL10-38	0.5 - 1.9	2	77	77.1
LP2-SD18W-B0.0/0.5	10CL09-93	0 - 0.5	10.3	49.2	49.6
LP2-SD18W-B0.5/1.5	10CL09-94	0.5 - 1.5	9.9	52.5	53
LP2-SD18W-B1.5/2.5	10CL09-95	1.5 - 2.5	8.5	55.4	55.9
LP2-SD19E-B0.0/0.5	10CL08-58	0 - 0.5	11.7	41.7	42
LP2-SD19E-B0.5/1.5	10CL08-59	0.5 - 1.5	7.5	53.7	53.9
LP2-SD19E-B1.5/2.5	10CL08-60	1.5 - 2.5	1.7	72.7	72.8
LP2-SD19E-B2.5/3.5	10CL08-61	2.5 - 3.5	1.7	78.9	79
LP2-SD19E-B3.5/5.1	10CL08-62	3.5 - 5.1	1.6	78.6	78.7
LP2-SD19E-I0.0/0.5	10CL08-49	0 - 0.5	2.4	73.1	73.2
LP2-SD19E-I0.5/1.5	10CL08-50	0.5 - 1.5	3.4	72.8	73
LP2-SD19E-I1.5/2.5	10CL08-51	1.5 - 2.5	1.8	80	80.1
LP2-SD19E-I2.5/3.6	10CL08-52	2.5 - 3.6	1.5	83.4	83.5
LP2-SD19E-N0.0/0.5	10CL08-46	0 - 0.5	1.2	79.9	79.9
LP2-SD19E-N0.5/1.5	10CL08-47	0.5 - 1.5	2.2	82.3	82.4
LP2-SD19E-N1.5/2.6	10CL08-48	1.5 - 2.6	1.6	90.6	90.7
LP2-SD19E-S0.0/0.5	10CL10-39	0 - 0.5	2.9	77.7	77.9
LP2-SD19E-S0.5/1.3	10CL10-40	0.5 - 1.3	1.5	79.5	79.7
LP2-SD20E-D0.0/0.5	10CL08-01	0 - 0.5	20.5	18.5	18.7
LP2-SD20E-D0.5/1.5	10CL08-02	0.5 - 1.5	10.9	49.3	49.6
LP2-SD20E-D1.5/2.5	10CL08-03	1.5 - 2.5	7.5	59.4	59.6
LP2-SD20E-D2.5/3.7	10CL08-04	2.5 - 3.7	1.8	86.4	86.5
LP2-SD20E-I0.0/0.5	10CL08-05	0 - 0.5	8.7	45.3	45.5
LP2-SD20E-I0.5/1.5	10CL08-06	0.5 - 1.5	8.1	54.8	55.1
LP2-SD20E-I1.5/2.5	10CL08-07	1.5 - 2.5	6.4	61.5	61.9
LP2-SD20E-I2.5/3.5	10CL08-08	2.5 - 3.5	5.3	65.1	65.4
LP2-SD20E-I3.5/4.5	10CL08-09	3.5 - 4.5	1.5	85.1	85.2
LP2-SD20E-M0.0/0.5	10CL08-63	0 - 0.5	1.6	76.9	77
LP2-SD20E-M0.5/1.5	10CL08-64	0.5 - 1.5	3.9	71.7	71.9
LP2-SD20E-M1.5/2.7	10CL08-65	1.5 - 2.7	2.3	81.6	81.8

TABLE C-3

Summary of Percent Solids Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Volatile Solids [%]	Dry Solids at 105C [%]	Dry Solids at 60C [%]
LP2-SD20W-A0.0/0.5	10CL10-45	0 - 0.5	2.7	81.6	81.9
LP2-SD20W-A0.5/1.5	10CL10-46	0.5 - 1.5	2.4	80.4	80.7
LP2-SD20W-A1.5/2.5	10CL10-47	1.5 - 2.5	1.7	83.5	83.6
LP2-SD21E-F0.0/0.5	10CL08-10	0 - 0.5	10.3	48.2	48.5
LP2-SD21E-F0.5/1.5	10CL08-11	0.5 - 1.5	10.4	51.1	51.5
LP2-SD21E-F1.5/2.5	10CL08-12	1.5 - 2.5	9.9	53.5	53.9
LP2-SD21E-F2.5/3.5	10CL08-13	2.5 - 3.5	6.4	59.3	59.6
LP2-SD21E-F3.5/4.5	10CL08-14	3.5 - 4.5	2.5	81.6	81.8
LP2-SD21E-J0.0/0.5	10CL08-15	0 - 0.5	5.1	62	62.2
LP2-SD21E-J0.5/1.5	10CL08-16	0.5 - 1.5	7.1	57.8	58.1
LP2-SD21E-J0.5/1.5R	10CL08-17	0.5 - 1.5	5.5	65.6	65.8
LP2-SD21E-J1.5/2.5	10CL08-18	1.5 - 2.5	4.4	80.9	81
LP2-SD21E-J2.5/3.6	10CL08-19	2.5 - 3.6	2.3	82.5	82.7
LP2-SD26W-D0.0/0.5	10CL08-71	0 - 0.5	7.3	51.4	51.6
LP2-SD26W-D0.5/1.5	10CL08-72	0.5 - 1.5	6.6	58.5	58.7
LP2-SD26W-D1.5/2.5	10CL08-73	1.5 - 2.5	6.2	55.8	56
LP2-SD26W-D2.5/3.8	10CL08-74	2.5 - 3.8	2.6	72.2	72.3
LP2-SD26W-D2.5/3.8R	10CL08-75	2.5 - 3.8	1.5	79.2	79.3
LP2-SD27W-A0.0/0.5	10CL08-76	0 - 0.5	8.7	44.2	44.4
LP2-SD28W-A0.0/0.5	10CL09-11	0 - 0.5	11	42.2	42.4
LP2-SD28W-A0.5/1.5	10CL09-12	0.5 - 1.5	6.2	63.6	63.8
LP2-SD28W-A1.5/2.5	10CL09-13	1.5 - 2.5	2.4	81.5	81.7
LP2-SD28W-A2.5/3.5	10CL09-14	2.5 - 3.5	1.1	86.9	86.9
LP2-SD28W-A2.5/3.5R	10CL09-15	2.5 - 3.5		85.5	85.5
LP2-SD28W-A3.5/4.3	10CL09-16	3.5 - 4.3	1.7	82.3	82.4
LP2-SD30W-B0.0/0.5	10CL09-45	0 - 0.5	8.6	52.9	53.2
LP2-SD30W-B0.5/1.5	10CL09-46	0.5 - 1.5	7.6	58.5	58.8
LP2-SD30W-B0.5/1.5R	10CL09-47	0.5 - 1.5	8.5	55	55.2
LP2-SD30W-B1.5/2.5	10CL09-48	1.5 - 2.5	3.8	71	71.1
LP2-SD30W-B2.5/3.5	10CL09-49	2.5 - 3.5	2.3	83.2	83.3
LP2-SD31W-A0.0/0.5	10CL09-50	0 - 0.5	15.5	44.8	45.1
LP2-SD31W-A0.5/1.5	10CL09-40	0.5 - 1.5	4	70.8	71
LP2-SD31W-A1.5/2.5	10CL09-51	1.5 - 2.5	10.4	51.3	51.6
LP2-SD31W-A2.5/3.5	10CL09-52	2.5 - 3.5	1.9	76.3	76.3
LP2-SD31W-A3.5/4.5	10CL09-53	3.5 - 4.5	1.9	79.6	79.6
LP2-SD31W-A4.5/5.5	10CL09-54	4.5 - 5.5	2	80.9	81
LP2-SD32N-C0.0/0.5	10CL08-20	0 - 0.5	4.9	60.4	60.6
LP2-SD32N-C0.0/0.5R	10CL08-21	0 - 0.5	3.9	62	62.1
LP2-SD32N-C0.5/1.5	10CL08-22	0.5 - 1.5	3	81.6	81.8
LP2-SD32N-C0.5/1.5R	10CL08-23	0.5 - 1.5	2.8	83.4	83.7
LP2-SD32N-C1.5/2.5	10CL08-24	1.5 - 2.5	2.7	83.3	83.5

TABLE C-3

Summary of Percent Solids Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Volatile Solids [%]	Dry Solids at 105C [%]	Dry Solids at 60C [%]
LP2-SD32N-C1.5/2.5R	10CL08-25	1.5 - 2.5	2.4	83.6	83.8
LP2-SD32N-C2.5/3.5	10CL08-26	2.5 - 3.5	3.2	76.6	76.9
LP2-SD32N-C3.5/4.5	10CL08-27	3.5 - 4.5	1.7	84.3	84.6
LP2-SD32N-C4.5/5.5	10CL08-28	4.5 - 5.5	2.7	84.1	84.2
LP2-SD32N-C5.5/6.5	10CL08-29	5.5 - 6.5	2.8	85	85.2
LP2-SD32N-C6.5/7.7	10CL08-30	6.5 - 7.7	2.8	86.1	86.2
LP2-SD33N-E0.0/0.5	10CL08-31	0 - 0.5	13.2	50.2	50.5
LP2-SD33N-E0.5/1.5	10CL08-32	0.5 - 1.5	5.6	59.5	59.7
LP2-SD33N-E1.5/2.5	10CL08-33	1.5 - 2.5	4.8	60.9	61.2
LP2-SD33N-E2.5/3.5	10CL08-34	2.5 - 3.5	2.5	80	80.2
LP2-SD33N-E3.5/4.5	10CL08-35	3.5 - 4.5	3.3	80.3	80.5
LP2-SD33N-E4.5/5.5	10CL08-36	4.5 - 5.5	3.1	81.5	81.8
LP2-SD33N-E5.5/6.6	10CL08-37	5.5 - 6.6	3.2	81.6	81.9
LP2-SD34N-D0.0/0.5	10CL08-38	0 - 0.5	11.5	45.2	45.6
LP2-SD34N-D0.5/1.5	10CL08-39	0.5 - 1.5	10.4	50.2	50.6
LP2-SD34N-D1.5/2.5	10CL08-40	1.5 - 2.5	7.8	59	59.4
LP2-SD34N-D2.5/3.8	10CL08-41	2.5 - 3.8	2.9	76.3	76.6
LP2-SD34N-H0.0/0.5	10CL08-42	0 - 0.5	16.5	42.4	42.8
LP2-SD34N-H0.5/1.5	10CL08-43	0.5 - 1.5	10.1	51.7	52.2
LP2-SD34N-H1.5/2.5	10CL08-44	1.5 - 2.5	8.4	56.9	57.4
LP2-SD34N-H2.5/3.9	10CL08-45	2.5 - 3.9	2.7	76.6	76.8
LP2-SD35E-A0.0/0.5	10CL10-63	0 - 0.5	2	81.8	81.9
LP2-SD35E-A0.0/0.5R	10CL10-64	0 - 0.5	1.2	82	82
LP2-SD35E-A0.5/1.7	10CL10-65	0.5 - 1.7		80.9	81
LP2-SD35W-A0.0/0.5	10CL09-76	0 - 0.5	4.1	62.6	62.8
LP2-SD35W-A0.5/1.5	10CL09-77	0.5 - 1.5	3.7	75.5	75.6
LP2-SD35W-A1.5/2.5	10CL09-78	1.5 - 2.5	1.5	85.5	85.6
LP2-SD35W-A2.5/3.9	10CL09-79	2.5 - 3.9	1.6	83.9	84.1
LP2-SD36N-C0.0/0.5	10CL09-80	0 - 0.5	9.5	47.7	48.1
LP2-SD36N-C0.5/1.5	10CL09-81	0.5 - 1.5	8.8	54.6	55.2
LP2-SD36N-C0.5/1.5R	10CL09-82	0.5 - 1.5	8.8	54.8	55.3
LP2-SD36N-C1.5/2.5	10CL09-83	1.5 - 2.5	7.5	57.1	57.5
LP2-SD36N-C2.5/3.5	10CL09-84	2.5 - 3.5	3.7	69.7	70
LP2-SD36S-B0.0/0.5	10CL10-42	0 - 0.5	1.2	83.9	83.9
LP2-SD36S-B0.5/1.5	10CL10-43	0.5 - 1.5	4.1	83.6	83.7
LP2-SD36S-B1.5/2.4	10CL10-44	1.5 - 2.4	3.3	76.6	76.8
LP2-SD37E-A0.0/1.3	10CL10-48	0 - 1.3	4.5	68.5	68.6
LP2-SD37E-I0.0/0.5	10CL10-51	0 - 0.5	1.2	81.3	81.3
LP2-SD37E-I0.5/1.4	10CL10-52	0.5 - 1.4	2	82	82.1
LP2-SD38W-B0.0/0.5	10CL10-53	0 - 0.5	1.9	78.5	78.6
LP2-SD38W-B0.5/1.9	10CL10-54	0.5 - 1.9	4.9	67.2	67.4

TABLE C-3

Summary of Percent Solids Data

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CRL Sample ID	Sample Interval (ft)	Total Volatile Solids [%]	Dry Solids at 105C [%]	Dry Solids at 60C [%]
LP2-SD39W-D0.0/0.5	10CL10-55	0 - 0.5	1.2	82.3	82.3
LP2-SD39W-D0.0/0.5R	10CL10-56	0 - 0.5	1.1	81.2	81.3
LP2-SD39W-D0.5/1.1	10CL10-57	0.5 - 1.1	2.6	81.2	81.3
LP2-SD39W-H0.0/0.4	10CL10-58	0 - 0.4	1.7	79.7	79.7
LP2-SD40E-B0.0/0.6	10CL10-49	0 - 0.6	1	87.1	87.1
LP2-SD40E-H0.0/1.0	10CL10-62	0 - 1	1.3	84.5	84.5
LP2-SD41E-C0.0/0.7	10CL10-59	0 - 0.7	1.4	79.6	79.7
LP2-SD42E-A0.0/0.4	10CL10-60	0 - 0.4	3.1	68.4	68.5
LP2-SD42E-A0.4/1.0	10CL10-61	0.4 - 1	2	77.8	77.9
LP2-SD42E-I0.0/0.6	10CL10-66	0 - 0.6	2.8	86.8	86.9
LP2-SD43S-A0.0/0.8	10CL10-67	0 - 0.8	2.8	81	81.1

TABLE C-4
Analytical Results - Metals
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Calcium mg/kg	Chromium, Total mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	Nickel mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Thallium mg/kg	Vandium mg/kg	Zinc mg/kg
LP2-SD01E-A0.0/1.0	ME4SG8	0 - 1	9080 J+	7.3 UJ	3.2 J	59 J+	0.15 J	0.61 U	108000 J+	18.2 J	6.5 J+	14.3 J+	12200 J+	8.3 J+	46000 J+	311 J+	0.18	15.4 J+	2490 J+	1 J	1.2 U	608 U	3 U	21 J+	34.2 J+
LP2-SD02E-C0.0/0.5	ME4SP3	0 - 0.5	1530 J+	6.9 UJ	2.1 J	23.1 U	0.58 U	0.19 J	40600 J	4.9 J+	1.9 J	2.6 J	5390 J	5.8 J+	53800 J+	362 J	0.12 UJ	2.9 J	578 U	0.46 J	1.2 U	578 U	2.9 U	6.9 J+	22.6 J+
LP2-SD02E-C0.5/1.5	ME4SP4	0.5 - 1.5	1300 J+	6.9 UJ	1.8 J	23.1 U	0.58 U	0.24 J	51800 J	6.9 J+	2 J	3.1 J+	4790 J	5.4 J+	54900 J+	377 J	0.12 UJ	3.2 J	578 U	4 U	1.2 U	578 U	2.9 U	6.2 J+	24.7 J+
LP2-SD03E-A0.0/0.8	ME4SG9	0 - 0.8	6190 J+	7.9 UJ	2.6 J	41 J+	0.66 U	0.66 U	76400 J+	14.7 J	5.2 J	11.7 J+	9930 J+	8.8 J+	33900 J+	278 J+	0.16	11.4 J+	1500 J+	0.96 J	1.3 U	658 U	3.3 U	18.7 J+	34.3 J+
LP2-SD03E-A0.0/0.8R	ME4SH0	0 - 0.8	7510 J+	7.7 UJ	3.1 J	68.1 J+	0.08 J	0.64 U	81200 J+	16.3 J	5.8 J	18.6 J+	10900 J+	10.1 J+	33500 J+	278 J+	0.19	13.2 J+	1900 J+	0.92 J	1.3 U	643 U	3.2 U	21.4 J+	38.1 J+
LP2-SD04E-A0.0/1.0	ME4SH2	0 - 1	3760 J	7.6 UJ	2.4 J	30.7 J+	0.63 U	0.63 U	84100 J+	22.6 J	4.1 J	6.4 J	8550 J+	7.5 J	38900 J+	306 J+	0.18	12.9 J+	755 J+	0.83 J	1.3 U	630 U	3.1 U	12.6 J+	34.4 J
LP2-SD04E-A0.0/1.0R	ME4SH3	0 - 1	2160 J	7.6 UJ	1.4 J	25.4 U	0.63 U	0.63 U	115000 J+	6.3 J	2.5 J	4.9 J	5550 J+	6 J	57500 J+	368 J+	0.18	5.1 U	635 U	0.83 J	1.3 U	635 U	3.2 U	10.4 J+	26.9 J
LP2-SD04E-E0.0/0.5	ME4SH1	0 - 0.5	1910 J+	7.2 UJ	1.1 J	24 U	0.6 U	0.6 U	90000 J+	6 J	2.2 J	3.6 J+	5730 J+	132 J+	43300 J+	278 J+	0.15	4.8 U	600 U	0.7 J	1.2 U	600 U	3 U	12.6 J+	22.5 J+
LP2-SD05W-E0.0/0.5	ME4S59	0 - 0.5	1960 J+	7.2 U	0.79 J	27.1 J+	0.6 U	0.27 J	122000 J	8.9 J+	2.5 J	7.1 J+	6030 J+	12.8 J+	44400 J+	398 J+	0.13 U	4.6 J	238 J	4.2 U	1.2 U	597 U	3 U	9 J+	43.9 J+
LP2-SD05W-E0.5/1.5	ME4S60	0.5 - 1.5	3940 J+	8.9 U	3.6 J+	51.2 J+	0.74 U	0.97 J+	104000 J	19.5 J+	4.4 J	16 J+	10500 J+	63.5 J+	41100 J+	491 J+	0.13 J	9.8 J+	448 J	5.2 U	1.5 U	740 U	3.7 U	12.8 J+	92.4 J+
LP2-SD05W-E1.5/2.5	ME4S61	1.5 - 2.5	1690 J+	6.7 U	0.98 J	18.3 J	0.56 U	0.56 U	101000 J	5.1 J+	2.6 J	5 J+	4770 J+	8.6 J+	42600 J+	342 J+	0.11 U	5.2 J+	272 J	3.9 U	1.1 U	562 U	2.8 U	6.8 J+	24.7 J+
LP2-SD05W-E2.5/3.5	ME4S62	2.5 - 3.5	5490 J+	6.8 U	1.5 J+	36.3 J+	0.57 U	0.57 U	101000 J	12 J+	5.9 J+	12.1 J+	10500 J+	6.7 J+	44500 J+	440 J+	0.11 U	13.3 J+	1250 J+	4 U	1.1 U	566 U	2.8 U	15.4 J+	28 J+
LP2-SD05W-I0.0/0.5	ME4S49	0 - 0.5	1400 J+	8.1 U	0.62 J	18.1 J	0.67 U	0.67 U	132000 J	6.3 J+	6.7 U	3.2 J	5260 J+	8.2 J+	59900 J+	391 J+	0.13 U	4.3 J	674 U	4.7 U	1.3 U	674 U	3.4 U	6.4 J	27.4 J+
LP2-SD05W-I0.5/1.5	ME4S50	0.5 - 1.5	1270 J+	6.5 U	0.67 J	14 J	0.54 U	0.54 U	107000 J	4.2 J+	5.4 U	3.2 J	4250 J+	6.8 J+	50200 J+	320 J+	0.11 U	3 J	544 U	3.8 U	1.1 U	544 U	2.7 U	5.9 J	22.7 J+
LP2-SD05W-I1.5/2.5	ME4S51	1.5 - 2.5	3400 J+	6.9 U	1.7 J+	39.7 J+	0.58 U	0.58 U	104000 J	7.4 J+	5 J	9.8 J+	8480 J+	7.5 J+	42700 J+	368 J+	0.11 U	9.1 J+	497 J	4 U	1.2 U	576 U	2.9 U	14 J+	41.4 J+
LP2-SD05W-I2.5/3.9	ME4S52	2.5 - 3.9	2420 J+	6.8 U	2.1 J+	21.8 J	0.56 U	0.56 U	91500 J	5.2 J+	6.7 J+	10.2 J+	7060 J+	6.1 J+	45000 J+	472 J+	0.12 U	11 J+	453 J	3.9 U	1.1 U	564 U	2.8 U	10.6 J+	29.5 J+
LP2-SD06W-C0.0/0.5	ME4S63	0 - 0.5	989 J+	6.1 U	1 U	10.9 J	0.51 U	0.51 U	100000 J	3.8 J+	1.9 J	2.8 J+	4570 J+	7.6 J+	46400 J+	345 J+	0.11 U	2.8 J	507 U	3.6 U	1 U	507 U	2.5 U	7.6 J+	23.7 J+
LP2-SD06W-C0.5/1.5	ME4S64	0.5 - 1.5	1630 J+	7.3 U	1.3 J+	16.8 J	0.61 U	0.24 J	92800 J	5.8 J+	2.8 J	5.7 J+	4880 J+	15.7 J+	41400 J+	264 J+	0.12 U	5.3 J+	608 U	4.3 U	1.2 U	608 U	3 U	8.9 J+	30 J+
LP2-SD06W-C1.5/3.1	ME4S65	1.5 - 3.1	3100 J+	6.8 U	2.6 J+	30 J+	0.57 U	0.57 U	88100 J	7.1 J+	6.7 J+	11.7 J+	8670 J+	7.3 J+	47000 J+	520 J+	0.12 U	12.6 J+	600 J+	4 U	1.1 U	570 U	2.9 U	12.7 J+	32.1 J+
LP2-SD06W-C1.5/3.1R	ME4S66	1.5 - 3.1	2980 J+	6.9 U	2 J+	29.4 J+	0.58 U	0.58 U	100000 J	6.2 J+	5.6 J	9.7 J+	8620 J+	6.9 J+	49200 J+	450 J+	0.11 U	10.7 J+	586 J+	4 U	1.2 U	577 U	2.9 U	11.7 J+	30.2 J+
LP2-SD06W-H0.0/0.5	ME4S80	0 - 0.5	848	6 U	0.72 J	13.4 J	0.5 U	0.5 U	129000 J	2.7	5 U	1.9 J	4080	4.1	60400	381	0.11 U	2.4 J	503 U	3.5 U	1 U	186 U	2.5 U	5.6	20.8
LP2-SD06W-H0.5/1.5	ME4S81	0.5 - 1.5	995 J+	6.1 U	1.2 J+	12.8 J	0.5 U	0.5 U	97700 J	3.6 J+	2.2 J	4 J+	4880 J+	5.7 J+	45300 J+	377 J+	0.11 U	3.6 J	504 U	3.5 U	1 U	504 U	2.5 U	7.6 J+	23.9 J+
LP2-SD06W-H1.5/2.5	ME4S83	1.5 - 2.5	1940 J+	6.6 U	0.89 J	23 J+	0.55 U	0.23 J	92200 J	5.6 J+	3.1 J	8.7 J+	6380 J+	12.1 J+	40800 J+	349 J+	0.11 U	5.2 J+	220 J	3.8 U	1.1 U	547 U	2.7 U	9.1 J+	45.2 J+
LP2-SD06W-H2.5/3.5	ME4S84	2.5 - 3.5	2880 J+	7.1 U	2.4 J+	39.5 J+	0.59 U	0.57 J	77700 J	9.4 J+	2.9 J	11.4 J+	6660 J+	32 J+	34200 J+	303 J+	0.048 J	6.6 J+	368 J	4.1 U	1.2 U	590 U	2.9 U	8.6 J+	57.7 J+
LP2-SD06W-H3.5/4.5	ME4S85	3.5 - 4.5	2310 J+	6.8 U	2.3 J+	29.5 J+	0.56 U	0.58 J+	77900 J	10.6 J+	2.6 J	9.4 J+	6090 J+	31 J+	33200 J+	233 J+	0.12 U	5.4 J+	321 J	3.9 U	1.1 U	563 U	2.8 U	9 J+	53.6 J+
LP2-SD06W-H4.5/5.6	ME4S86	4.5 - 5.6	2440 J+	6.5 U	2.4 J+	20.4 J	0.54 U	0.54 U	99200 J	6 J+	5 J	7.3 J+	7670 J+	4.8 J+	44700 J+	400 J+	0.12 U	8.8 J+	429 J	3.8 U	1.1 U	543 U	2.7 U	11.3 J+	25.4 J+
LP2-SD07E-G0.0/0.5	ME4SE9	0 - 0.5	1040 J+	2.4 J	0.92 J	11.3 J	0.52 U	0.52 U	107000 J	5.9 J+	1.8 J	2.3 J+	4160 J+	3.9 J+	43300 J+	364 J+	0.054 J	3 J	521 U	3.6 U	1 U	521 U	2.6 U	8 J+	22.1 J+
LP2-SD07E-G0.5/1.5	ME4SF0	0.5 - 1.5	1320 J+	2.5 J	1 J	14.5 J	0.54 U	0.18 U	107000 J	4.3 J+	2 J	2.9 J+	4580 J+	7.5 J+	45100 J+	381 J+	0.062 J	3.7 J	247 J	3.8 U	1.1 U	543 U	2.7 U	6.3 J+	26.5 J+
LP2-SD07E-G1.5/2.5	ME4SF1	1.5 - 2.5	1850 J+	6.9 U	1.8 J+	25.3 J+	0.58 U	0.37 J	89900 J	5.6 J+	2.4 J	6.8 J+	4740 J+	13.4 J+	40800 J+	303 J+	0.069 J	4.5 J	267 J	4 U	1.2 U	576 U	2.9 U	7.3 J+	47.7 J+
LP2-SD07E-G2.5/3.5	ME4SF2	2.5 - 3.5	3230	7.6 U	3.6	49.2	0.64 U	1.3	61900 J	17.8	4.2 J	17.1	7110	73.9	25300	352	0.12	9.7	391 J	4.5 U	1.3 U	637 U	3.2 U	10.8	90.8
LP2-SD07E-G3.5/4.5	ME4SF3	3.5 - 4.5	2920	8.5 U	3.7	43.5	0.71 U	1.1	88600 J	20.8	3.8 J	12.5	7070	46.9	26300	462	0.15	9.9	374 J	4.9 U	1.4 U	706 U	3.5 U	11.5	106
LP2-SD07E-G4.5/5.5	ME4SF4	4.5 - 5.5	3230 J+	8.1 U	5.5 J+	44 J+	0.67 U	0.76 J+	76300 J	13.3 J+	5 J	12.9 J+	7510 J+	36 J+	34600 J+	446 J+	0.094 J	10.2 J+	488 J	4.7 U	1.3 U	672 U	3.4 U	11.7 J+	65.6 J+
LP2-SD08E-C0.0/0.5	ME4SB5	0 - 0.5	1370 J+	6.8 U	0.99 J	14.5 J	0.57 U	0.57 U	70500 J	4.6 J+	5.7 U	5.9 J+	3790 J+	13.8 J+	31700 J+	220 J+	0.12 U	3.4 J	231 J	4 UJ	1.1 U	566 U	2.8 U	6.8 J+	24.7 J+
LP2-SD08E-C0.5/1.5	ME4SB6	0.5 - 1.5	1580 J+	7.1 U	1.2 J+	16.1 J	0.59 U	0.59 U	101000 J	5 J+	2 U	4.1 J+	4430 J+	5.9 J+	39700 J+	294 J+	0.12 U	3.9 J	229 J	4.1 UJ	1.2 U	588 U	2.9 U	9.5 J+	39.5 J+
LP2-SD08E-C1.5/3.1	ME4SB7	1.5 - 3.1	1330 J+	6.7 U	0.94 J	12.1 J	0.56 U	0.56 U	91700 J	3.1 J+	5.6 U	1.5 J	3490 J+	0.71 J	43700 J+	304 J+	0.12 U	3.4 J	211 J	3.9 UJ	1.1 U	556 U	2.8 U	6.6 J+	18.3 J+
LP2-SD08E-C3.1/4.5	ME4SB8	3.1 - 4.5	3400 J+	2.7 J	3.5 J+	31.3 J+	0.23 J	0.55 U	94300 J	7.2 J+	6.5 J+	18.8 J+	8600 J+	5.9 J+	51200 J+	540 J+	0.12 U	12.3 J+	666 J+	3.9 UJ	1.1 U	554 U	2.8 U	13.8 J+	32.8 J+
LP2-SD08E-H0.0/0.5	ME4SD4	0 - 0.5	1520 J+	6.6 U	1.3 J+	11.4 J+	0.55 U	0.55 U	85300 J+	5.7 J+	2 J+	4 J+	4950 J+	9.3 J+	41500 J+	280 J+	0.048 J	3.9 J+	225 J+	3.9 U	1.1 U	552 U	2.8 U	10.8 J+	25.8 J+
LP2-SD08E-H0.5/1.5	ME4SD5	0.5 - 1.5	2650 J+	6.9 U	2.5 J+	25.5 J+	0.58 U	0.54 J+	87200 J+	9.6 J+	3 J+	7.1 J+	6460 J+	22.3 J+	37200 J+	308 J+	0.074 J	6.2 J+	389 J+	4.1 U	1.2 U	579 U	2.9 U	10.8 J+	67.9 J+
LP2-SD08E-H1.5/2.5	ME4SD6	1.5 - 2.5	2040 J+	3.4 J+	1.6 J+	14.7 J+	0.52 U	0.52 U	111000 J+	5 J+	2.6 J+	3 J+	5460 J+	13.4 J+	52100 J+	295 J+	0.04	4.6 J+	324 J+	3.7 U	1 U	524 U	2.6 U	10.4 J+	24.1 J+
LP2-SD08E-H2.5/3.4	ME4SD7	2.5 - 3.4	3700 J+	3.1 J+	4.2 J+	30.3 J+	0.21 J+	0.23 J+	96700 J+	7.4 J+	6.7 J+	11.8 J+	9170 J+	6.8 J+	49400 J+	537 J+	0.043 J	12.7 J+	698 J+	1.5 J+	1.1 U	572 U	2.9 U	14.6 J+	32 J+
LP2-SD09S-C0.0/0.5	ME4S67	0 - 0.5	1600 J	6.1 U	0.57 J	13.7 J	0.51 U	0.51 U	139000 J	5.1 J+	2.6 J	3 J+	5820 J+	8.3 J+	60100 J+	420 J+	0.11 UJ	4.1 J+	511 U	3.6 U	1 U	195 J	2.6 U	7.2 J+	38.7 J+
LP2-SD09S-C0.5/1.5	ME4S68	0.5 - 1.5	5590 J	6.5 U	4.1 J+	56.4 J+	0.2 U	0.54 U	88700 J	12.9 J+	7.5 J	7.3 J+	12400 J+	7.5 J+	43600 J+	530 J+	0.11 UJ	12.2 J+	1270 J+	3.8 U	1.1 U	538 U	2.7 U	16.3 J+	36.5 J+
LP2-SD09S-C1.5/2.9	ME4S69	1.5 - 2.9	2370 J	7.2 U	2 J	25.2 J	0.6 U	0.21 J+	125000 J	8.6 J+	3.8 J+	9 J+	7770 J+	12.2 J+	71500 J+	742 J+	0.12 UJ	7.1 J	368 J+	4.2 U	1.2 U	597 U	3 U	10 J	41.6 J+
LP2-SD10S-D0.0/0.9	ME4SJ8	0 - 0.9	3960 J+	9.4 UJ	2.7 J	43.5 J+	0.19 J	0.28 J	90300 J	14.5 J	3.7 J	11.9 J+	7100 J	18.8 J	34700 J	351 J	0.13 J	7.4 J	780 U	5.5 U	1.6 U	178 J	3.9 U	12.6 J+	55.1 J
LP2-SD11N-E0.0/0.7	ME4SH4	0 - 0.7	1670 J+	7.4 UJ	2.1 J	24.6 U	0.62 U	0.62 U	127000 J+	4.5 J	2.2 J	3.8 J+	5350 J+	5.9 J+	52600 J+	341 J+	0.22	4.9 U	615 U	0.44 J	1.2 U	615 U	3.1 U	8.7 J+	27.7 J+
LP2-SD12S-B0.0/0.5	ME4SH5	0 - 0.5	2870 J+	6.9 UJ	1.7 J	22.9 U	0.57 U	0.57 U	117000 J+	11.2 J	3.7 J	7.4 J+	4750 J+	15.8 J+	46600 J+	243 J+	0.16	6.3 J+	572 U	0.4 J	1.1 U	572 U	2.9 U	7.1 J+	75.2 J+
LP2-SD12S-B0.5/1.5	ME4SH6	0.5 - 1.5	3320 J+	8 UJ	3.9 J	74.7 J+	0.66 U	0.73 J	98800 J+	116 J	3.9 J	15.6 J+	7350 J+	76.5 J+	42700 J+	346 J+	0.22	8.8 J+	665 U	0.78 J	1.3 U	665 U	3.3 U	10.2 J+	90.7 J+
LP2-SD13E-A0.0/0.5	ME4SA7	0 - 0.5	1570 J+	8.2 U	0.68 J	14.9 J	0.68 U	0.68 U	69000 J	5 J+	6.8 U	4.2 J+	5420 J+	6.3 J+	34200 J+	207 J+	0.085 J	3.7 J	681 U	4.8 UJ	1.4 U	681 U	3.4 U	14.8 J+	31.2 J+
LP2-SD13E-A0.5/1.7	ME4SA8	0.5 - 1.7	2220 J+	2.6 J	1.6 J+	17.5 J	0.55 U	0.37 J	105000 J	7.1 J+	2.8 J	5 J+	5440 J+	11.6 J+	43600 J+	329 J+	0.11 U	5.5 J+	309 J	3.9 UJ	1.1 U	552 U	2.8 U	8.5 J+	69.4 J+
LP2-SD13E-A1.7/2.9	ME4SA9	1.7 - 2.9	5420 J+	9.5 U	5.6 J+	94.2 J+	0.38 J	2.1 J+	96600 J	30.6 J+	6.5 J	30.2 J+	11500 J+	105 J+	41600 J+	517 J+	0.17	15.1 J+	775 J	5.5 UJ	0.62 J	791 U	4 U	17.7 J+	169 J+
LP2-SD13E-A2.9/4.2	ME4SB0	2.9 - 4.2	2440 J+	7.1 U	1.3 J+	34.7 J+	0.59 U	0.59 U	97300 J	5.9 J+	3 J	6 J+	4920 J+	2.7 J+	37000 J+	352 J+	0.12 U	6 J+	299 J	4.1 UJ	1.2 U	588 U	2.9 U	10.5 J+	25.9 J+
LP2-SD14E-C0.0/0.5	ME4SA2	0 - 0.5	3420 J+	9.9 U	2.1 J+	53.4 J+	0.82 U	0.6 J	103000 J	11.3 J+	3.9 J	15.3 J+	8680 J+	22.1 J+	41700 J+	509 J+	0.1 J	8 J+	455 J	5.7 UJ	1.6 U	821 U	4.1 U	10 J+	84.5 J+
LP2-SD14E-C0.5/1.5	ME4SA3	0.5 - 1.5	2740 J+	8 U	1.9 J+	50.6 J+	0.66 U	0.49 J	108000 J	13.5 J+	3.9 J	10.8 J+	6630 J+	25.1 J+	45400 J+	397 J+	0.12 J	7.7 J+	363 J	4.6 UJ	1.3 U	664 U	3.3 U	8.3 J+	68.9 J+
LP2-SD14E-C0.5/1.5R	ME4SA6	0.5 - 1.5	2950 J+	8.3 U	2.1 J+	41.5 J+	0.69 U	0.57 J	105000 J	12.8 J+	3.7 J	12.1 J+	7820 J+	30.9 J+	45000 J+	430 J+	0.1 J	7.8 J+	384 J	4.8 UJ	1.4 U	688 U	3.4 U	10.2 J+	80.6 J+
LP2-SD14E-C1.5/3.2	ME4SA4	1.5 - 3.2	3610 J+	8.5 U	3.7 J+	50.6 J+	0.26 J	1.1 J+	104000 J	22.4 J+	5.8 J	18.4 J+	9080 J+	61 J+	48100 J+	492 J+	0.17	12.3 J+	503 J	5 UJ	1.4 U	711 U	3.6 U	13.1 J+	95 J+
LP2-SD14E-C3.2/4.0	ME4SA5	3.2 - 4	2710 J+	2.7 J	2.6 J+	20.3 J	0.56 U	0.56 U	102000 J	6.5 J+	5.7 J+	7.9 J+	7320 J+	4.6 J+	56300 J+	480 J+	0.043 J	10.3 J+	469 J	3.9 UJ	1.1 U	559 U	2.8 U	11.2 J+	28.5 J+
LP2-SD15E-A0.0/0.5	ME4S70	0 - 0.5	996 J	7.2 U	0.55 J+	17.3 J+	0.6 U	0.6 U	92600 J	5.7 J+	6 U	2.4 J+	4230 J+	30 J+	36500 J+	244 J+	0.12 UJ	2.8 J+	600 U	4.2 U	1.2 U	600 U	3 U	4.7 J+	21 J+
LP2-SD15E-A0.5/2.1	ME4S71	0.5 - 2.1	1140 J	6.5 U	0.96 J+	12.4 J+	0.54 U	0.54 U	107000 J	10 J+	2.2 J+	2.5 J+	4340 J+	15.4 J+	46200 J+	294 J+	0.11 UJ	4.3 J	541 U	3.8 U	1.1 U	541 U	2.7 U	7.2 J	18.9 J+
LP2-SD15E-A2.1/2.8	ME4S72	2.1 - 2.8	2890 J	6.9 U	2.6 J+	28 J	0.58 U	0.58 U	96000 J	6.1 J+	6.8 J	10.9 J+	8690 J+	6.7 J+	52400 J+	520 J+	0.12 UJ	12.2 J+	575 J+	4 U	1.2 U	576 U	2.9 U	11.3 J	33.6 J+
LP2-SD15E-I0.0/0.5	ME4S98	0 - 0.5	6270	10.5 U	4	90.2	0.36 J	1.8	77600	26.3	6.6 J	30.8	11400	85.8	25400	401	0.15 J	16.5	751 J	6.1 U	1.7 U	874 U	4.4 U	14.5	151
LP2-SD15E-I0.5/1.5	ME4S99	0.5 - 1.5	3820	9.2 U	3.7	79.2	0.76 U	1.5	99600 J	41.5	5.8 J	29.8	9340	137	34500	390	0.15	14.7	488 J	5.4 U	1.5 U	765 U	3.8 U	11.6	158
LP2-SD15E-I1.5/2.5	ME4SA0	1.5 - 2.5	5090	9.4 U	6.4	122	0.31 J	2.5	72200 J	123	5.6 J	70.1	13200	194	32700	477	0.23	28.9	633 J	5.5 U	1.2 J	787 U	3.9 U	13.6	285
LP2-SD15E-I2.5/3.5	ME4SA1	2.5 - 3.5	3010 J+	3.1 J	3.9 J+	28.9 J+	0.59 U	0.59 U	101000 J	6.2 J+	5.6 J	10.3 J+	8370 J+	5.9 J+	53700 J+	515 J+	0.049 J	11.2 J+	564 J	4.1 UJ	1.2 U	590 U	2.9 U	12.8 J+	30.7 J+
LP2-SD15W-A0.0/0.9	ME4SH7	0 - 0.9	2170 J+	7.2 UJ	1.4 J	16.9 J	0.6 U	0.6 U	139000 J+	6.6 J	2.2 J	13.2 J+	4470 J+	5.7 J+	41700 J+	388 J+	0.14	4.9 J+	602 U	0.57 J	1.2 U	602 U	3 U	8.1 J+	23.3 J+
LP2-SD16E-A0.0/0.5	ME4S73	0 - 0.5	2460 J	9.1 U	1.5 U	46.4 J	0.76 U	0.41 J+	107000 J	8.5 J+	2.9 J+	10.3 J+	6280 J+	13.9 J+	37900 J+	337 J+	0.15 UJ	5.5 J+	323 J+	5.3 U	1.5 U	756 U	3.8 U	9.5 J	59 J+
LP2-SD16E-A0.5/1.5	ME4S74	0.5 - 1.5	2020 J	8.3 U	0.57 J+	38.8 J	0.69 U	0.69 U	91700 J	6.5 J+	2.7 J+	6.9 J+	5440 J+	6.4 J+	33100 J+	251 J+	0.14 UJ	5 J+	691 U	4.8 U	1.4 U	691 U	3.5 U	9.5 J	34.3 J+
LP2-SD16E-A1.5/2.5	ME4S75	1.5 - 2.5	1080 J	7.7 U	1.3 U	22.1 J+	0.64 U	0.64 U	87700 J	3.4 J+	6.4 U	1.6 J+	3590 J+	1.6 J	35500 J+	186 J+	0.13 UJ	2.8 J+	643 U	4.5 U	1.3 U	643 U	3.2 U	11.6 J	20.6 J+
LP2-SD16E-A2.5/3.5	ME4S76	2.5 - 3.5	1070 J	6.9 U	1.2 U	14.6 J+	0.58 U	0.58 U	87700 J	3.5 J+	5.8 U	1.6 J+	3200 J+	0.64 J+	41500 J+	192 J+	0.12 UJ	1.8 J+	579 U	4.1 U	1.2 U	579 U	2.9 U	8.3 J	6.6 J
LP2-SD16E-A3.5/4.5	ME4S77	3.5 - 4.5	1010 J	6.7 U	0.47 J	9.7 J+	0.55 U	0.55 U	78300 J	2.6 J+	5.5 U	1.4 J	3070 J+	1.4 J	35500 J+	197 J+	0.11 UJ	3 J	555 U	3.9 U	1.1 U	555 U	2.8 U	6.2 J	14.4 J+
LP2-SD16E-A4.5/6.1	ME4S78	4.5 - 6.1	2730 J	6.8 U	1.8 J	26.2 J	0.57 U	0.57 U	99000 J	5.9 J+	4.9 J+	8.1 J+	7510 J+	5.2 J+	47400 J+	405 J+	0.12 UJ	9.5 J+	523 J+	4 U	1.1 U	568 U	2.8 U	10.3 J	28.5 J+
LP2-SD16E-A4.5/6.1R	ME4S79	4.5 - 6.1	3170 J	7.1 U	2.3 J	30.5 J	0.59 U	0.59 U	90900 J	6.9 J+	5.7 J+	10.2 J+	8530 J+	6.8 J+	47200 J+	444 J+	0.11 UJ	11.6 J+	613 J	4.2 U	1.2 U	593 U	3 U	12.5 J+	33.2 J+
LP2-SD16W-C0.0/0.5	ME4SC9	0 - 0.5	5970	12.1 U	3.8 J	83.5 J+	1 U	1.2 J	92900	26.6	5.5 J	37.4	12500	58.8	34600	512	0.16 J	14.8 J	737 J+	2.4 U	2 U	1010 U	5 U	15.5 J	177
LP2-SD16W-C0.5/1.5	ME4SD0	0.5 - 1.5	3590	8.6 U	2.7 J	49.2 J+	0.72 U	0.81 J	72000	20.8	4 J	18.8	7790	49.9	30200	305	0.095 J	9.9 J	461 J+	5 U	1.4 U	719 U	3.6 U	13 J	102
LP2-SD16W-C1.5/2.4	ME4SD2	1.5 - 2.4	2170 J+	2.4 J+	2.1 J+	18.1 J+	0.55 U	0.55 U	92400 J+	6.4 J+	3.2 J+	4.7 J+	5730 J+	5.6 J+	43600 J+	311 J+	0.042 J	6.5 J+	321 J+	3.8 U	1.1 U	549 U	2.7 U	12.8 J+	23.8 J+
LP2-SD16W-C2.4/3.6	ME4SD3	2.4 - 3.6	4300 J+	2.6 J+	3.6 J+	37 J+	0.27 J+	0.19 J+	89000 J+	8.5 J+	6.6 J+	12.2 J+	10100 J+	7.9 J+	47400 J+	477 J+	0.048 J	14.4 J+	831 J+	1.4 J+	1.1 U	564 U	2.8 U	15.6 J+	35.5 J+
LP2-SD16W-H0.0/0.5	ME4SH8	0 - 0.5	1640 J+	7.4 UJ	1.2 J	14.6 J	0.62 U	0.62 U	108000 J+	6.2 J	1.9 J	5.1 J+	4640 J+	6.4 J+	52800 J+	426 J+	0.16	3.4 J	616 U	4.3 U	1.2 U	616 U	3.1 U	8.6 J+	21.4 J+
LP2-SD16W-H0.5/1.8	ME4SH9	0.5 - 1.8	3120 J+	7.2 UJ	1.8 J	22.7 J	0.6 U	0.6 U	83700 J+	11.4 J	3.3 J	8.2 J+	6050 J+	10.5 J+	31700 J+	231 J+	0.18	7.7 J+	604 U	0.78 J	1.2 U	604 U	3 U	12.9 J+	32.9 J+

TABLE C-4
Analytical Results - Metals
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Calcium mg/kg	Chromium, Total mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	Nickel mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Thallium mg/kg	Vandium mg/kg	Zinc mg/kg
LP2-SD17E-D0.0/0.5	ME4RZ2	0 - 0.5	4730 J+	11.1 U	1.6 J+	84.2 J+	0.92 U	0.9 J+	104000 J	17.6 J+	5.2 J+	24.6 J+	10400 J+	30.3 J+	35000 J+	543 J+	0.11 J	10.4 J	620 J+	6.4 U	1.8 U	921 U	4.6 U	13.8 J	122 J+
LP2-SD17E-D0.5/1.5	ME4RZ3	0.5 - 1.5	5920 J+	10 U	4.1 J+	92.1 J+	0.83 U	1.9 J+	88000 J	27.6 J+	6.1 J+	27.2 J+	11800 J+	99.2 J+	31800 J+	475 J+	0.16 J+	15.1 J+	690 J+	5.8 U	0.62 J+	835 U	4.2 U	15.7 J	154 J+
LP2-SD17E-D0.5/1.5R	ME4RZ4	0.5 - 1.5	5180 J+	9.4 U	3.5 J+	85.4 J+	0.79 U	1.6 J+	86600 J	28.5 J+	5.6 J+	25.7 J+	11200 J+	94.1 J+	32400 J+	450 J+	0.16 J+	13.3 J+	615 J+	5.5 U	0.71 J+	787 U	3.9 U	14.5 J	138 J+
LP2-SD17E-D1.5/2.5	ME4RZ5	1.5 - 2.5	3670 J+	8.6 U	2.6 J	56 J+	0.72 U	0.94 J	91000 J	17.8 J+	4.3 J+	16.8 J+	8040 J+	51.6 J+	39900 J+	402 J+	0.14 J	9.4 J	443 J+	5 U	1.4 U	720 U	3.6 U	11.3 J	89.8 J+
LP2-SD17E-D2.5/3.5	ME4RZ6	2.5 - 3.5	3330 J+	6.9 U	2.8 J+	29.5 J+	0.58 U	0.58 U	99400 J	6.8 J+	7.5 J	12 J+	8570 J+	7.2 J+	53500 J+	550 J+	0.12 U	13.1 J+	698 J+	4 U	1.2 U	578 U	2.9 U	12.8 J+	35.6 J+
LP2-SD17W-E0.0/0.5	ME4SE4	0 - 0.5	4790	11.9 U	2.9	82.5	0.99 U	1.2	94300 J	20.7	5.6 J	33.5	10800	46.7	33200	536	0.17 J	12.9	661 J	7 U	2 U	994 U	5 U	14.7	155
LP2-SD17W-E0.5/1.5	ME4SE5	0.5 - 1.5	5360	10.1 U	4.5	92.7	0.33 J	1.9	89300 J	36.9	6.7 J	36	11100	171	34600	534	0.35	17.1	657 J	5.9 U	1.7 U	839 U	4.2 U	16.3	197
LP2-SD17W-E1.5/2.5	ME4SE6	1.5 - 2.5	4250	9.3 U	5	74.2	0.77 U	2	74900 J	41.3	5 J	32.4	8690	126	33000	359	0.19	16.2	547 J	5.4 U	1.5 U	772 U	3.9 U	14.8	170
LP2-SD17W-E2.5/3.5	ME4SE7	2.5 - 3.5	1490 J+	2.5 J	1 J	20.8 J	0.59 U	0.32 J	112000 J	6.5 J+	2.1 J	4.6 J+	4050 J+	11.2 J+	43600 J+	426 J+	0.064 J	4.5 J	595 U	4.2 U	1.2 U	595 U	3 U	6.7 J+	31.1 J+
LP2-SD17W-E3.5/4.4	ME4SE8	3.5 - 4.4	1370 J+	7.1 U	0.63 J	10 J	0.59 U	0.59 U	96500 J	4.2 J+	2.2 J	2.6 J	4160 J+	2.1 J+	42600 J+	280 J+	0.049 J	4.2 J	592 U	4.1 U	1.2 U	592 U	3 U	10.3 J+	19.7 J+
LP2-SD17W-L0.0/0.5	ME4SJ0	0 - 0.5	1290 J+	7.2 UJ	1.2 J	24 U	0.6 U	0.6 U	122000 J+	3.9 J	1.8 J	2.3 J	4380 J+	4.3 J+	41600 J+	360 J+	0.14	2.7 J	601 U	0.47 J	1.2 U	601 U	3 U	7 J+	20.3 J+
LP2-SD17W-L0.5/1.5	ME4SJ1	0.5 - 1.5	3390 J+	7.8 UJ	3 J	44.3 J+	0.65 U	0.67 J	91300 J+	15.8 J	3.2 J	11.3 J+	6390 J+	42.9 J+	40100 J+	273 J+	0.36	7.3 J+	649 U	0.72 J	1.3 U	649 U	3.2 U	12.4 J+	64.1 J+
LP2-SD17W-L1.5/2.1	ME4SJ2	1.5 - 2.1	8210	10.3 UJ	5.7 J	77.6	0.15 J	1.4 J	95200	28.3 J	5.8 J	23.3	12300	55.2	31700	464	0.36	13.9	1340	1.8 J	1.7 U	856 U	4.3 U	19.9	119
LP2-SD18E-E0.0/0.5	ME4S06	0 - 0.5	5330	12.4 U	2.1	87.7 J	1 U	0.95 J	101000 J	18.2	5.4 J	27.4	11500	32.5	30900	534	0.2 U	11.2	640 J	7.2 U	2.1 U	1030 U	5.2 U	14.2	138
LP2-SD18E-E0.5/1.5	ME4S07	0.5 - 1.5	6890	11.4 U	2.9	101 J	0.37 J	1.8	97200 J	25.9	6.2 J	32.2	13400	80.6	30900	528	0.22	14.7	751 J	6.7 U	1.9 U	950 U	4.8 U	17.1	166
LP2-SD18E-E0.5/1.5R	ME4S08	0.5 - 1.5	6920	11.2 U	4.8	105 J	0.37 J	1.8	95500 J	26	6.7 J	31.4	13500	87	30200	543	0.27	15.5	763 J	6.5 U	1.9 U	934 U	4.7 U	17	177
LP2-SD18E-E1.5/2.5	ME4S09	1.5 - 2.5	5250 J+	9.1 U	4 J+	80.7 J+	0.29 J+	1.4 J+	89200 J+	30.6 J+	5.6 J+	26.2 J+	10900 J+	84.4 J+	38400 J+	474 J+	0.22	13.4 J+	619 J+	5.3 U	1.5 U	760 U	3.8 U	14.6 J+	138 J+
LP2-SD18E-E2.5/4.1	ME4S10	2.5 - 4.1	4950 J+	7.2 U	4.8 J+	43.7 J+	0.28 J+	0.6 U	92000 J+	9.1 J+	7.9 J+	14.5 J+	11400 J+	7.8 J+	49400 J+	527 J+	0.2 U	16.1 J+	977 J+	4.2 U	1.2 U	597 U	3 U	15.9 J+	43.3 J+
LP2-SD18E-I0.0/0.5	ME4SJ3	0 - 0.5	1770 J	7.4 UJ	1.3 J	24.8 U	0.62 U	0.62 U	98200	7 J	2.8 J	3.5	5010	12.8 J	30700	225	0.21	5	620 U	0.59 J	1.2 U	620 U	3.1 U	12.5	52.7
LP2-SD18E-I0.0/0.5R	ME4SJ4	0 - 0.5	2920 J	7.5 UJ	1.3 J	24.9 U	0.62 U	0.62 U	69300	16.9 J	3.1 J	6.3	6620	6.2 J	26800	228	0.19	6.2	623 U	0.56 J	1.2 U	623 U	3.1 U	14.5	49
LP2-SD18E-I0.5/1.9	ME4SJ5	0.5 - 1.9	3890 J+	7.3 UJ	1.9 J	30.3 J+	0.61 U	0.61 U	79200 J+	11.3 J	3.5 J	7.6 J+	6830 J+	10 J+	31700 J+	293 J+	0.21	7.2 J+	821 J+	0.82 J	1.2 U	612 U	3.1 U	13.7 J+	36.8 J+
LP2-SD18W-B0.0/0.5	ME4SD9	0 - 0.5	7630	12 U	4.2	102 J+	0.37 U	1.3 J	106000	25.4	6.3 J	36.8	14500	48	33600	562	0.17 J	15 J	967 J+	2.5 J	2 U	1000 U	5 U	17.3 J	165
LP2-SD18W-B0.5/1.5	ME4SE0	0.5 - 1.5	10000 J+	11.2 U	5.4 J+	131 J+	0.5 J+	2.4 J+	97100 J+	40.1 J+	7.7 J+	43.7 J+	18200 J+	116 J+	32100 J+	632 J+	0.22	20.1 J+	1170 J+	3.6 J+	1 J+	934 U	4.7 U	22.1 J+	213 J+
LP2-SD18W-B1.5/2.5	ME4SE1	1.5 - 2.5	7300	10.1 U	6.6	116 J+	0.38 J	3.1	79400	81	6.5 J	52.9	15300	170	32800	519	0.2	25.7	902 J+	3.2 J	1.6 J	839 U	4.2 U	18.2	239
LP2-SD18W-B1.5/2.5R	ME4SE2	1.5 - 2.5	6090 J+	10.1 U	6.5 J+	107 J+	0.38 J	2.8 J+	72900 J	59.4 J+	6.8 J	45 J+	12600 J+	166 J+	30200 J+	525 J+	0.42 J+	22.8 J+	762 J	5.9 U	1.7 U	840 U	4.2 U	18.8 J+	215 J+
LP2-SD18W-B2.5/3.5	ME4SE3	2.5 - 3.5	3210 J+	7.9 U	4.4 J+	32.1 J+	0.24 U	0.66 U	96500 J	7.1 J+	8.3 J+	12.7 J+	8620 J+	7.6 J+	53100 J+	590 J+	0.08 J	14.8 J+	649 J	4.6 U	1.3 U	662 U	3.3 U	14.8 J+	34.5 J+
LP2-SD19E-B0.0/0.5	ME4RZ7	0 - 0.5	6040 J+	14.5 U	1.5 J+	100 J+	1.2 U	1.1 J+	111000 J	22.1 J+	6.2 J+	32.1 J+	13100 J+	35.4 J+	30700 J+	546 J+	0.13 J	13.5 J	683 J+	8.5 U	2.4 U	1210 U	6.1 U	15.5 J	152 J+
LP2-SD19E-B0.5/1.5	ME4RZ8	0.5 - 1.5	5420 J+	11.4 U	2.9 J	84.4 J+	0.95 U	1.4 J	111000 J	26.8 J+	6.3 J+	32.6 J+	11300 J+	80.6 J+	31100 J+	460 J+	0.14 J	15 J	609 J+	6.7 U	1.9 U	952 U	4.8 U	14.5 J	163 J+
LP2-SD19E-B1.5/2.5	ME4RZ9	1.5 - 2.5	1910 J+	7.4 U	0.92 J+	22 J+	0.62 U	0.3 J+	99300 J	7.2 J+	2.9 J+	6.8 J+	4990 J+	13.1 J+	47800 J+	277 J+	0.043 J	5.2 J	288 J+	4.3 U	1.2 U	620 U	3.1 U	8.1 J	33.6 J+
LP2-SD19E-B2.5/3.5	ME4S00	2.5 - 3.5	4390 J+	7.3 U	2.8 J+	54.7 J+	0.61 U	0.61 U	93400 J	8.3 J+	7.2 J	14.5 J+	11100 J+	8.2 J+	51100 J+	490 J+	0.12 U	14.9 J+	903 J+	4.2 U	1.2 U	606 U	3 U	14.5 J+	39.4 J+
LP2-SD19E-B3.5/5.1	ME4S01	3.5 - 5.1	3540 J+	7.1 U	2.4 J+	103 J+	0.59 U	0.59 U	91700 J	7.1 J+	8.1 J	12.7 J+	9040 J+	7.5 J+	50100 J+	512 J+	0.12 U	13.9 J+	757 J+	4.1 U	1.2 U	588 U	2.9 U	12.2 J+	36.2 J+
LP2-SD19E-I0.0/0.5	ME4RY8	0 - 0.5	2080 J+	7.6 U	0.53 J+	31.7 J+	0.63 U	0.51 J+	69700 J	9 J+	2.8 J+	10.7 J+	5290 J+	18.9 J+	29800 J+	276 J+	0.13 U	5.2 J	327 J+	4.4 U	1.3 U	635 U	3.2 U	7.6 J	108 J+
LP2-SD19E-I0.5/1.5	ME4RY9	0.5 - 1.5	2700 J+	8.9 U	2.3 J	48.1 J+	0.74 U	1.2 J	82800 J	25.8 J+	3.8 J+	16.8 J+	6790 J+	61.6 J+	36400 J+	314 J+	0.082 J	9.8 J	333 J+	5.2 U	1.5 U	744 U	3.7 U	9.8 J	114 J+
LP2-SD19E-I1.5/2.5	ME4RZ0	1.5 - 2.5	3600 J+	7.6 U	2.9 J+	52.3 J+	0.63 U	0.57 J+	88600 J	12.8 J+	5.8 J+	14.9 J+	8920 J+	34 J+	42500 J+	442 J+	0.042 J	12 J+	567 J+	4.4 U	1.3 U	632 U	3.2 U	12 J	67 J+
LP2-SD19E-I2.5/3.6	ME4RZ1	2.5 - 3.6	3430 J+	6.4 U	2.5 J+	43.2 J+	0.54 U	0.18 U	88600 J	7.2 J+	6.2 J	11.9 J+	8780 J+	7.2 J+	44200 J+	448 J+	0.11 U	12 J+	659 J+	3.8 U	1.1 U	537 U	2.7 U	12.4 J+	35.6 J+
LP2-SD19E-N0.0/0.5	ME4RY5	0 - 0.5	2050 J+	7.4 U	1.2 U	56 J+	0.62 U	0.24 J+	83800 J	8.9 J+	3.5 J+	4.8 J	6730 J+	12.6 J+	37400 J+	233 J+	0.048 J	6 J	617 U	4.3 U	1.2 U	617 U	3.1 U	13.7 J+	64.5 J+
LP2-SD19E-N0.5/1.5	ME4RY6	0.5 - 1.5	2680 J+	7.2 U	1.7 J	38.2 J+	0.6 U	0.37 J+	85600 J	10.2 J+	4.6 J+	10.5 J+	6930 J+	18.1 J+	39300 J+	380 J+	0.12 U	8.7 J	422 J+	4.2 U	1.2 U	599 U	3 U	10.2 J	48.3 J+
LP2-SD19E-N1.5/2.6	ME4RY7	1.5 - 2.6	2930 J+	6.5 U	2.3 J+	33.3 J+	0.54 U	0.27 J+	110000 J	6.1 J+	6.1 J	9.7 J+	7910 J+	15.7 J+	64000 J+	557 J+	0.11 U	11 J+	616 J+	3.8 U	1.1 U	206 J+	2.7 U	10.4 J	52.9 J+
LP2-SD19E-S0.0/0.5	ME4SJ6	0 - 0.5	3180 J+	7.3 UJ	1.4 J	42.1 J+	0.61 U	0.61 U	111000 J+	7.4 J	2.9 J	4.9 J+	5660 J+	3.1 J+	34200 J+	265 J+	0.22	5.2 J+	609 U	0.75 J	1.2 U	609 U	3 U	10.5 J+	23 J+
LP2-SD19E-S0.5/1.3	ME4SJ7	0.5 - 1.3	4800 J+	7.7 UJ	1.5 J	55.5 J+	0.64 U	0.64 U	98600 J+	10.2 J	3.5 J	7.3 J+	7340 J+	2.9 J+	34900 J+	265 J+	0.26	6.6 J+	640 U	1 J	1.3 U	640 U	3.2 U	13 J+	30.3 J+
LP2-SD20E-D0.0/0.5	ME4RS0	0 - 0.5	2700	9.7 U	1.3 J	62.3	0.8 U	0.59 J	97300 J	11.9	4.1 J	19.3	7040	29.8	33900	460	0.16 U	7.3	540 J	5.6 U	1.6 U	805 U	4 U	8.4	102
LP2-SD20E-D0.5/1.5	ME4RS1	0.5 - 1.5	4670	12 U	2.4	112	1 U	1.1	98600 J	17.9	5 J	30.2	12300	38	29500	617	0.1 J	10.3	588 J	7 U	2 U	998 U	5 U	12.7	130
LP2-SD20E-D1.5/2.5	ME4RS2	1.5 - 2.5	3570	10.3 U	2.7	82.3	0.86 U	1.2	103000 J	18.4	5 J	31	9080	52.1	36300	513	0.089 J	10.1	425 J	6 U	1.7 U	858 U	4.3 U	11.6	114
LP2-SD20E-D2.5/3.7	ME4RS3	2.5 - 3.7	3720 J+	7 U	2.8 J+	43.4 J+	0.59 U	0.59 U	94100 J	7.2 J+	6.9 J+	15.1 J+	9510 J+	9 J+	49400 J+	492 J+	0.11 U	14.1 J+	743 J+	4.1 U	1.2 U	586 U	2.9 U	13.2 J+	39 J+
LP2-SD20E-I0.0/0.5	ME4RS4	0 - 0.5	3050	10.3 U	1.4 J	61	0.85 U	0.46 J	105000 J	11.8	4.1 J	13.6	7570	26	36600	441	0.17 U	7.5	517 J	6 U	1.7 U	855 U	4.3 U	10	66.8
LP2-SD20E-I0.5/1.5	ME4RS5	0.5 - 1.5	5140	10.6 U	1.5 J	89.4	0.89 U	1.7	86500 J	22.6	4.9 J	28.5	9270	65.9	27000	428	0.16 J	11.8	610 J	6.2 U	0.87 J	886 U	4.4 U	12.9	126
LP2-SD20E-I1.5/2.5	ME4RS6	1.5 - 2.5	4370	10.6 U	4.5	111	0.88 U	1.3	114000 J	34.5	5.8 J	27.7	13000	107	41500	561	0.39	13.3	604 J	6.2 U	1.8 U	879 U	4.4 U	13.1	141
LP2-SD20E-I2.5/3.5	ME4RS7	2.5 - 3.5	4750 J+	10 U	3.2 J+	82.2 J+	0.83 U	0.96 J+	106000 J	24.8 J+	6.1 J	23.8 J+	9980 J+	71.6 J+	42300 J+	512 J+	0.12 J	13.2 J+	608 J	5.8 U	1.7 U	832 U	4.2 U	15.5 J+	112 J+
LP2-SD20E-I3.5/4.5	ME4RS8	3.5 - 4.5	2830 J+	6.8 U	2.6 J+	30.7 J+	0.57 U	0.57 U	100000 J	7.1 J+	8.1 J+	13 J+	8060 J+	8.4 J+	53000 J+	521 J+	0.12 U	13.2 J+	562 J	4 U	1.1 U	566 U	2.8 U	10.5 J+	34.1 J+
LP2-SD20E-M0.0/0.5	ME4S02	0 - 0.5	1000 J+	7.2 U	1.2 U	12.1 J+	0.6 U	0.6 U	75700 J	9.1 J+	6 U	2.3 J+	3620 J+	30 J+	34900 J+	231 J+	0.12 U	3 J+	598 U	4.2 U	1.2 U	598 U	3 U	5.9 J+	19.6 J+
LP2-SD20E-M0.5/1.5	ME4S03	0.5 - 1.5	3490 J+	7.8 U	2.8 J+	56.5 J+	0.65 U	0.91 J	73300 J	30.7 J+	4.3 J+	21.1 J+	8120 J+	56.7 J+	31800 J+	360 J+	0.06 J	10.7 J+	463 J+	4.5 U	1.3 U	647 U	3.2 U	12.2 J	101 J+
LP2-SD20E-M1.5/2.7	ME4S05	1.5 - 2.7	3240 J+	6.5 U	2.6 J+	31.7 J+	0.54 U	0.54 U	93900 J	7.3 J+	7.1 J	11.8 J+	8400 J+	11.3 J+	49500 J+	496 J+	0.11 U	12.3 J+	646 J+	3.8 U	1.1 U	542 U	2.7 U	12.6 J+	34.5 J+
LP2-SD20W-A0.0/0.5	ME4SK2	0 - 0.5	5310 J+	7.3 UJ	1.5 J	60.2 J+	0.24 J	0.08 J	62800 J	9.7 J	3.8 J	7.1 J+	8690 J	3.7 J	22800 J	342 J	0.055 J	7.4 J	612 U	4.3 U	1.2 U	132 J	3.1 U	13.3 J+	35.7 J
LP2-SD20W-A0.5/1.5	ME4SK3	0.5 - 1.5	3600 J+	7.5 UJ	1.5 J	51.2 J+	0.14 J	0.065 J	97800 J	7.6 J	3.3 J	5.8 J+	6500 J	3.6 J	29800 J	425 J	0.11 J	6.3 J	625 U	4.4 U	1.3 U	145 J	3.1 U	14.1 J+	24.5 J
LP2-SD20W-A1.5/2.5	ME4SK4	1.5 - 2.5	2830 J+	7.1 UJ	1 J	31.3 J+	0.11 J	0.059 J	90100 J	8.4 J	2.6 J	4.5 J+	5230 J	2.1 J	29700 J	320 J	0.077 J	6.5 J	595 U	4.2 U	1.2 U	125 J	3 U	11.3 J+	20.4 J
LP2-SD21E-F0.0/0.5	ME4RS9	0 - 0.5	4460	12.6 U	1.6 J	91.7	1.1 U	1 J	109000 J	16.8	5.3 J	27.7	10400	33.6	33100	533	0.09 J	11	556 J	7.4 U	2.1 U	1050 U	5.3 U	12.3	137
LP2-SD21E-F0.5/1.5	ME4RT0	0.5 - 1.5	5350	11.7 U	2.5	97.2	0.97 U	1.3	109000 J	20.8	5.9 J	33.4	12200	48.7	33700	527	0.11 J	13.4	662 J	6.8 U	1.9 U	973 U	4.9 U	14.2	165
LP2-SD21E-F1.5/2.5	ME4RT1	1.5 - 2.5	5570	10.9 U	3	99.77	0.91 U	1.8	103000 J	24.4	5.9 J	38.3	11700	91.5	30600	563	0.13 J	14	627 J	6.4 U	0.74 J	909 U	4.5 U	14.1	168
LP2-SD21E-F2.5/3.5	ME4RT2	2.5 - 3.5	5440	10.8 U	5.7	128	0.9 U	2.7	85000 J	84	6.5 J	55.8	13000	182	33700	555	0.31	23.7	636 J	6.3 U	1.3 J	902 U	4.5 U	15.5	253
LP2-SD21E-F3.5/4.5	ME4RT3	3.5 - 4.5	4910 J+	7 U	2.9 J+	50.7 J+	0.26 J	0.58 U	79900 J	9.5 J+	7.7 J+	17.6 J+	12400 J+	9.3 J+	40700 J+	455 J+	0.11 U	17.8 J+	1030 J+	4.1 U	1.2 U	580 U	2.9 U	15.2 J+	43.2 J+
LP2-SD21E-J0.0/0.5	ME4RT4	0 - 0.5	2010	8.7 U	0.71 J	40.3	0.73 U	0.49 J	90300 J	8.1	3.7 J	10.4	5690	18.5	34900	331	0.15 U	5.7 J	283 J	5.1 U	1.5 U	727 U	3.6 U	7.9	74.8
LP2-SD21E-J0.5/1.5	ME4RT5	0.5 - 1.5	3530	9.2 U	3.7	91.7	0.77 U	1.9	76900 J	58.4	5 J	37.7	9130	120	31100	404	0.2	18.6	443 J	5.4 U	0.88 J	768 U	3.8 U	10.3	175
LP2-SD21E-J0.5/1.5R	ME4RT6	0.5 - 1.5	4000	8.9 U	3.6	94.5	0.75 U	1.3	89900 J	34.5	5.4 J	24.6	9130	82.3	33900	402	0.12 J	12.6	509 J	5.2 U	1.5 U	745 U	3.7 U	12.1	143
LP2-SD21E-J1.5/2.5	ME4RT7	1.5 - 2.5	3800	7.1 U	1.9	40.8	0.6 U	0.21 J	81300 J	9.9	6.3	14.4	9250	12.8	39900	428 J	0.082 J	13.5	699	4.2 U	1.2 U	595 U	3 U	13.2	47.2
LP2-SD21E-J2.5/3.6	ME4RT8	2.5 - 3.6	5750 J+	7 U	3 J+	60 J+	0.29 J	0.58 U	91600 J	12 J+	8.2 J+	15.5 J+	13400 J+	8.9 J+	43800 J+	453 J	0.05 J	18.2 J+	1290 J+	4.1 U	1.2 U	581 U	2.9 U	16.4 J+	38.7 J+
LP2-SD22S-G0.0/0.5	ME4S25	0 - 0.5	5460	12.7 U	2.6	110	1.1 U	1 J	97300 J	19.3	5.8 J	29.1	12300	34.6	29200	612	0.099 J	12.8	670 J	7.4 U	2.1 U	1060 U	5.3 U	13.4	141
LP2-SD22S-G0.5/1.5	ME4S26	0.5 - 1.5	3110	9.5 U	1.8	50.7	0.79 U	0.73 J	99000 J	11.5	3.7 J	14.7	6830	25.9	37900	441	0.057 J	7.6	388 J	5.6 U	1.6 U	795 U	4 U	9.2	77.4
LP2-SD22S-G1.5/2.5	ME4S27	1.5 - 2.5	3480	6.6 U	2.6	33.9	0.55 U	0.55 U	81700 J	8.1	5.6	10	8850	7.3	38700	410	0.11 U	11.3	673	3.9 U	1.1 U	550 U	2.8 U	11.5	30.5
LP2-SD22S-G2.5/4.0	ME4S29	2.5 - 4	3010	6.7 U	3	30	0.56 U	0.56 U	83900 J	7	6.6	10.9	8440	6.7	45000	471	0.12 U	12.2	531 J	3.9 U	1.1 U	560 U	2.8 U	11.4	33
LP2-SD23N-C0.0/0.5	ME4S30	0 - 0.5	6410	15.1 U	2.9	132	1.3 U	1.2 J	129000 J	20.8	6.8 J	34.8	14400	33.8	39000	806	0.12 J	14.3	938 J	8.8 U	2.5 U	1250 U	6.3 U	16.1	159
LP2-SD23N-C0.5/1.5	ME4S31	0.5 - 1.5	4610	8.9 U	2	79.7	0.74 U	1	82900 J	15.5	4.6 J	22.7	9720	37.8	23400	432	0.082 J	10	502 J	5.2 U	1.5 U	740 U	3.7 U	11.9	113
LP2-SD23N-C1.5/2.5	ME4S32	1.5 - 2.5	5010	11 U	2.6	84.2	0.92 U	1.6	93400 J	19.8	5.1 J	23.6	9760	130	35100	452	0.11 J	11.8	600 J	6.4 U	1.8 U	917 U	4.6 U	14	129
LP2-SD23N-C2.5/3.5	ME4S33	2.5 - 3.5	2880 J+	7 U	2.6 J+	36.4 J+	0.58 U	0.22 J	92100 J	6.9 J+	6.2 J+	11 J+	8010 J+	10.5 J+	48400 J+	496 J+	0.12 U	11.1 J+	515 J	4.1 U	1.2 U	580 U	2.9 U	12 J+	36.7 J+
LP2-SD24S-D0.0/0.5	ME4S34	0 - 0.5	5370 J+	13 U	1.9 J	97.1 J+	1.1 U	1.1 J+	93000 J+	18.8 J+	5.6 J	30.5 J+	11300 J+	32.8 J+	27500 J+	506 J+	0.1 J	11.8 J+	841 J	7.6 U	2.2 U	1080 U	5.4 U	13.3 J+	137 J+
LP2-SD24S-D0.5/1.5	ME4S35	0.5 - 1.5	6510	9.9 U	2	91.4	0.83 U	1.5	78400 J	20.5	5.8 J	27.3	11100	75.4	25900	464	0.1 J	13.8	775 J	5.8 U	0.89 J	826 U	4.1 U	14.8	140
LP2-SD24S-D1.5/2.5	ME4S36	1.5 - 2.5	4710	9.2 U	5.4	79.5	0.77 U	1.8	81200 J	22.4	5.1 J	24.1	9730	85.7	32100	445	0.11 J	11.1	536 J	5.4 U	0.59 J	768 U	3.8 U	13.4	135
LP2-SD24S-D3.5/4.5	ME4S38	3.5 - 4.5	4500 J+	9.4 U	3.8 J+	66.4 J+	0.78 U	1.2 J+	86600 J	18.4 J+	4.6 J	19.8 J+	9100 J+	71.6 J+	39400 J+	403 J+	0.089 J	11.3 J+	533 J	5.5 U	1.6 U	781 U	3.9 U	12.8 J+	106 J+
LP2-SD24S-D4.5/5.5	ME4S39	4.5 - 5.5	3360 J+	8.4 U	3.1 J+	32.5 J+	0.7 U	0.29 J	105000 J	8 J+	7.7 J+	13.7 J+	9240 J+	12.9 J	54300 J+	606 J+	0.042 J	13.2 J+	580 J	4.9 U	1.4 U	699 U	3.5 U	13.9 J+	43.6 J+
LP2-SD24S-D4.5/5.5R	ME4S40	4.5 - 5.5	2770 J+	7.4 U	2.6 J+	31.8 J+	0.62 U	0.41 J	83500 J	7.7 J+	5.4 J	11 J+	6960 J+	19.8 J	41600 J+	444 J+	0.12 U	9.4 J+	416 J	4.3 U	1.2 U	620 U	3.1 U	10.5 J+	50.5 J+
LP2-SD24S-D5.5/6.5	ME4S41	5.5 - 6.5	2560	7.1 U	2	26.8	0.59 U	0.59 U	90600 J	5.1	6.4	10.1	7340	6.1	47600	491	0.12 U	11	498 J	4.1 U	1.2 U	591 U	3 U	9.8	29.6

TABLE C-4
Analytical Results - Metals
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Calcium mg/kg	Chromium, Total mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	Nickel mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Thallium mg/kg	Vandium mg/kg	Zinc mg/kg
LP2-SD24S-D6.5/7.5	ME4S42	6.5 - 7.5	2270	6.8 U	2.1	24	0.57 U	0.57 U	89800 J	4.6	7.3	9.4	6470	5.6	45800	472	0.12 U	10.8	470 J	4 U	1.1 U	565 U	2.8 U	8.8	26.6
LP2-SD25W-E0.0/0.5	ME4S43	0 - 0.5	4420	8.4 U	2.8	66.3	0.7 U	0.65 J	76400 J	21	5.1 J	18.4	8870	44.2	27300	441	0.086 J	10.9	518 J	4.9 U	1.4 U	696 U	3.5 U	12.5	110
LP2-SD25W-E0.5/1.5	ME4S44	0.5 - 1.5	4200	8.6 U	2.4	61.6	0.71 U	0.8	71100 J	19.9	4.8 J	18.4	8370	37.5	25700	420	0.098 J	11.7	470 J	5 U	1.4 U	714 U	3.6 U	12.8	95.1
LP2-SD25W-E1.5/2.5	ME4S46	1.5 - 2.5	1390	8 U	1.2 J	53	0.67 U	0.67 U	122000 J	4.8	2.6 J	4.6	3710	3.8	27400	328	0.098 J	4.2 J	670 U	4.7 U	1.3 U	670 U	3.4 U	5.8 J	24.8
LP2-SD25W-E2.5/3.5	ME4S48	2.5 - 3.5	3360	7 U	2.8	45.3	0.58 U	0.58 U	90000 J	9.6	7	12.4	8860	7.4	46200	524	0.12 U	13.3	695	4.1 U	1.2 U	583 U	2.9 U	12.1	37.1
LP2-SD26W-D0.0/0.5	ME4S11	0 - 0.5	2860	9.6 U	1.1 J	85.1	0.8 U	0.58 J	93900 J	13.2	3.7 J	15.8	7170	24	37200	362	0.073 J	7.7	415 J	5.6 U	1.6 U	804 U	4 U	10.1	142
LP2-SD26W-D0.5/1.5	ME4S12	0.5 - 1.5	5170	10.2 U	2.4	101	0.85 U	1.3	99000 J	18.8	5.2 J	30.2	10000	59.3	29000	500	0.093 J	12.3	617 J	6 U	1.7 U	854 U	4.3 U	14	162
LP2-SD26W-D1.5/2.5	ME4S13	1.5 - 2.5	5860	10.1 U	3.7	96	0.84 U	1.7	86000 J	34.9	5.5 J	31.4	11000	108	28300	457	0.091 J	13.7	620 J	5.9 U	0.86 J	841 U	4.2 U	14.8	175
LP2-SD26W-D2.5/3.8	ME4S14	2.5 - 3.8	3460	7.3 U	1.8	43.7	0.61 U	0.33 J	92800 J	13.1	5.1 J	13.8	7810	14	44800	405	0.042 J	10	465 J	4.3 U	1.2 U	608 U	3 U	11.5	51.5
LP2-SD26W-D2.5/3.8R	ME4S15	2.5 - 3.8	3260	7.6 U	1.8	40.4	0.63 U	0.26 J	86200 J	10.2	5.7 J	12.1	7920	11.9	40200	442	0.051 J	10.6	528 J	4.4 U	1.3 U	633 U	3.2 U	11.4	47.1
LP2-SD27W-A0.0/0.5	ME4S16	0 - 0.5	4520	11.3 U	1.7 J	77.1	0.94 U	0.82 J	95100 J	16.2	4.9 J	24.8	10000	24.3	31500	483	0.1 J	10.9	903 J	6.6 U	1.9 U	944 U	4.7 U	12.4	111
LP2-SD27W-A0.5/1.5	ME4S17	0.5 - 1.5	4610	8.9 U	0.98 J	64.5	0.74 U	1.3	72400 J	23.2	4.8 J	27.1	9690	84.9	30500	303	0.18	11.6	588 J	5.2 U	1.5 U	740 U	3.7 U	13	132
LP2-SD27W-A1.5/2.5	ME4S18	1.5 - 2.5	4630	7.7 U	2	41.9	0.64 U	0.31 J	80800 J	11.8	5.3 J	14.5	8070	18.2	38900	333	0.058 J	12	928	4.5 U	1.3 U	641 U	3.2 U	15.1	48.3
LP2-SD27W-A2.5/3.5	ME4S19	2.5 - 3.5	1040	6.8 U	1.1 U	13.6 J	0.57 U	0.57 U	101000 J	2.7	5.7 U	1.6 J	3110	1.8	44900	362	0.12 U	2.8 J	570 U	4 U	1.1 U	570 U	2.9 U	5.8	12
LP2-SD27W-A3.5/4.5	ME4S20	3.5 - 4.5	1430	7.4 U	1.2 U	18.5 J	0.62 U	0.62 U	109000 J	4.3	2.1 U	3.5 J	3980	5.6	51800	273	0.13 U	3.6 J	620 U	4.3 U	1.2 U	620 U	3.1 U	6.1 J	24.3
LP2-SD27W-A4.5/5.5	ME4S21	4.5 - 5.5	1270	7.3 U	1.2 U	13.7 J	0.61 U	0.61 U	113000 J	3.9	6.1 U	2.4 J	3710	2.1	50900	308	0.12 U	3.2 J	605 U	4.2 U	1.2 U	605 U	3 U	6 J	16
LP2-SD27W-A5.5/6.5	ME4S22	5.5 - 6.5	806	7.1 U	1.2 U	13.9 J	0.59 U	0.59 U	86100 J	2.4	5.9 U	1.3 J	2310	1.2	26900	219	0.12 U	2.2 J	590 U	4.1 U	1.2 U	590 U	2.9 U	4.5 J	12.4
LP2-SD27W-A6.5/7.5	ME4S23	6.5 - 7.5	706	7.1 U	1.2 U	12.7 J	0.59 U	0.59 U	76800 J	2.2	5.9 U	1.2 J	2180	1.2	29900	158	0.12 U	1.9 J	591 U	4.1 U	1.2 U	591 U	3 U	4 J	9
LP2-SD27W-A7.5/8.9	ME4S24	7.5 - 8.9	2550	7.1 U	2.1	29.1	0.59 U	0.59 U	87800 J	5.3	5.4 J	10	6610	5.1	41600	403	0.11 U	9.6	494 J	4.1 U	1.2 U	588 U	2.9 U	9.5	27.6
LP2-SD28W-A0.0/0.5	ME4S53	0 - 0.5	4980	11.9 U	1 J	74.5	0.99 U	1	94400 J	17.2	4.9 J	28.8	11500	42.2	33800	408	0.09 J	11.5	670 J	6.9 U	2 U	990 U	5 U	13.5	127
LP2-SD28W-A0.5/1.5	ME4S54	0.5 - 1.5	4120 J+	8.6 U	1.4 J+	57.8 J+	0.72 U	0.96 J+	82300 J	15.8 J+	4.3 J	20.8 J+	9320 J+	46 J+	35800 J+	275 J+	0.071 J	9.7 J+	518 J	5 U	1.4 U	716 U	3.6 U	14.2 J+	103 J+
LP2-SD28W-A1.5/2.5	ME4S55	1.5 - 2.5	6360 J+	7.6 U	4 J+	51.2 J+	0.24 J	0.63 U	71700 J	13.9 J+	10.4 J+	31 J+	14900 J+	15.1 J+	33800 J+	418 J+	0.12 U	23.8 J+	1200 J+	4.4 U	1.3 U	633 U	3.2 U	18.2 J+	53.6 J+
LP2-SD28W-A2.5/3.5	ME4S56	2.5 - 3.5	1440 J+	7.2 U	1.2 U	12.2 J	0.6 U	0.6 U	114000 J	3.8 J+	3.1 J	3.8 J+	4450 J+	3.1 J+	45100 J+	269 J+	0.11 U	4.4 J	601 U	4.2 U	1.2 U	601 U	3 U	8.3 J+	18.1 J+
LP2-SD28W-A2.5/3.5R	ME4S57	2.5 - 3.5	1460 J+	6.4 U	0.48 J	10.2 J	0.53 U	0.53 U	110000 J	3.6 J+	2.7 J	2.2 J	4400 J+	2.8 J+	53200 J+	301 J+	0.11 U	3.8 J	532 U	3.7 U	1.1 U	532 U	2.7 U	6.7 J+	17.4 J+
LP2-SD28W-A3.5/4.3	ME4S58	3.5 - 4.3	4350 J+	7.2 U	2.7 J+	40.2 J+	0.6 U	0.6 U	94000 J	9.3 J+	7.1 J+	14.9 J+	10800 J+	8.9 J+	47000 J+	517 J+	0.12 U	15.5 J+	790 J+	4.2 U	1.2 U	602 U	3 U	15.3 J+	41.3 J+
LP2-SD29W-A0.0/0.5	ME4SB1	0 - 0.5	4980 J+	15.3 U	2.6 J+	71.7 J+	1.3 U	1.2 J	91900 J+	17.9 J+	5.5 J	32.5 J+	11100 J+	31.8 J+	32500 J+	380 J+	0.26 U	13 J+	737 J	8.9 UJ	2.5 U	1270 U	6.4 U	15.8 J+	144 J+
LP2-SD29W-A0.5/1.8	ME4SB2	0.5 - 1.8	4250 J+	8.3 U	2.3 J+	42.5 J+	0.27 J	0.97 J+	62800 J	13 J+	4.5 J	20 J+	7040 J+	35 J+	27400 J+	258 J+	0.14 U	11.1 J+	661 J	4.9 UJ	1.4 U	694 U	3.5 U	12.6 J+	87.7 J+
LP2-SD29W-A0.5/1.8R	ME4SB4	0.5 - 1.8	3300 J+	9.4 U	2.3 J+	30.8 J	0.78 U	0.76 J	65400 J+	13.6 J+	4 J	17.2 J+	6630 J+	27.2 J+	29200 J+	240 J+	0.16 U	10 J+	497 J	5.5 UJ	1.6 U	781 U	3.9 U	13.1 J+	87.8 J+
LP2-SD29W-A1.8/2.9	ME4SB3	1.8 - 2.9	1290 J+	6.3 U	0.87 J	12.9 J	0.53 U	0.53 U	93000 J	4.4 J+	2 J	2.1 J	3710 J+	2.2 J+	42300 J+	283 J+	0.11 U	3.9 J	210 J	3.7 UJ	1.1 U	528 U	2.6 U	6.4 J+	17.6 J+
LP2-SD30W-B0.0/0.5	ME4S87	0 - 0.5	5590	11.5 U	3	91.8	0.96 U	1.3	97900 J	18.8	5.6 J	33.9	11700	48.3	33100	464	0.15 J	12.5	671 J	6.7 U	1.9 U	957 U	4.8 U	14.7	160
LP2-SD30W-B0.5/1.5	ME4S88	0.5 - 1.5	4360	9.3 U	3.8	69.7	0.78 U	1.2	85200 J	18.4	4.8 J	22.3	9190	73.1	35700	359	0.15 J	10.6	554 J	5.4 U	1.6 U	777 U	3.9 U	13.5	119
LP2-SD30W-B0.5/1.5R	ME4S89	0.5 - 1.5	7110	10.8 U	3.2	86.4	0.9 U	1.5	95800 J	20.4	5.3 J	28.4	11000	77.5	34700	433	0.19	12	570 J	6.3 U	1.8 U	901 U	4.5 U	14.7	143
LP2-SD30W-B1.5/2.5	ME4S90	1.5 - 2.5	3380 J+	7.8 U	2.4 J+	40.5 J+	0.65 U	0.43 J	86400 J	12.4 J+	4.1 J	13.9 J+	7680 J+	36.6 J+	36200 J+	355 J+	0.088 J	8.5 J+	456 J	4.6 U	1.3 U	653 U	3.3 U	10.7 J+	67.9 J+
LP2-SD30W-B2.5/3.5	ME4S91	2.5 - 3.5	6080 J+	7.1 U	3 J+	45.8 J+	0.35 J	0.59 U	80600 J	11.7 J+	8.3 J+	18.1 J+	13200 J+	8.7 J+	42300 J+	452 J+	0.12 U	19.3 J+	1140 J+	4.1 U	1.2 U	590 U	3 U	17.7 J+	46.4 J+
LP2-SD31W-A0.0/0.5	ME4S92	0 - 0.5	6080	13.3 U	2.4	92.6	1.1 U	1.4	94700	22.7	6.2 J	39.4	13800	47.6	32700	465	0.19 J	14.5	798 J	7.7 U	2.2 U	1110 U	5.5 U	15.1	155
LP2-SD31W-A0.5/1.5	ME4S93	0.5 - 1.5	3690	8.1 U	1.9	56.8	0.68 U	1.3	72400 J	14.8	4.1 J	23	7720	73.7	29300	294	0.13 J	9.1	500 J	4.7 U	1.4 U	676 U	3.4 U	11.1	99.83
LP2-SD31W-A1.5/2.5	ME4S94	1.5 - 2.5	6690	11 U	4.9	83.8	0.41 J	0.92	87700 J	28.5	6.9 J	30.6	13200	67	35200	487	0.18 J	16.6	819 J	6.4 U	1.8 U	917 U	4.6 U	20.6	143
LP2-SD31W-A2.5/3.5	ME4S95	2.5 - 3.5	4780 J+	7.4 U	2.6 J+	49 J+	0.27 J	0.25 J	80400 J	13.1 J+	5.6 J	15.9 J+	9260 J+	16.3 J+	35000 J+	341 J+	0.047 J	12.7 J+	866 J+	4.3 U	1.2 U	620 U	3.1 U	14.8 J+	52.6 J+
LP2-SD31W-A3.5/4.5	ME4S96	3.5 - 4.5	2470 J+	7.2 U	1.3 J+	28.4 J+	0.6 U	0.6 U	81800 J	8.1 J+	3.2 J	8.4 J+	5650 J+	8.3 J+	33800 J+	260 J+	0.12 U	6.5 J+	399 J	4.2 U	1.2 U	596 U	3 U	9.9 J+	29.5 J+
LP2-SD31W-A4.5/5.5	ME4S97	4.5 - 5.5	7340 J+	6.9 U	3.9 J+	54.4 J+	0.4 J	0.57 U	66900 J	13.7 J+	10.5 J+	23.7 J+	15000 J+	10.2 J+	34000 J+	402 J+	0.11 U	24.8 J+	1400 J+	4 U	1.1 U	572 U	2.9 U	19.2 J+	49.3 J+
LP2-SD32N-C0.0/0.5	ME4RT9	0 - 0.5	3750	8.9 U	2.2	66	0.74 U	0.65 J	90600 J	13.1	4.9 J	40.5 J	8580	37.5	28900	390 J	0.13 J	10.7	575 J	5.2 U	1.5 U	738 U	3.7 U	10.9	262 J
LP2-SD32N-C0.0/0.5R	ME4RW0	0 - 0.5	4390	9.3 U	2.1	70.6	0.78 U	0.61 J	96800 J	15.2	6.1 J	21.7 J	10000	45.9	31800	408 J	0.12 J	13	723 J	5.4 U	1.6 U	777 U	3.9 U	12.2	121 J
LP2-SD32N-C0.5/1.5	ME4RW1	0.5 - 1.5	7450 J+	7.2 U	3.3 J+	56.6 J+	0.36 J	0.6 U	74300 J	14.1 J+	10 J+	22.9 J	15200 J+	10.6 J+	35500 J+	399 J	0.061 J	25 J+	1530 J+	4.2 U	1.2 U	602 U	3 U	20.3 J+	51 J+
LP2-SD32N-C0.5/1.5R	ME4RW2	0.5 - 1.5	6180 J+	7 U	3.8 J+	54.4 J+	0.31 J	0.58 U	71500 J	12.1 J+	9.9 J+	35.2 J	13400 J+	13.4 J+	35000 J+	373 J	0.056 J	23.2 J+	1350 J+	4.1 U	1.2 U	582 U	2.9 U	17.5 J+	45.5 J+
LP2-SD32N-C1.5/2.5	ME4RW3	1.5 - 2.5	5840 J+	6.9 U	4.1 J+	55.5 J+	0.3 J	0.21 J	80700 J	12.3 J+	8.5 J+	22 J	12900 J+	18.7 J+	37600 J+	349 J	0.065 J	20.6 J+	1270 J+	4 U	1.2 U	575 U	2.9 U	16 J+	63.8 J+
LP2-SD32N-C1.5/2.5R	ME4RW4	1.5 - 2.5	5300 J+	7.1 U	3.4 J+	52.5 J+	0.27 J	0.19 U	82800 J	12.2 J+	8.3 J+	51.5 J	11600 J+	19.3 J+	34900 J+	335 J	0.068 J	19.5 J+	1090 J+	4.1 U	1.2 U	591 U	3 U	15 J+	64.6 J+
LP2-SD32N-C2.5/3.5	ME4RW5	2.5 - 3.5	5680 J+	7.2 U	4.5 J+	50.5 J+	0.29 J	0.6 U	77000 J	11.4 J+	10.2 J+	24.8 J+	13100 J+	15.1 J+	34800 J+	368 J	0.096 J	22.5 J+	1250 J+	4.2 U	1.2 U	601 U	3 U	16.3 J+	55.8 J+
LP2-SD32N-C3.5/4.5	ME4RW6	3.5 - 4.5	6580 J+	7.1 U	3.4 J+	62.5 J+	0.32 J	0.2 J	78100 J	13.5 J+	9.3 J+	23.5 J+	13400 J+	13.3 J+	35800 J+	365 J	0.19	23 J+	1400 J+	4.2 U	1.2 U	594 U	3 U	18.3 J+	60.1 J+
LP2-SD32N-C4.5/5.5	ME4RW7	4.5 - 5.5	7250 J+	7.3 U	2.4 J+	65.2 J+	0.36 J	0.61 U	74000 J	13.7 J+	9.4 J+	22.2 J+	13600 J+	10.9 J+	36300 J+	342 J	0.063 J	23.3 J+	1550 J+	4.3 U	1.2 U	608 U	3 U	20.8 J+	50.8 J+
LP2-SD32N-C5.5/6.5	ME4RW8	5.5 - 6.5	7490 J+	7.1 U	2.5 J+	61.4 J+	0.36 J	0.59 U	70100 J	13.9 J+	9.6 J+	21.2 J+	14100 J+	9.5 J+	33300 J+	336 J	0.056 J	23.6 J+	1610 J+	4.1 U	1.2 U	588 U	2.9 U	20.5 J+	48.3 J+
LP2-SD32N-C6.5/7.7	ME4RW9	6.5 - 7.7	6940 J+	6.9 U	3.2 J+	58.4 J+	0.34 J	0.57 U	72400 J	13.7 J+	9.7 J+	29.6 J+	14100 J+	10.7 J+	35700 J+	369 J	0.06 J	23.2 J+	1530 J+	4 U	1.1 U	573 U	2.9 U	19 J+	44.7 J+
LP2-SD33N-E0.0/0.5	ME4RX0	0 - 0.5	5160	12.1 U	2.9	100	1 U	1.2	101000 J	18.2	6 J	30	12200	48	31700	532 J	0.21	13	657 J	7.1 U	2 U	1010 U	5 U	13.9	162
LP2-SD33N-E0.5/1.5	ME4RX1	0.5 - 1.5	4800 J+	8 U	4 J+	47.4 J+	0.27 J	0.26 J	89800 J	10 J+	7.6 J+	17.2 J+	11700 J+	14.4 J+	45200 J+	489 J	0.12 J	16.8 J+	935 J+	4.7 U	1.3 U	668 U	3.3 U	15.5 J+	54.7 J+
LP2-SD33N-E1.5/2.5	ME4RX2	1.5 - 2.5	4820	8.3 U	2.4	89.1	0.26 J	0.38 J	74400 J	18.3	5.9 J	17.6	10600	22.6	27000	495 J	0.15	14.4	657 J	4.8 U	1.4 U	692 U	3.5 U	14.4	84.8
LP2-SD33N-E2.5/3.5	ME4RX3	2.5 - 3.5	6390 J+	7.5 U	2.8 J+	58 J+	0.32 J	0.62 U	77700 J	13.6 J+	8.6 J+	19.1 J+	13400 J+	12.3 J+	39700 J+	425 J	0.066 J	21.3 J+	1230 J+	4.4 U	1.2 U	624 U	3.1 U	17.8 J+	54.8 J+
LP2-SD33N-E3.5/4.5	ME4RX4	3.5 - 4.5	7730 J+	7.5 U	3.7 J+	62.8 J+	0.38 J	0.62 U	75200 J	15.2 J+	10.2 J+	23.6 J+	15100 J+	11.1 J+	37000 J+	429 J	0.061 J	25.4 J+	1550 J+	4.4 U	1.2 U	623 U	3.1 U	21.7 J+	57.2 J+
LP2-SD33N-E4.5/5.5	ME4RX5	4.5 - 5.5	7520 J+	7.2 U	2.7 J+	57.3 J+	0.36 J	0.6 U	74100 J	14.6 J+	10.5 J+	23.9 J+	14500 J+	10.4 J+	34800 J+	383 J	0.053 J	25.4 J+	1550 J+	4.2 U	1.2 U	604 U	3 U	21.2 J+	52 J+
LP2-SD33N-E5.5/6.6	ME4RX6	5.5 - 6.6	8170 J+	7.4 U	2.6 J+	86.8 J+	0.39 J	0.62 U	71200 J	15.6 J+	10.9 J+	25.1 J+	15200 J+	10.4 J+	34400 J+	394 J	0.06 J	27.1 J+	1730 J+	4.3 U	1.2 U	615 U	3.1 U	22.2 J+	54.3 J+

TABLE C-4
Analytical Results - Metals
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Calcium mg/kg	Chromium, Total mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	Nickel mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Thallium mg/kg	Vandium mg/kg	Zinc mg/kg
LP2-SD34N-D0.0/0.5	ME4RX7	0 - 0.5	4800 J+	14.6 U	2.3 J+	89.7 J+	1.2 U	0.92 J+	107000 J+	17.8 J+	5.4 J+	28 J+	10200 J+	28.8 J+	31400 J+	561 J+	0.099 J	11 J+	813 J+	8.5 U	2.4 U	1210 U	6.1 U	12.1 J+	131 J+
LP2-SD34N-D0.5/1.5	ME4RX8	0.5 - 1.5	5350 J+	12.9 U	2.8 J+	103 J+	1.1 U	1.7 J+	112000 J+	24.9 J+	6.4 J+	37.6 J+	11600 J+	58.4 J+	34400 J+	503 J+	0.31 J-	13 J+	676 J+	7.5 U	2.2 U	1080 U	5.4 U	14.4 J+	182 J+
LP2-SD34N-D1.5/2.5	ME4RX9	1.5 - 2.5	5390 J+	10.3 U	4.7 J+	86.9 J+	0.86 U	1.6 J+	74200 J+	32.4 J+	6.6 J+	30.6 J+	11100 J+	73.2 J+	28000 J+	499 J+	0.16 J-	15.8 J+	636 J+	6 U	1.7 U	862 U	4.3 U	16.2 J+	166 J+
LP2-SD34N-D2.5/3.8	ME4RY0	2.5 - 3.8	3350 J+	7.5 U	2.8 J+	47 J+	0.62 U	0.4 J+	76200 J+	13.8 J+	5.6 J+	17.2 J+	7980 J+	15.5 J+	34000 J+	416 J+	0.12 U	11.4 J+	511 J+	4.4 U	1.2 U	622 U	3.1 U	11.2 J+	59.5 J+
LP2-SD34N-H0.0/0.5	ME4RY1	0 - 0.5	4270 J+	13.8 U	2.3 J+	81.6 J+	1.1 U	0.79 J+	92300 J+	16.2 J+	5.1 J+	25.7 J+	9790 J+	27.6 J+	27200 J+	645 J+	0.083 J-	10 J+	805 J+	8 U	2.3 U	1150 U	5.7 U	11.4 J+	122 J+
LP2-SD34N-H0.5/1.5	ME4RY2	0.5 - 1.5	5910	12 U	1.7 J	104	1 U	1.6	101000 J	23.8	6.4 J	39.4	11800	56.5	29900	503	0.16 J	14.2	704 J	7 U	2 U	1000 U	5 U	15.7	175
LP2-SD34N-H1.5/2.5	ME4RY3	1.5 - 2.5	6400	10.8 U	5.9	125	0.35 J	1.8	84700 J	37.4	6.8 J	37.7	13900	108	32200	550	0.37	16.4	789 J	6.3 U	1.8 U	898 U	4.5 U	18.8	184
LP2-SD34N-H2.5/3.9	ME4RY4	2.5 - 3.9	4230 J+	7.5 U	3.4 J+	38.5 J+	0.63 U	0.63 U	91100 J	9.4 J+	8.6 J+	17 J+	10400 J+	11.5 J+	46300 J+	473 J+	0.13 U	18.1 J+	827 J+	4.4 U	1.3 U	625 U	3.1 U	14.1 J+	43.5 J+
LP2-SD35E-A0.0/0.5	ME4SM0	0 - 0.5	908 J	6.6 R	0.88 J	11.4 J	0.55 U	0.084 J	78000 J	3.4 J	1.5 J	1.9 J	2600 J	6 J	32600 J	197 J	0.11 UJ-	2.3 J	151 J	3.8 UJ	1.1 U	108 J	2.7 U	3.7 J	18 R
LP2-SD35E-A0.0/0.5R	ME4SM1	0 - 0.5	933 J	6.4 R	1 J	15 J	0.53 U	0.11 J	88200 J	3.6 J	1.5 J	2 J	2920 J	5.1 J	31200 J	226 J	0.11 UJ-	2.4 J	190 J	3.7 UJ	1.1 U	121 J	2.7 U	5.4 J+	42.5 R
LP2-SD35E-A0.5/1.7	ME4SM2	0.5 - 1.7	4660 J	7.6 R	4.7 J	37.4 J	0.22 J	0.055 J	77300 J	8.9 J	5.2 J	11 J	9010 J	6 J	33800 J	391 J	0.13 UJ-	11.9 J	972 J	4.4 UJ	1.3 U	156 J	3.2 U	12.8 J+	28.9 J
LP2-SD35W-A0.0/0.5	ME4SB9	0 - 0.5	2810 J+	3.3 J+	1.7 J+	39.9 J+	0.74 U	0.41 J+	87100 J+	9.4 J+	3 J+	10.7 J+	6750 J+	16.1 J+	37900 J+	301 J+	0.1 J	6.4 J+	367 J+	5.2 U	1.5 U	741 U	3.7 U	9.9 J+	65.8 J+
LP2-SD35W-A0.5/1.5	ME4SC0	0.5 - 1.5	2980 J+	8.8 U	2.7 J+	30.1 J+	0.73 U	0.59 J+	78400 J+	13.3 J+	3.6 J+	12.6 J+	6470 J+	27.9 J+	39300 J+	253 J+	0.1 J	8.6 J+	414 J+	5.1 U	1.5 U	732 U	3.7 U	10.9 J+	57.8 J+
LP2-SD35W-A1.5/2.5	ME4SC1	1.5 - 2.5	4180 J+	7 U	1.3 J+	26.3 J+	0.21 J+	0.58 U	86400 J+	8.3 J+	5.6 J+	10.9 J+	8290 J+	6.7 J+	41900 J+	348 J+	0.12 U	12 J+	742 J+	4.1 U	1.2 U	580 U	2.9 U	15 J+	37.8 J+
LP2-SD35W-A1.5/2.5R	ME4SC2	1.5 - 2.5	2750 J+	7 U	2.1 J+	21.7 J+	0.58 U	0.58 U	90600 J+	6.1 J+	3.7 J+	6.4 J+	6530 J+	4.4 J+	42900 J+	287 J+	0.073 J	7.9 J+	513 J+	4.1 U	1.2 U	579 U	2.9 U	10.2 J+	22.5 J+
LP2-SD35W-A2.5/3.9	ME4SC3	2.5 - 3.9	6610 J+	2.6 J+	5.5 J+	36.9 J+	0.36 J+	0.19 J+	72300 J+	12.7 J+	11.1 J+	14.2 J+	14400 J+	8 J+	39500 J+	471 J+	0.051 J	23.8 J+	1320 J+	1.6 J	1.2 U	586 U	2.9 U	17.2 J+	42.1 J+
LP2-SD36N-C0.0/0.5	ME4SC4	0 - 0.5	6160	12.5 U	3.9 J	88.4 J+	1 U	1.3 J	109000	26.4	5.9 J	38.3	13500	55.6	37000	510	0.2 J	14.8 J	838 J+	2.7 J	2.1 U	1040 U	5.2 U	16.3 J	180
LP2-SD36N-C0.5/1.5	ME4SC5	0.5 - 1.5	8520	11.1 U	5.9	122 J+	0.44 J	3.6	90100	72	7.6 J	55	17500	163	33000	497	0.31	33	1000 J+	2.8 J	0.69 J	925 U	4.6 U	20.2	265
LP2-SD36N-C0.5/1.5R	ME4SC6	0.5 - 1.5	8370	11.2 U	4.9	111 J+	0.44 J	3.2	94500	54.6	6.7 J	49.9	15500	163	34200	495	0.27	21.3	993 J+	2.5 J	1.9 U	935 U	4.7 U	19.6	236
LP2-SD36N-C1.5/2.5	ME4SC7	1.5 - 2.5	8690 J+	3.7 J+	7.5 J+	131 J+	0.5 J+	3.8 J+	73000 J+	88.7 J+	7.5 J+	58.1 J+	16300 J+	176 J+	34500 J+	504 J+	0.28	32.4 J+	1050 J+	2.6 J+	1.1 J+	794 U	4 U	21.2 J+	295 J+
LP2-SD36N-C2.5/3.5	ME4SC8	2.5 - 3.5	4330	8.9 U	3.3	57.3 J+	0.75 U	0.95 J	86400	24.2	4.9 J	20.4	9700	32.4	35300	436	0.15	10.9 J	522 J+	5.2 U	1.5 U	746 U	3.7 U	15.1	92.4
LP2-SD36N-C3.5/4.5	ME4SG7	2.5 - 3.6	8110 J+	6.9 U	2.1 J+	53.5 J+	0.4 J+	0.58 U	67600 J+	14.6 J+	8.9 J+	19.6 J+	15300 J+	9.5 J+	36300 J+	415 J+	0.11 U	22.4 J+	1500 J+	4 U	1.2 U	576 U	2.9 U	21.6 J+	50.2 J+
LP2-SD36S-B0.0/0.5	ME4SJ9	0 - 0.5	2060 J+	7.4 UJ	1.8 J	34.1 J+	0.11 J	0.52 J	83500 J	24.1 J	4.3 J	15 J+	5440 J	26.1 J	33400 J	241 J	0.1 J	8 J	615 U	4.3 U	1.2 U	154 J	3.1 U	7 J+	67.2 J
LP2-SD36S-B0.5/1.5	ME4SK0	0.5 - 1.5	1860 J+	7 UJ	1.8 J	33.3 J+	0.11 J	0.62 J+	71200 J	26.5 J	5 J	16.7 J+	5070 J	41.1 J	28700 J	220 J	0.085 J	9.2 J	585 U	4.1 U	1.2 U	142 J	2.9 U	6.1 J+	74.7 J
LP2-SD36S-B1.5/2.4	ME4SK1	1.5 - 2.4	4450 J+	8 UJ	4.9 J	120 J+	0.23 J	2.3 J+	63500 J	142 J	5.2 J	78.3 J+	8890 J	125 J	28400 J	285 J	0.34	27.5 J	750 J+	4.7 U	1.2 J	173 J	3.4 U	12 J+	283 J
LP2-SD37E-A0.0/1.3	ME4SK5	0 - 1.3	2660 J+	8.4 UJ	2 J	33.3 J+	0.11 J	0.26 J	74500 J	10.2 J	2.9 J	8.6 J+	5500 J	17.7 J	24800 J	246 J	0.12 J	5.7 J	703 U	4.9 U	1.4 U	135 J	3.5 U	9.5 J+	43.2 J
LP2-SD37E-I0.0/0.5	ME4SK8	0 - 0.5	1720 J+	7.5 UJ	1.4 J	24.9 U	0.077 J	0.32 J	81600 J	20.2 J	4.8 J	13.5 J+	4690 J	16.4 J	33300 J	237 J	0.087 J	7.2 J	622 U	4.4 U	1.2 U	124 J	3.1 U	6.1 J	60.6 J
LP2-SD37E-I0.5/1.4	ME4SK9	0.5 - 1.4	1930 J+	7.3 UJ	1.7 J	28.1 J+	0.1 J	0.64 J+	71500 J	32.8 J	5.1 J	21.2 J+	4750 J	38.4 J	27400 J	188 J	0.081 J	8.8 J	608 U	4.3 U	1.2 U	136 J	3 U	7 J+	100 J
LP2-SD38W-B0.0/0.5	ME4SL0	0 - 0.5	3450 J+	8.4 UJ	3.9 J	38.4 J+	0.19 J	3.2 J+	80100 J	44.6 J	4.7 J	25.9 J+	6680 J	64.4 J	33800 J	281 J	0.12 J	10.8 J	696 U	4.9 U	1.6 J+	165 J	3.5 U	9.5 J+	112 J
LP2-SD38W-B0.5/1.9	ME4SL1	0.5 - 1.9	6840 J+	9.5 UJ	5.7 J	79.2 J+	0.36 J	3.1 J+	79000 J	34.8 J	5.1 J	28 J+	10800 J	95.3 J	33900 J	407 J	0.16	14.5 J	1060 J+	5.5 U	2.1 J+	228 J	4 U	16.2 J+	155 J
LP2-SD39W-D0.0/0.5	ME4SL2	0 - 0.5	1610 J+	7.1 UJ	0.89 J	23.6 U	0.057 J	0.59 U	75700 J	8.1 J	2.4 J	4.8 J+	4020 J	10.8 J	34500 J	272 J	0.12 U	4 J	590 U	4.1 U	1.2 U	134 J	2.9 U	5.4 J	30.4 J
LP2-SD39W-D0.0/0.5R	ME4SL3	0 - 0.5	1240 J+	7.1 UJ	1 J	23.8 U	0.065 J	0.59 U	82000 J	7.6 J	2.3 J	4.6 J+	3560 J	15.9 J	34900 J	227 J	0.058 J	3.3 J	594 U	4.2 U	1.2 U	147 J	3 U	5.5 J	23.3 J
LP2-SD39W-D0.5/1.1	ME4SL4	0.5 - 1.1	1240 J+	7.1 UJ	1 J	23.6 U	0.052 J	0.59 U	92600 J	11.9 J	2.9 J	6.6 J+	3510 J	15.4 J	37000 J	236 J	0.08 J	4.2 J	590 U	4.1 U	1.2 U	131 J	2.9 U	5.5 J	37.5 J
LP2-SD39W-H0.0/0.4	ME4SL5	0 - 0.4	1310 J+	7.3 UJ	1.2 J	24.4 U	0.058 J	0.61 U	108000 J	9.6 J	3 J	6 J+	3540 J	14.1 J	30500 J	257 J	0.1 J	3.7 J	611 U	4.3 U	1.2 U	144 J	3.1 U	5.6 J	26.2 J
LP2-SD40E-B0.0/0.6	ME4SK6	0 - 0.6	1330 J+	7.1 UJ	0.94 J	23.6 U	0.05 J	0.068 J	79400 J	7.9 J	2.1 J	9.5 J+	3450 J	15.1 J	32300 J	198 J	0.12 U	3.3 J	589 U	4.1 U	1.2 U	131 J	2.9 U	6.1 J+	22.2 J
LP2-SD40E-H0.0/1.0	ME4SL9	0 - 1	2930 J	6.9 R	3 J	21.4 J	0.15 J	0.088 J	66200 J	11.6 J	4.7 J	14.7 J	12600 J	18.4 J	28500 J	267 J	0.11 UJ-	10.3 J	672 J	4 UJ	1.1 U	108 J	2.9 U	9 J+	29.2 J
LP2-SD41E-C0.0/0.7	ME4SL6	0 - 0.7	3420 J+	7.3 UJ	1.8 J	35.5 J+	0.12 J	0.6 U	66500 J	15.5 J	3.9 J	7.2 J+	7220 J	11.7 J	25300 J	230 J	0.05 J	8.7 J	605 U	4.2 U	1.2 U	158 J	3 U	12.8 J+	43.5 J
LP2-SD42E-A0.0/0.4	ME4SL7	0 - 0.4	1670 J+	8.3 UJ	1.2 J	27.5 U	0.061 J	0.69 U	68700 J	6.4 J	2.4 J	7 J+	3670 J	20.5 J	26800 J	191 J	0.15	3.9 J	689 U	4.8 U	1.4 U	135 J	3.4 U	6.5 J	51.7 J
LP2-SD42E-A0.4/1.0	ME4SL8	0.4 - 1	2980 J+	7.8 UJ	2.1 J	29.3 J+	0.15 J	0.68 J+	68100 J	11.3 J	3.3 J	10 J+	5220 J	30.1 J	27700 J	222 J	0.12 J	6.8 J	652 U	4.6 U	1.3 U	139 J	3.3 U	9.4 J+	56.3 J
LP2-SD42E-I0.0/0.6	ME4SM3	0 - 0.6	4440 J	7.3 R	3.3 J	22.7 J	0.21 J	0.055 J	76400 J	10.1 J	5.2 J	11.5 J	9040 J	7.3 J	27900 J	297 J	0.12 UJ-	12.5 J	1040 J	4.2 UJ	1.2 U	138 J	3 U	10.8 J+	31.6 J
LP2-SD43N-A0.0/0.5	ME4SM5	0 - 0.5	1920 J	7.5 R	2.7 J	47.9 J	0.074 J	0.38 J	87200 J	12.8 J	2.8 J	34.3 J	6160 J	49.2 J	37300 J	325 J	0.083 J	5.6 J	340 J	4.4 UJ	1.2 U	142 J	3.1 U	6.9 J+	71 J
LP2-SD43N-A0.5/1.7	ME4SM6	0.5 - 1.7	3700 J	7.9 R	3.1 J	43.7 J	0.17 J	0.31 J	80200 J	15 J	3.9 J	11.2 J	6560 J	18 J	31100 J	392 J	0.068 J	9.1 J	523 J	4.6 UJ	1.3 U	155 J	3.3 U	10.4 J+	46.1 J
LP2-SD43N-A0.5/1.7R	ME4SM7	0.5 - 1.7	2710 J	7.7 R	3.1 J	34.8 J	0.13 J	0.31 J	77000 J	12.4 J	3.5 J	9 J	6020 J	17 J	31000 J	334 J	0.13 UJ-	7.7 J	423 J	4.5 UJ	1.3 U	136 J	3.2 U	8.8 J+	71.6 J
LP2-SD43S-A0.0/0.8	ME4SM4	0 - 0.8	5340 J	7.4 R	3.6 J	34 J	0.25 J	0.62 UJ	69200 J	10.9 J	5.8 J	14.1 J	10200 J	7.7 J	27500 J	322 J	0.075 J	15 J	1270 J	4.3 UJ	1.2 U	123 J	3.1 U	12.6 J+	30.1 J
LP2-SD44N-A0.0/0.5	ME4SF5	0 - 0.5	7000 J+	5.2 J	9.6 J+	169 J+	0.5 J	4.3 J+	70800 J	223 J+	9.5 J+	131 J+	17100 J+	454 J+	35300 J+	449 J+	0.66 J+	46.2 J+	979 J+	5.7 U	1.5 J	821 U	4.1 U	20.8 J+	550 J+
LP2-SD44N-A0.5/1.5	ME4SF6	0.5 - 1.5	1880 J+	7.8 U	2.3 J+	22.8 J	0.65 U	0.32 J	80900 J	9.8 J+	2.9 J	7.8 J+	5400 J+	16.2 J+	38200 J+	263 J+	0.086 J	6.1 J+	263 J	4.6 U	1.3 U	651 U	3.3 U	7.6 J+	40.4 J+
LP2-SD44N-A1.5/2.5	ME4SF7	1.5 - 2.5	1530 J+	7.3 U	1.9 J+	10.4 J	0.61 U	0.61 U	71900 J	6.2 J+	3.6 J	5.2 J+	4410 J+	5.3 J+	31100 J+	204 J+	0.047 J	7.3 J+	233 J	4.2 U	1.2 U	607 U	3 U	7.2 J+	28.7 J+
LP2-SD44N-A2.5/3.2	ME4SF8	2.5 - 3.2	3860 J+	6.7 U	3.3 J+	23.8 J+	0.25 J	0.52 J	99200 J	9.4 J+	6.4 J+	13.5 J+	8330 J+	9.8 J+	33700 J+	315 J+	0.054 J	14.4 J+	855 J+	3.9 U	1.1 U	562 U	2.8 U	11.9 J+	107 J+
LP2-SD45N-A0.0/0.5	ME4SG0	0 - 0.5	5010 J+	9.5 U	2 J+	83.9 J+	0.79 U	1.1 J+	99500 J+	29.9 J+	5.7 J+	30.7 J+	11600 J+	62.6 J+	37700 J+	438 J+	0.097 J	14.1 J+	776 J+	5.5 U	1.6 U	791 U	4 U	13.7 J+	155 J+
LP2-SD45N-A0.5/1.5	ME4SG1	0.5 - 1.5	5050 J+	8.1 U	3.2 J+	73.1 J+	0.31 J+	1.1 J+	84700 J+	26.8 J+	5.3 J+	25.3 J+	11300 J+	59.9 J+	36200 J+	363 J+	0.067 J	14.2 J+	620 J+	4.7 U	1.4 U	675 U	3.4 U	16.2 J+	128 J+
LP2-SD45N-A0.5/1.5R	ME4SG4	0.5 - 1.5	5920 J+	8 U	7.9 J+	109 J+	0.39 J+	2.1 J+	77100 J+	33.8 J+	6.1 J+	29 J+	15300 J+	127 J+	37400 J+	460 J+	0.16	15.7 J+	719 J+	4.7 U	1.3 U	665 U	3.3 U	21.8 J+	171 J+
LP2-SD45N-A1.5/2.5	ME4SG2	1.5 - 2.5	3400 J+	8 U	1.9 J+	50.7 J+	0.67 U	0.43 J+	84700 J+	13.8 J+	4.8 J+	11.8 J+	7540 J+	21.3 J+	38500 J+	347 J+	0.13 U	11.1 J+	456 J+	4.7 U	1.3 U	667 U	3.3 U	14.4 J+	58 J+
LP2-SD45N-A2.5/3.6	ME4SG3	2.5 - 3.6	3510 J+	7.4 U	1.4 J+	32.4 J+	0.62 U	0.62 U	89700 J+	9.4 J+	4.8 J+	9.3 J+	7200 J+	8.4 J+	40700 J+	255 J+	0.12 U	11 J+	514 J+	4.3 U	1.2 U	620 U	3.1 U	13.9 J+	43 J+
LP2-SD46N-A0.0/0.5	ME4SM8	0 - 0.5	4620 J	9.9 R	2.6 J	67.3 J	0.19 J	0.75 J	87100 J	27.5 J	4.4 J	31.6 J	8800 J	49.9 J	28800 J	356 J	0.17 UJ-	10.5 J	659 J	5.8 UJ	1.7 U	164 J	4.1 U	11.4 J+	124 J
LP2-SD46N-A0.5/1.8	ME4SM9	0.5 - 1.8	4490 J	8.8 R	2.5 J	74.5 J	0.22 J	1.5 J	66600 J	46.8 J	4.3 J	31.2 J	8520 J	100 J	27800 J	246 J	0.28 J	13.1 J	682 J	5.1 UJ	0.91 J	139 J	3.7 U	12.9 J+	150 J
LP2-SD47S-I0.0/0.5	ME4SN0	0 - 0.5	4730 J	11.2 R	3 J	75.7 J	0.2 J	0.72 J	101000 J	25 J	4.9 J	29.3 J	9140 J	52.5 J	32500 J	513 J	0.19 UJ-	11.2 J	753 J	6.5 UJ	3 J+	205 J	4.6 U	12 J+	119 J
LP2-SD47S-I0.5/1.0	ME4SN1	0.5 - 1	2910 J	8.9 R	2 J	49.7 J	0.12 J	0.59 J	84900 J	22.3 J	4.2 J	19.9 J	6420 J	42.7 J	29400 J	297 J	0.15 UJ-	8.8 J	448 J	5.2 UJ	1.5 U	161 J	3.7 U	8.4 J+	97.5 J
LP2-SD48N-B10.0/0.8	ME4SN5	0 - 0.8	1590 J	8.1 R	1.2 J	32.9 J	0.67 U	0.41 J	74100 J	9.5 J	2.5 J	6.8 R	4060 J	27.5 J	31600 J	212 J	0.078 J	5.1 J	258 J	4.7 UJ	1.3 U	133 J	3.4 U	7.2 J+	47.8 J
LP2-SD48N-B10.0/0.8R	ME4SN6	0 - 0.8	1510 J	8.1 R	1.2 J	19.5 J	0.68 U	0.2 J	70700 J	10.4 J	2.4 J	17.3 R	3720 J	20.2 J	29000 J	198 J	0.14 UJ-	3.8 J	252 J	4.7 UJ	1.4 U	128 J	3.4 U	5.3 J	46.5 J
LP2-SD49N-A0.0/0.5	ME4SN3	0 - 0.5	5960 J	10.5 R	2.5 J	77.3 J	0.26 J	1.1 J	89400 J	25.9 J	4.9 J	34.8 J	10500 J	56.8 J	29400 J	425 J	0.2 J	12.3 J	787 J	6.1 UJ	1.8 U	192 J	4.4 U	13.1 J+	145 J
LP2-SD49N-A0.5/1.3	ME4SN4	0.5 - 1.3	5770 J	11 R	3.3 J	81.9 J	0.24 J	1.1 J	90900 J	26.2 J	4.8 J	33.2 J	10700 J	63.7 J	30700 J	471 J	0.21 J	12.6 J	822 J	6.4 UJ	1.8 U	362 J	4.6 U	12.8 J+	151 J
LP2-SD50N-A0.0/0.8	ME4SN2	0 - 0.8	3940 J	10.6 R	2.4 J	47.8 J	0.16 J	0.58 J	80300 J	18.2 J	3.7 J	22.4 J	6840 J	37.4 J	27300 J	285 J	0.11 J	9.4 J	582 J	6.2 UJ	1.8 U	848 J	4.4 U	10.2 J+	97.3 J
LP2-SD50N-J0.0/0.8	ME4SN7	0 - 0.8	6560 J	9.2 R	6.3 J	51.4 J	0.35 J	5.2 J	71300 J	58.3 J	6.1 J	35.7 J	10900 J	127 J	32400 J	469 J	0.29 J	17.2 J	1100 J	5.4 UJ	2.8 J+	2210 J+	3.8 U	15.4 J+	182 J
LP2-SD51N-B0.0/0.5	ME4SN9	0 - 0.5	1440 J+	7.4 UJ	1.3 J	24.7 U	0.62 U	0.22 J	79700 J	7.6 J+	2.7 J	3.6 J+	4150 J	29.9 J+	33600 J+	240 J	0.12 UJ	4.2 J	618 U	4.3 U	1.2 U	618 U	3.1 U	5.3 J	44.5 J+
LP2-SD51N-I0.0/0.7	ME4SP2	0 - 0.7	5160	17.6 UJ	3.8 J	75.8	1.5 U	1 J	82400 J	27.2	5 J	39	13500 J	74.2	29400	402 J	0.13 J	12.7	1466 U	2 J	2.9 U	1466 U	7.3 U	14.7	179
LP2-SD52N-B0.0/1.0	ME4SP0	0 - 1	1380	7.7 UJ	1.2 J	25.8 U	0.64 U	0.18 J	71600 J	8.9	2.6 J	3.8	4090 J	35.1 J	28800	208 J	0.13 UJ	3.8 J	644 U	0.62 J	1.3 U	644 U	3.2 U	6.5	32.8
LP2-SD52N-B0.0/1.0R	ME4SP1	0 - 1	1400	7.9 UJ	1.1 J	26.4 U	0.66 U	0.19 J	79000 J	8.3	3.8 J	4	4190 J	138 J	31900	241 J	0.063 J	3.9 J	660 U	4.6 U	1.3 U	660 U	3.3 U	6.3 J	25.2
LP2-SD53N-I0.0/0.8	ME4SN8	0 - 0.8	2020 J	7.9 R	3.2 J	32.1 J	0.11 J	0.17 J	100000 J	25.2 J	3.6 J	22 J	30000 J	42.3 J	43700 J	410 J	0.13 UJ-	9.7 J	224 J	4.6 UJ	1.3 U	161 J	3.3 U	7.5 J+	92.3 J
LP2-SD54N-I0.0/0.9	ME4SQ1	0 - 0.9	3640 J+	14.3 UJ	2.9 J	62 J+	1.2 U	1.2 J+	86900 J	35.8 J+	4.4 J	32.2 J+	10900 J	55.1 J+	37400 J+	324 J	0.24 UJ	10.9 J+	1188 U	1.5 J	2.4 U	1370 J	5.9 U	13.9 J+	180 J+
LP2-SD55N-J0.0/0.5	ME4SP6	0 - 0.5	9370 J+	12.4 U	14.2 J	232 J+	0.69 J	5.1 J+	75600 J	256 J+	14 J	139 J+	20500 J	404 J+	33500 J+	532 J	0.51 J	54.2 J+	2090 J	6.3 J	4.6 J+	1035 U	1.2 J	27.7 J+	511 J+
LP2-SD55N-J0.5/1.6	ME4SP7	0.5 - 1.6	9030 J+	9.2 UJ	9.3 J	110 J+	0.23 J	3.7 J+	73300 J	68.4 J+	8.6 J	47.4 J+	16000 J	186 J+	30900 J+	499 J	0.11 J	23.5 J+	1430 J	1.6 J	1.4 J	763 U	3.8 U	22.9 J+	241 J+

TABLE C-4
Analytical Results - Metals
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Calcium mg/kg	Chromium, Total mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	Nickel mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Thallium mg/kg	Vandium mg/kg	Zinc mg/kg
LP2-SD56S-A0.0/0.5	ME4SP8	0 - 0.5	8180	12.6 UJ	4.5 J	121	0.14 J	2.3	86900 J	51.4	7.3 J	67.4	15700 J	130	34200	475 J	0.24 J	19.8	1250 J	2 J	2.1 U	1053 U	5.3 U	20.5	286
LP2-SD56S-A0.0/0.5R	ME4SP9	0 - 0.5	8450	12.1 UJ	4.8 J	133	0.14 J	2.6	89700 J	57.6	7.7 J	70.1	16500 J	154	34900	500 J	0.27 J	22	1300 J	2.2 J	2 U	1012 U	5.1 U	20.7	315
LP2-SD56S-A0.5/1.3	ME4SQ0	0.5 - 1.3	10800 J+	9.9 UJ	9.9 J	169 J+	0.28 J	7.9 J+	80800 J	261 J+	9 J	147 J+	17300 J	350 J+	35800 J+	494 J	0.3 J	55.8 J+	1650 J	1.8 J	3.2 J+	825 U	4.1 U	26.7 J+	421 J+
LP2-SD56S-K0.0/0.5	ME4SQ2	0 - 0.5	1370 J+	8.1 UJ	0.97 J	16.7 J	0.67 U	0.18 J	73600 J	13 J+	2.9 J	5.6 J+	3910 J	9.3 J+	30800 J+	240 J	0.14 UJ	4.2 J	675 U	4.7 U	1.3 U	675 U	3.4 U	4.5 J	22.4 J+
LP2-SD58S-B0.0/0.5	ME4SQ3	0 - 0.5	8970 J+	11.1 UJ	9.3 J	136 J+	0.19 J	3.6 J+	89700 J	78.7 J+	8.3 J	72.2 J+	17600 J	301 J+	35200 J+	545 J	0.47 J	25.5 J+	1390 J	2.1 J	1.5 J	923 U	4.6 U	22 J+	321 J+
LP2-SD58S-B0.5/1.5	ME4SQ4	0.5 - 1.5	9610 J+	9.3 UJ	8.9 J	168 J+	0.22 J	5.2 J+	69100 J	135 J+	8.2 J	84.6 J+	16900 J	316 J+	30000 J+	472 J	0.31 J	36.7 J+	1510 J	1.7 J	2.5 J+	774 U	3.9 U	22.1 J+	363 J+
LP2-SD58S-B1.5/2.3	ME4SQ5	1.5 - 2.3	12500 J+	9.7 UJ	9.7 J	126 J+	0.31 J	2.6 J+	77500 J	59.2 J+	10.4 J	49.6 J+	19200 J	154 J+	31200 J+	594 J	0.26 J	29.8 J+	1820 J	1.6 J	0.72 J	805 U	4 U	27.2 J+	255 J+
LP2-SD58S-G0.0/0.8	ME4SP5	0 - 0.8	4940	12.3 UJ	3.8 J	63.9	1 U	1.1	101000 J	27.6	5.7 J	33.8	11300 J	59.2	36800	415 J	0.2 UJ	13.2	1025 U	1.6 J	2 U	1025 U	5.1 U	13.5	154

Qualifier Definitions:

J : The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

J+ : The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.

J- : The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.

R : The data are unusable. (The compound may or may not be present.)

U : The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ : The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

TABLE C-5
Analytical Results - Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aldrin ug/kg	Alpha BHC ug/kg	Alpha-Chlordane ug/kg	Beta BHC ug/kg	Beta-Chlordane ug/kg	Delta BHC ug/kg	Dieldrin ug/kg	Endosulfan lug/kg	Endosulfan II ug/kg	Endosulfan Sulfate ug/kg	Endrin Aldehyde ug/kg	Endrin Ketone ug/kg	Endrin ug/kg	Gamma BHC (Lindane) ug/kg	Heptachlor Epoxide ug/kg	Heptachlor ug/kg	Methoxychlor ug/kg	Toxaphene ug/kg	4,4'-DDD ug/kg	4,4'-DDE ug/kg	4,4'-DDT ug/kg	Total DDx
LP2-SD01E-A0.0/1.0	E4SG8	0 - 1	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	1.9 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.7 U	3.7 U	3.7 U	ND
LP2-SD02E-C0.0/0.5	E4SP3	0 - 0.5	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	3.7 UJ	1.9 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	1.9 UJ	1.9 UJ	1.9 UJ	19 UJ	190 UJ	3.7 UJ	3.7 UJ	3.7 UJ	ND
LP2-SD02E-C0.5/1.5	E4SP4	0.5 - 1.5	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	3.7 UJ	1.9 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	3.7 UJ	1.9 UJ	1.9 UJ	1.9 UJ	19 UJ	190 UJ	3.7 UJ	3.7 UJ	3.7 UJ	ND
LP2-SD03E-A0.0/0.8	E4SG9	0 - 0.8	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4 U	2.1 U	4 U	4 U	4 U	4 U	4 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4 U	4 U	1.7 J	1.7
LP2-SD03E-A0.0/0.8R	E4SH0	0 - 0.8	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.2 U	2.1 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.2 U	4.2 U	0.82 J	0.82
LP2-SD04E-A0.0/1.0	E4SH2	0 - 1	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.5 U	2.3 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.5 U	4.5 U	4.5 U	ND
LP2-SD04E-A0.0/1.0R	E4SH3	0 - 1	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.2 U	2.1 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.2 U	4.2 U	4.2 U	ND
LP2-SD04E-E0.0/0.5	E4SH1	0 - 0.5	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.8 U	1.9 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.8 U	3.8 U	3.8 U	ND
LP2-SD05W-E0.0/0.5	E4S59	0 - 0.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.26 UJ	0.13 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.13 UJ	0.14 J	0.063 J	1.3 UJ	13 UJ	0.26 UJ	0.52 NJ	0.35 NJ	0.87
LP2-SD05W-E0.5/1.5	E4S60	0.5 - 1.5	0.13 UJ	0.13 UJ	0.16 J	0.13 UJ	0.13 UJ	0.13 UJ	2.1 J	0.13 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.62 NJ	0.13 UJ	0.31 R	0.51 R	1.3 UJ	13 UJ	0.26 UJ	2.8 J	0.26 UJ	2.8
LP2-SD05W-E1.5/2.5	E4S61	1.5 - 2.5	0.11 UJ	0.11 UJ	0.11 UJ	0.14 R	0.11 UJ	0.11 UJ	0.19 J	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.15 J	0.11 UJ	1.1 UJ	11 UJ	1.1 NJ	0.74 J	0.34 J	2.18
LP2-SD05W-E2.5/3.5	E4S62	2.5 - 3.5	0.11 U	0.11 U	0.024 J	0.15	0.11 U	0.11 U	0.13 J	0.11 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.11 U	0.11 U	0.11 U	1.1 U	11 U	0.16 J	0.14 J	0.23 U	0.3
LP2-SD05W-I0.0/0.5	E4S49	0 - 0.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.18 R	0.3 J	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 J	0.11 UJ	1.1 UJ	11 UJ	0.23 J	0.31 J	0.22 UJ	0.54
LP2-SD05W-I0.5/1.5	E4S50	0.5 - 1.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.34 J	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.23 UJ	0.26 NJ	0.23 UJ	0.26
LP2-SD05W-I1.5/2.5	E4S51	1.5 - 2.5	0.27 J	0.11 UJ	0.11 UJ	0.14 J	0.11 UJ	0.11 UJ	0.56 J	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	ND
LP2-SD05W-I2.5/3.9	E4S52	2.5 - 3.9	0.11 UJ	0.11 UJ	0.11 UJ	0.15 J	0.11 UJ	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	ND
LP2-SD06W-C0.0/0.5	E4S63	0 - 0.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.23 UJ	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.37 J	0.38 J	0.73 J	1.48
LP2-SD06W-C0.5/1.5	E4S64	0.5 - 1.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.42 J	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.52 NJ	0.55 NJ	0.25 R	1.07
LP2-SD06W-C1.5/3.1	E4S65	1.5 - 3.1	0.12 U	0.12 UJ	0.12 UJ	0.11 J	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD06W-C1.5/3.1R	E4S66	1.5 - 3.1	0.12 UJ	0.12 UJ	0.14 NJ	0.2 R	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.14 J	0.12 UJ	1.6 J	12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD06W-H0.0/0.5	E4S80	0 - 0.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.44 NJ	0.11 UJ	0.37 NJ	0.11 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.46 J	0.47 J	0.28 R	0.93
LP2-SD06W-H0.5/1.5	E4S81	0.5 - 1.5	0.11 UJ	0.11 UJ	0.11 UJ	0.079 J	0.42 J	0.11 UJ	0.25 NJ	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.32 J	0.45 J	0.22 UJ	0.77
LP2-SD06W-H1.5/2.5	E4S83	1.5 - 2.5	0.14 UJ	0.14 UJ	0.14 UJ	0.14 UJ	1.1 J	0.14 UJ	0.94 J	0.14 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.57 NJ	0.14 UJ	0.36 NJ	0.14 UJ	1.4 UJ	14 UJ	0.29 UJ	1.4 J	0.73 R	1.4
LP2-SD06W-H2.5/3.5	E4S84	2.5 - 3.5	0.12 UJ	0.15 J	0.12 UJ	0.12 UJ	1.3 J	0.12 UJ	1.3 J	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.71 J	0.12 UJ	0.4 R	0.14 R	1.2 UJ	12 UJ	1.4 R	1.9 J	0.81 R	1.9
LP2-SD06W-H3.5/4.5	E4S85	3.5 - 4.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1 NJ	0.12 UJ	1.3 J	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.45 R	0.12 UJ	0.48 R	0.19 R	1.2 UJ	12 UJ	4.8 J	2.5 NJ	0.89 R	7.3
LP2-SD06W-H4.5/5.6	E4S86	4.5 - 5.6	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.054 J	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.15 J	0.23 UJ	0.23 UJ	0.15
LP2-SD07E-G0.0/0.5	E4SE9	0 - 0.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.53 J	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.033 J	1.6 J	11 UJ	0.28 J	0.4 NJ	0.31 J	0.99
LP2-SD07E-G0.5/1.5	E4SF0	0.5 - 1.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.21 J	0.11 UJ	0.21 J	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.094 J	0.11 UJ	1.1 UJ	11 UJ	0.27 R	0.25 J	0.23 UJ	0.25
LP2-SD07E-G1.5/2.5	E4SF1	1.5 - 2.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.83 J	0.13 UJ	0.38 J	0.13 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.13 UJ	0.18 NJ	0.13 UJ	1.5 NJ	13 UJ	0.42 R	0.92 J	0.4 NJ	1.32
LP2-SD07E-G2.5/3.5	E4SF2	2.5 - 3.5	0.12 U	0.12 U	0.12 U	0.12 UJ	0.87 J	0.12 U	0.66 J	0.12 U	0.24 UJ	0.24 U	0.24 U	0.24 UJ	0.43 J	0.12 U	0.29 R	0.12 U	1.2 UJ	12 U	0.71 J	1.2 J	0.75 R	1.91
LP2-SD07E-G3.5/4.5	E4SF3	3.5 - 4.5	0.14 U	0.14 U	0.14 U	0.15 R	0.14 U	0.14 U	2.8 NJ	0.14 U	0.29 U	0.29 U	0.43 R	0.29 U	1.4	0.66 R	1.4 R	0.14 U	1.4 U	14 U	3.2 NJ	4.7	3.1 R	7.9
LP2-SD07E-G4.5/5.5	E4SF4	4.5 - 5.5	0.14 U	0.14 U	0.14 UJ	1.4 U	0.14 U	0.14 U	0.28 UJ	0.14 UJ	2.8 U	0.28 U	1.3 NJ	0.28 UJ	1.5 J	3.7 R	0.14 U	5.5 R	14 U	14 U	17	28	0.28 U	45
LP2-SD08E-C0.0/0.5	E4SB5	0 - 0.5	0.12 U	0.12 U	0.12 U	0.12 U	0.38 J	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.53 J	0.27 NJ	0.8
LP2-SD08E-C0.5/1.5	E4SB6	0.5 - 1.5	0.12 UJ	0.12 UJ	0.12 UJ	0.17 R	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.82 R	0.23 UJ	0.23 UJ	0.12 UJ	0.12 UJ	0.13 NJ	1.2 UJ	12 UJ	0.23 UJ	0.27 J	0.23 UJ	0.27
LP2-SD08E-C1.5/3.1	E4SB7	1.5 - 3.1	0.12 UJ	0.013 J	0.12 UJ	0.069 J	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.53 J	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD08E-C3.1/4.5	E4SB8	3.1 - 4.5	0.12 U	0.014 J	0.12 U	0.12 U	0.12 U	0.12 U	0.23 U	0.12 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.23 U	0.23 U	0.23 U	ND
LP2-SD08E-H0.0/0.5	E4SD4	0 - 0.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.55 J	0.11 UJ	0.47 J	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.27 J	0.11 UJ	0.22 R	0.11 UJ	1.1 UJ	11 UJ	0.66 J	0.55 J	0.42 R	1.21
LP2-SD08E-H0.5/1.5	E4SD5	0.5 - 1.5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	0.7 J	1.2 U	2.4 U	2.4 U	2.4 U	2.4 U	0.39 J	1.2 U	1.2 U	1.2 U	12 U	120 U	3.9 NJ	0.9 J	53	57.8
LP2-SD08E-H1.5/2.5	E4SD6	1.5 - 2.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.13 J	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.025 J	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.22 UJ	0.12 J	0.065 J	0.185
LP2-SD08E-H2.5/3.4	E4SD7	2.5 - 3.4	0.12 UJ	0.12 UJ	0.12 UJ	0.05 J	0.059 J	0.03 J	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.063 J	0.24 UJ	0.24 UJ	0.063
LP2-SD09S-C0.0/0.5	E4S67	0 - 0.5	0.12 UJ	0.12 UJ	0.12 UJ	0.16 R	0.12 UJ	0.12 UJ	0.26 J	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.23 UJ	0.32 J	0.23 UJ	0.32
LP2-SD09S-C0.5/1.5	E4S68	0.5 - 1.5	0.11 UJ	0.099 J	0.11 UJ	0.2 R	0.11 UJ	0.11 UJ	0.2 J	0.018 J	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.23 UJ	0.24 J	0.23 UJ	0.24
LP2-SD09S-C1.5/2.9	E4S69	1.5 - 2.9	0.12 UJ	0.12 UJ	0.12 UJ	0.13 J	0.12 UJ	0.048 J	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD10S-D0.0/0.9	E4SJ8	0 - 0.9	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	5.2 U	2.7 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	2.7 U	2.7 U	2.7 U	27 U	270 U	5.2 U	5.2 U	5.2 U	ND
LP2-SD11N-E0.0/0.7	E4SH4	0 - 0.7	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD12S-B0.0/0.5	E4SH5	0 - 0.5	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.7 U	1.9 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.7 U	3.7 U	3.7 U	ND
LP2-SD12S-B0.5/1.5	E4SH6	0.5 - 1.5	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.3 U	2.2 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.3 U	4.3 U	4.8	4.8
LP2-SD13E-A0.0/0.5	E4SA7	0 - 0.5	0.13 U	0.13 U	0.13 U	0.13 U	1.2	0.13 U	0.26 U	0.13 U	0.26 U	0.39 R	0.43 NJ	0.26 U	0.3 R	0.13 U	0.24 R	0.23 R	2 R	13 U	0.63 NJ	1.2 J	0.61 NJ	2.44
LP2-SD13E-A0.5/1.7	E4SA8	0.5 - 1.7	0.11 U	0.11 U	0.16	0.11 U	0.11 U	0.11 U	0.62 NJ	0.1 J	0.23 U	0.23 U	0.25 NJ	0.23 U	0.23 U	0.23 J	0.2 R	0.42 R	1.1 U	11 U	2.5	1.4 R	1.1 J	3.6
LP2-SD13E-A1.7/2.9	E4SA9	1.7 - 2.9	1.7 UJ	3 NJ	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	3.4 UJ	1.7 UJ	3.4 UJ	3.4 UJ	3.4 UJ	3.4 UJ	3.4 UJ	1.7 UJ	1.7 UJ	2 R	17 UJ	170 UJ	11 J	7.1 J	3.7 NJ	21.8
LP2-SD13E-A2.9/4.2	E4SB0	2.9 - 4.2	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.67 J	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.33 J	0.33
LP2-SD14E-C0.0/0.5	E4SA2	0 - 0.5	0.17 UJ	0.17 UJ	0.16 J	0.43 R	0.17 UJ	0.17 UJ	0.35 UJ	0.17 UJ	0.35 UJ	0.35 UJ	1.6 NJ	0.35 UJ	0.35 UJ	0.17 UJ	0.17 UJ	0.17 UJ	1.7 UJ	17 UJ	0.35 UJ	1.1 J	0.54 NJ	1.64
LP2-SD14E-C0.5/1.5	E4SA3	0.5 - 1.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.25 UJ	0.46 J	0.25 UJ	0.25 UJ	0.67 R	0.25 UJ	0.25 UJ	1.9 R	0.47 R	2.3 R	1.3 UJ	13 UJ	0.25 UJ	2.5 J	0.83 R	2.5
LP2-SD14E-C0.5/1.5R	E4SA6	0.5 - 1.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	2.6 NJ	0.13 UJ	0.26 UJ	0.13 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.27 R	0.26 UJ	0.13 UJ	0.43 R	2.1 R	4.2 R	13 UJ	0.26 UJ	3.1 J	0.8 R	3.1
LP2-SD14E-C1.5/3.2	E4SA4	1.5 - 3.2	0.14 UJ	0.14 UJ	0.61 J	0.14 UJ	0.14 UJ	0.14 UJ	0.28 UJ	0.46 J	0.28 UJ	0.28 UJ	2.8 UJ	0.28 UJ	0.45 R	3.2 J	0.14 UJ	0.14 UJ	2.9 R	14 UJ	4 J	3.2 J	4.6 J	11.8
LP2-SD14E-C3.2/4.0	E4SA5	3.2 - 4	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.23 U	0.12 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.23 U	0.23 U	0.23 U	ND
LP2-SD15E-A0.0/0.5	E4S70	0 - 0.5	0.12 UJ	0.12 UJ	0.12 UJ	0.16 R	0.12 UJ	0.12 UJ	0.25 UJ	0.12 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.34 NJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.42 J	0.45 NJ	0.26 NJ	1.13
LP2-SD15E-A0.5/2.1	E4S71	0.5 - 2.1	0.1 UJ	0.1 UJ	0.1 UJ	0.11 J	0.1 UJ	0.1 UJ	0.21 UJ	0.1 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.1 UJ	0.1 UJ	0.1 UJ	1 UJ	10 UJ	0.21 UJ	0.21 UJ	0.21 UJ	ND
LP2-SD15E-A2.1/2.8	E4S72	2.1 - 2.8	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.065 J	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 UJ	0.035 J	1.2 UJ	12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD15E-I0.0/0.5	E4S98	0 - 0.5	0.15 UJ	0.15 UJ	0.9 J	0.15 UJ	2.6 J	0.15 UJ	0.3 UJ	0.44 NJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.37 R	0.15 UJ	0.15 UJ	0.89 R	1.5 UJ	15 UJ	1.3 J	2.6 J	0.66 R	3.9
LP2-SD15E-I0.5/1.5	E4S99	0.5 - 1.5	0.17 UJ	0.17 UJ	1.4 NJ	0.17 UJ	0.17 UJ	0.17 UJ	0.34 UJ	0.17 UJ	0.34 UJ	0.34 UJ	0.34 UJ	0.34 UJ	0.98 NJ	3.1 J	0.17 UJ	7.9 R	1.7 UJ	17 UJ	0.34 UJ	6 R	0.34 UJ	ND
LP2-SD15E-I1.5/2.5	E4SA0	1.5 - 2.5	15 NJ	1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ	3.2 UJ	1.6 UJ	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	6.4 NJ	21 NJ	1.6 UJ	16 UJ	16 UJ	160 UJ	3.2 UJ	13 NJ	3.2 UJ	13
LP2-SD15E-I2.5/3.5	E4SA1	2.5 - 3.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.24 U	0.24 U	ND
LP2-SD15W-A0.0/0.9	E4SH7	0 - 0.9	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.3 U	2.2 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.3 U	4.3 U	4.3 U	ND
LP2-SD16E-A0.0/0.5	E4S73	0 - 0.5	0.14 U	0.14 U	0.3 NJ	0.14 U	0.14 U	0.14 U	0.33 R	0.14 U	0.57 NJ	0.28 U	0.28 U	0.28 U	0.42	0.14 U	1.2	0.2 R	1.4 U	14 U	0.95	0.58 R	0.42 NJ	1.37
LP2-SD16E-A0.5/1.5	E4S74	0.5 - 1.5	0.14 U	0.14 U	0.14 U	0.29 R	0.14 U	0.14 U	0.77 J	0.14 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.19 R	0.15 R	0.15 R	1.4 U	14 U	1.3 J	1.1	0.28 U	2.4
LP2-SD16E-A1.5/2.5	E4S75	1.5 - 2.5	0.12 U	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.25 U	0.12 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.25 U	0.25 U	0.25 U	ND
LP2-SD16E-A2.5/3.5	E4S76	2.5 - 3.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.24 U	0.24 U	ND
LP2-SD16E-A3.5/4.5	E4S77	3.5 - 4.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.23 UJ	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD16E-A4.5/6.1	E4S78	4.5 - 6.1	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD16E-A4.5/6.1R	E4S79	4.5 - 6.1	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.21 UJ	0.11 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.11 UJ	0.02 J	0.11 UJ	1.1 UJ	11 UJ	0.21 UJ	0.21 UJ	0.21 UJ	ND
LP2-SD16W-C0.0/0.5	E4SC9	0 - 0.5	0.21 UJ	0.21 UJ	0.51 J	0.43 R	2.4 J	0.21 UJ	0.41 UJ	0.21 UJ	0.41 UJ	0.41 UJ	0.41 UJ	0.41 UJ	0.41 UJ	0.21 UJ	0.58 R	0.21 UJ	2.1 UJ	21 UJ	1.1 R	2.1 NJ	0.98 R	2.1
LP2-SD16W-C0.5/1.5	E4SD0	0.5 - 1.5	0.14 UJ	0.14 UJ	0.27 J	0.14 UJ	1.6 J	0.14 UJ	0.29 UJ	0.14 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.14 UJ	0.14 UJ	0.14 UJ	2.3 NJ	14 UJ	1.5 NJ	2 J	3.3 J	6.8
LP2-SD16W-C1.5/2.4	E4SD2	1.5 - 2.4	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.41 J	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.52 J	0.53 J	0.27 R	1.05
LP2-SD16W-C2.4/3.6	E4SD3	2.4 - 3.6	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.23 J	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD16W-H0.0/0.5	E4SH8	0 - 0.5	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.8 U	1.9 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.8 U	3.8 U	3.8 U	ND
LP2-SD16W-H0.5/1.8	E4SH9	0.5 - 1.8	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.8 U	1.9 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.8 U	4.4	11	15.4
LP2-SD17E-D0.0/0.5	E4RZ2	0 - 0.5	0.2 UJ	0.2 UJ	0.2 UJ	0.39 R	0.2 UJ	0.2 UJ	0.56 J	0.2 UJ	0.4 UJ	0.4 UJ	0.49 R	0.4 UJ	0.4 UJ	0.2 UJ	0.2 UJ	0.2 UJ	2 UJ	20 UJ	0.4 UJ	1.2 NJ	0.69 NJ	1.89
LP2-SD17E-D0.5/1.5	E4RZ3	0.5 - 1.5	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	3 J	0.68 J	0.39 UJ	0.39 UJ	1.5 R	0.39 UJ	0.97 R	1.1 J	0.78 R	0.19 UJ	2 R	19 UJ	3.2 R	4 J	6 J	10
LP2-SD17E-D0.5/1.5R	E4RZ4	0.5 - 1.5	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	2.2 J	0.28 R	0.33 UJ	0.33 UJ	1.9 J	0.33 UJ	0.6 NJ	0.61 R	0.17 UJ	1.7 R	1.7 UJ	17 UJ	3.8 J	2.2 NJ	3.3 NJ	9.3
LP2-SD17E-D1.5/2.5	E4RZ5	1.5 - 2.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.27 UJ	0.42 J	0.27 UJ	0.27 UJ	0.61 NJ	0.27 UJ	0.27 UJ	0.13 UJ	0.7 R	1.2 R	1.5 R	13 UJ	8.2 NJ	4.6 NJ	1.5 R	12.8
LP2-SD17E-D2.5/3.5	E4RZ6	2.5 - 3.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD17W-E0.0/0.5	E4SE4	0 - 0.5	0.19 UJ	0.25 R	0.5 J	0.66 R	2.6 J	0.19 UJ	0.38 UJ	0.19 UJ	0.38 UJ	0.38 UJ	0.38 UJ	0.38 UJ	0.56 R	0.19 UJ	0.19 UJ	0.19 UJ	2.3 R	19 UJ	0.38 UJ	2.6 NJ	1.1 NJ	3.7
LP2-SD17W-E0.5/1.5	E4SE5	0.5 - 1.5	0.17 UJ	0.17 UJ	1.1 J	0.17 UJ	0.17 UJ	0.17 UJ	0.34 UJ	0.17 UJ	0.34 UJ	0.34 UJ	0.34 UJ	0.34 UJ	0.73 R	0.17 UJ	0.17 UJ	2.3 R	1.7 UJ	17 UJ	0.34 UJ	3.9 NJ	0.34 UJ	3.9
LP2-SD17W-E1.5/2.5	E4SE6	1.5 - 2.5	0.17 UJ	0.17 UJ	1.3 J	0.17 UJ	7.2 J	0.17 UJ	4.2 J	0.17 UJ	0.34 R	0.34 UJ	4.3 J	0.34 UJ	1.5 NJ	0.17 UJ	0.17 UJ	0.17 UJ	5 NJ	17 UJ	11 NJ	17 R	17 J	28

TABLE C-5
Analytical Results - Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aldrin ug/kg	Alpha BHC ug/kg	Alpha-Chlordane ug/kg	Beta BHC ug/kg	Beta-Chlordane ug/kg	Delta BHC ug/kg	Dieldrin ug/kg	Endosulfan lug/kg	Endosulfan II ug/kg	Endosulfan Sulfate ug/kg	Endrin Aldehyde ug/kg	Endrin Ketone ug/kg	Endrin ug/kg	Gamma BHC (Lindane) ug/kg	Heptachlor Epoxide ug/kg	Heptachlor ug/kg	Methoxychlor ug/kg	Toxaphene ug/kg	4,4'-DDD ug/kg	4,4'-DDE ug/kg	4,4'-DDT ug/kg	Total DDx
LP2-SD17W-E2.5/3.5	E4SE7	2.5 - 3.5	0.12 UJ	0.12 UJ	0.31 J	0.12 R	0.12 UJ	0.12 UJ	0.5 R	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.81 R	0.73 R	1 R	1.2 UJ	12 UJ	39 J	4 R	0.68 R	39
LP2-SD17W-E3.5/4.4	E4SE8	3.5 - 4.4	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.72 R	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.14 J	0.22 UJ	0.22 UJ	0.14
LP2-SD17W-L0.0/0.5	E4SJ0	0 - 0.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD17W-L0.5/1.5	E4SJ1	0.5 - 1.5	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.3 U	2.2 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.3 U	14	8.5	22.5
LP2-SD17W-L1.5/2.1	E4SJ2	1.5 - 2.1	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	5.1 U	2.6 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	2.6 U	2.6 U	2.6 U	26 U	260 U	5.1 U	5.7 J	5.1 U	5.7
LP2-SD18E-E0.0/0.5	E4S06	0 - 0.5	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.38 R	0.42 UJ	0.21 UJ	0.42 UJ	0.42 UJ	0.54 NJ	0.42 UJ	0.42 UJ	0.21 UJ	0.21 UJ	0.21 UJ	2.1 UJ	21 UJ	0.42 UJ	0.42 UJ	0.49 NJ	0.49
LP2-SD18E-E0.5/1.5	E4S07	0.5 - 1.5	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	0.19 UJ	1.6 J	0.19 UJ	0.38 UJ	0.38 UJ	0.38 UJ	0.38 UJ	0.96 NJ	0.82 R	0.79 R	1.6 NJ	1.9 UJ	19 UJ	0.38 UJ	3.5 J	0.38 UJ	3.5
LP2-SD18E-E0.5/1.5R	E4S08	0.5 - 1.5	0.2 UJ	0.2 UJ	0.33 NJ	0.2 UJ	0.2 UJ	0.2 UJ	1.3 J	0.2 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.79 NJ	0.2 UJ	0.39 R	0.78 R	2 UJ	20 UJ	0.39 UJ	2.5 J	0.97 R	2.5
LP2-SD18E-E1.5/2.5	E4S09	1.5 - 2.5	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	0.17 UJ	2 J	0.44 NJ	0.34 UJ	0.34 UJ	1.2 R	0.34 UJ	0.62 R	1.2 R	0.83 R	1.9 R	1.7 UJ	17 UJ	2.7 R	5.4 J	5.2 J	10.6
LP2-SD18E-E2.5/4.1	E4S10	2.5 - 4.1	0.12 UJ	0.12 UJ	0.12 UJ	0.059 J	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD18E-I0.0/0.5	E4SJ3	0 - 0.5	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.2 U	2.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.2 U	4.2 U	4.2 U	ND
LP2-SD18E-I0.0/0.5R	E4SJ4	0 - 0.5	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.3 U	2.2 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.3 U	4.3 U	4.3 U	ND
LP2-SD18E-I0.5/1.9	E4SJ5	0.5 - 1.9	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	9.9	2.2 U	4.3 U	4.3 U	4.3 U	4.3 U	10	2.2 U	2.2 U	2.2 U	22 U	220 U	4.3 U	4.3 U	16	16
LP2-SD18W-B0.0/0.5	E4SD9	0 - 0.5	0.2 UJ	0.2 UJ	0.44 J	0.2 UJ	0.2 UJ	0.2 UJ	0.4 UJ	0.2 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.2 UJ	0.51 R	0.68 R	2 UJ	20 UJ	0.4 UJ	2.6 J	1 R	2.6
LP2-SD18W-B0.5/1.5	E4SE0	0.5 - 1.5	0.19 UJ	0.19 UJ	1.2 J	0.19 UJ	0.19 UJ	0.19 UJ	0.39 UJ	0.19 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	1 NJ	0.19 UJ	0.71 R	0.91 R	1.9 UJ	19 UJ	1.9 R	4.6 J	1.5 R	4.6
LP2-SD18W-B1.5/2.5	E4SE1	1.5 - 2.5	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	3.4 UJ	1.7 UJ	3.4 UJ	3.4 UJ	3.4 UJ	3.4 UJ	6.3 R	25 R	8.5 R	58 R	17 UJ	170 UJ	3.4 UJ	25 J	3.4 UJ	25
LP2-SD18W-B1.5/2.5R	E4SE2	1.5 - 2.5	0.17 UJ	0.17 UJ	1.5 J	0.17 UJ	6.3 J	0.17 UJ	2.7 NJ	1.5 NJ	0.33 UJ	0.33 UJ	3.3 U	0.33 UJ	1.8 J	0.17 UJ	0.17 UJ	0.17 UJ	3.6 R	17 UJ	2.8 NJ	4.4 NJ	32	39.2
LP2-SD18W-B2.5/3.5	E4SE3	2.5 - 3.5	0.12 UJ	0.12 UJ	0.12 UJ	0.15 R	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.55 J	0.24 U	0.24 UJ	0.93 R	0.46 R	1.1 R	1.2 UJ	12 UJ	4.2 J	2.3 R	0.24 UJ	4.2
LP2-SD19E-B0.0/0.5	E4RZ7	0 - 0.5	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.44 UJ	0.22 UJ	0.44 UJ	0.44 UJ	0.72 J	0.44 UJ	0.44 UJ	0.22 UJ	0.25 R	0.22 UJ	2.2 UJ	22 UJ	0.61 J	0.59 R	0.44 UJ	0.61
LP2-SD19E-B0.5/1.5	E4RZ8	0.5 - 1.5	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.89 J	0.22 UJ	0.44 UJ	0.44 UJ	0.79 J	0.44 UJ	0.44 UJ	0.49 R	1.2 R	0.63 R	2.2 UJ	22 UJ	1.1 J	1.2 J	0.52 R	2.3
LP2-SD19E-B1.5/2.5	E4RZ9	1.5 - 2.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.26 NJ	0.24 UJ	0.24 UJ	0.12 UJ	0.16 R	0.18 R	1.2 UJ	12 UJ	0.4 J	0.62 NJ	0.24 UJ	1.02
LP2-SD19E-B2.5/3.5	E4S00	2.5 - 3.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD19E-B3.5/5.1	E4S01	3.5 - 5.1	0.13 UJ	0.13 UJ	0.13 UJ	0.055 J	0.13 UJ	0.13 UJ	0.27 UJ	0.13 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.13 UJ	0.13 UJ	0.13 UJ	1.3 UJ	13 UJ	0.27 UJ	0.27 UJ	0.27 UJ	ND
LP2-SD19E-I0.0/0.5	E4RY8	0 - 0.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.25 UJ	0.13 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.13 UJ	0.23 R	0.13 UJ	1.3 UJ	13 UJ	0.74 R	0.77 R	13 J	13
LP2-SD19E-I0.5/1.5	E4RY9	0.5 - 1.5	0.14 UJ	0.14 UJ	0.8 J	0.14 UJ	0.14 UJ	0.14 UJ	0.28 UJ	1.2 J	0.28 UJ	0.28 UJ	0.76 R	0.28 UJ	0.47 R	2.4 J	0.14 UJ	0.14 UJ	1.7 J	14 UJ	4.4 J	4 NJ	3.8 NJ	12.2
LP2-SD19E-I1.5/2.5	E4RZ0	1.5 - 2.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.25 UJ	0.22 R	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.13 UJ	0.21 R	0.13 UJ	1.3 UJ	13 UJ	1.3 NJ	1.5 R	0.39 R	1.3
LP2-SD19E-I2.5/3.6	E4RZ1	2.5 - 3.6	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.23 UJ	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD19E-N0.0/0.5	E4RY5	0 - 0.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.26 UJ	0.13 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.13 UJ	0.25 R	0.47 R	1.3 UJ	13 UJ	0.75 J	1.2 NJ	0.3 R	1.95
LP2-SD19E-N0.5/1.5	E4RY6	0.5 - 1.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.67 J	0.24 UJ	0.24 UJ	0.12 UJ	0.37 R	0.6 R	1.2 UJ	12 UJ	1.8 J	2 NJ	0.44 R	3.8
LP2-SD19E-N1.5/2.6	E4RY7	1.5 - 2.6	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.2 J	0.22 UJ	0.22 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.18 J	11 UJ	0.029 J	0.22 UJ	0.22 UJ	0.029
LP2-SD19E-S0.0/0.5	E4SJ6	0 - 0.5	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.2 U	2.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.2 U	4.2 U	4.2 U	ND
LP2-SD19E-S0.5/1.3	E4SJ7	0.5 - 1.3	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD20E-D0.0/0.5	E4RS0	0 - 0.5	0.18 U	0.18 U	0.18 U	0.18 U	0.98 NJ	0.18 U	0.36 U	0.18 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.18 U	1.1	0.18 U	1.8 U	18 U	0.36 U	0.52 R	0.49 R	ND
LP2-SD20E-D0.5/1.5	E4RS1	0.5 - 1.5	0.2 U	0.2 U	0.3 NJ	0.2 U	1.8 NJ	0.2 U	0.4 U	0.2 U	0.4 U	0.4 U	0.55 J	0.4 U	0.5 R	0.2 U	1.3 NJ	0.36 J	2 R	20 U	0.94 R	2.6 J	1.1 R	2.6
LP2-SD20E-D1.5/2.5	E4RS2	1.5 - 2.5	0.15 U	0.15 U	0.15 UJ	0.15 U	2.5 R	0.15 U	1.3 J	0.55 NJ	0.3 UJ	0.3 U	0.3 UJ	0.3 U	0.58 R	0.15 U	0.45 R	1.3 R	3.4 NJ	15 U	2.2 J	3.1 R	1.1 R	2.2
LP2-SD20E-D2.5/3.7	E4RS3	2.5 - 3.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.31 NJ	0.12 U	0.12 U	0.21 R	1.2 U	12 U	0.48	0.4 J	0.3 J	1.18
LP2-SD20E-I0.0/0.5	E4RS4	0 - 0.5	0.21 U	0.21 U	0.21 U	0.21 U	1.2 NJ	0.21 U	0.43 U	0.21 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.21 U	2.2 R	0.23 R	13 J	21 U	0.43 U	1.1 J	0.88 J	1.98
LP2-SD20E-I0.5/1.5	E4RS5	0.5 - 1.5	0.16 U	0.16 U	0.0049	0.16 U	0.88 J	0.16 U	0.33 U	0.16 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.16 U	1.2 R	0.16 U	1.8 NJ	16 U	0.56 R	0.87 J	0.61 NJ	1.48
LP2-SD20E-I1.5/2.5	E4RS6	1.5 - 2.5	0.17 U	0.17 U	1.1	0.17 U	0.17 U	0.17 U	4.9 J	2 J	0.33 U	0.33 U	0.37 R	0.33 U	1.6 R	5.7 NJ	0.17 U	1.7 U	1.7 U	17 U	62 J	12 NJ	26 J	100
LP2-SD20E-I2.5/3.5	E4RS7	2.5 - 3.5	0.15 U	0.15 U	0.15 U	0.35 R	0.15 U	0.15 U	0.31 U	0.15 U	0.31 U	0.31 U	0.31 U	0.31 U	0.44 R	0.15 U	1.6 R	2 R	2.2 J	15 U	9.2 R	5.9 NJ	2 R	5.9
LP2-SD20E-I3.5/4.5	E4RS8	3.5 - 4.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.56 NJ	0.082 J	1.2 U	12 U	0.28	0.24 U	0.24 UJ	0.28
LP2-SD20E-M0.0/0.5	E4S02	0 - 0.5	0.14 UJ	0.14 UJ	0.14 UJ	0.17 R	0.14 UJ	0.14 UJ	0.29 UJ	0.14 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.69 R	0.14 UJ	0.49 R	0.47 R	1.4 UJ	14 UJ	0.5 J	0.88 J	2.7 J	4.08
LP2-SD20E-M0.5/1.5	E4S03	0.5 - 1.5	0.11 UJ	0.11 UJ	0.11 UJ	0.23 R	0.11 UJ	0.11 UJ	0.22 UJ	0.11 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	0.52 NJ	1.8 R	1.4 R	4.9 R	1.1 UJ	11 UJ	1.7 J	2.6 NJ	0.22 UJ	4.3
LP2-SD20E-M1.5/2.7	E4S05	1.5 - 2.7	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.39 UJ	0.2 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.2 UJ	0.2 UJ	0.14 J	2 UJ	20 UJ	0.23 J	0.39 UJ	0.39 UJ	0.23
LP2-SD20W-A0.0/0.5	E4SK2	0 - 0.5	2 U	2 U	2 U	2 U	2 U	2 U	4 U	2 U	4 U	4 U	4 U	4 U	4 U	2 U	2 U	2 U	20 U	200 U	4 U	4 U	4 U	ND
LP2-SD20W-A0.5/1.5	E4SK3	0.5 - 1.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD20W-A1.5/2.5	E4SK4	1.5 - 2.5	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.8 U	1.9 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.8 U	3.8 U	3.8 U	ND
LP2-SD21E-F0.0/0.5	E4RS9	0 - 0.5	0.21 U	0.21 U	0.21 U	0.21 U	1 J	0.21 U	0.43 U	0.21 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.21 U	2.3 NJ	0.21 U	2.1 U	21 U	0.43 U	1.1 NJ	0.64 NJ	1.74
LP2-SD21E-F0.5/1.5	E4RT0	0.5 - 1.5	0.2 U	0.2 U	0.27	0.2 U	0.2 U	0.2 U	1.1	0.2 U	0.41 U	0.41 U	0.41 U	0.41 U	1 R	0.2 U	0.31 R	0.2 U	2.3 R	20 U	2 R	2.4 NJ	1.6 NJ	4
LP2-SD21E-F1.5/2.5	E4RT1	1.5 - 2.5	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	3 J	0.18 U	0.36 U	0.36 U	0.65 R	0.36 U	1.1 R	0.18 U	0.76 R	1.9 J	1.8 U	18 U	5.8 R		6.6 J	6.6
LP2-SD21E-F2.5/3.5	E4RT2	2.5 - 3.5	0.17 U	0.17 U	1.5 J	0.17 U	0.17 U	0.17 U	5.1 J	2 J	0.36 R	0.34 U	0.34 UJ	0.34 U	1.7 R	9.2 R	2.2 R	18 R	4 J	17 U	6.8 R	16 J	27 J	43
LP2-SD21E-F3.5/4.5	E4RT3	3.5 - 4.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	1.1 R	0.19 R	1.2 U	12 U	0.24 R	0.24 U	0.24 UJ	ND
LP2-SD21E-J0.0/0.5	E4RT4	0 - 0.5	0.14 U	0.14 U	0.14 U	0.14 U	1.2 NJ	0.14 U	0.4 J	0.14 U	0.28 UJ	0.28 U	0.28 U	0.64 R	0.28 UJ	0.14 U	0.19 R	0.3 R	1.9 R	14 U	0.83 NJ	1.8 J	1.5 J	4.13
LP2-SD21E-J0.5/1.5	E4RT5	0.5 - 1.5	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	3.2 U	4.3 J	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	13 R	5.6 R	47 NJ	16 U	160 U	20 J	19 J	18 J	57
LP2-SD21E-J0.5/1.5R	E4RT6	0.5 - 1.5	0.16 UJ	0.16 UJ	1.3 NJ	0.16 UJ	0.16 UJ	0.16 UJ	3.1 NJ	1.4 R	0.33 UJ	0.33 UJ	0.33 UJ	0.69 NJ	0.71 R	12 R	1.9 R	0.16 UJ	1.9 R	16 UJ	23 NJ	19	19 J	61
LP2-SD21E-J1.5/2.5	E4RT7	1.5 - 2.5	0.13 U	0.14 R	0.13 U	0.13 U	0.13 U	0.13 U	0.26 U	0.13 U	0.26 U	0.26 U	0.26 U	0.26 U	0.91 J	0.13 U	0.41 R	1 NJ	1.3 U	13 U	2.9	2.7 NJ	1.2 J	6.8
LP2-SD21E-J2.5/3.6	E4RT8	2.5 - 3.6	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.23 U	0.12 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.12 U	0.082 J	0.12 U	1.2 U	12 U	0.23 U	0.23 U	0.23 U	ND
LP2-SD22S-G0.0/0.5	E4S25	0 - 0.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.34 R	0.48 U	0.24 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.24 U	0.54 NJ	0.18 J	2.4 U	24 U	0.48 U	0.65 J	0.48 U	0.65
LP2-SD22S-G0.5/1.5	E4S26	0.5 - 1.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.38	0.14 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.14 U	0.31 R	0.14 U	1.4 U	14 U	0.87 R	1.3 J	0.52 R	1.3
LP2-SD22S-G1.5/2.5	E4S27	1.5 - 2.5	0.11 U	0.11 U	0.11 U	0.11 U	0.38 R	0.11 U	0.23 U	0.11 U	0.23 U	0.23 U	0.23 U	0.23 U	0.32 J	0.11 U	0.11 U	0.11 U	1.1 U	11 U	0.33	0.23 J	0.23 U	0.56
LP2-SD22S-G2.5/4.0	E4S29	2.5 - 4	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.23 UJ	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.11 UJ	0.11 UJ	1.1 UJ	11 UJ	0.052 J	0.098 J	0.23 UJ	0.15
LP2-SD23N-C0.0/0.5	E4S30	0 - 0.5	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	1.4 R	0.46 UJ	0.23 UJ	0.46 UJ	0.46 UJ	0.46 UJ	0.46 UJ	0.46 UJ	0.23 UJ	0.23 UJ	0.23 UJ	2.3 UJ	23 UJ	0.46 UJ	1.3 J	0.49 R	1.3
LP2-SD23N-C0.5/1.5	E4S31	0.5 - 1.5	0.2 UJ	0.2 UJ	0.76 J	0.2 UJ	0.2 UJ	0.2 UJ	2 J	0.2 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	1.5 J	0.2 UJ	0.87 NJ	0.2 R	2 UJ	20 UJ	0.39 UJ	5.8 J	1.7 R	5.8
LP2-SD23N-C1.5/2.5	E4S32	1.5 - 2.5	0.15 UJ	0.15 UJ	0.79 J	0.15 UJ	0.15 UJ	0.15 UJ	14 J	0.15 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	3.1 J	1.3 J	1.7 R	5.8 R	1.5 UJ	15 UJ	3 UJ	19 J	0.3 UJ	19
LP2-SD23N-C2.5/3.5	E4S33	2.5 - 3.5	1.4 NJ	0.12 UJ	0.17 NJ	0.12 UJ	0.12 UJ	0.12 UJ	1.9 J	0.12 UJ	0.24 UJ	0.24 UJ	0.77 R	0.24 UJ	0.28 R	0.12 UJ	0.64 R	0.31 R	1.2 UJ	12 UJ	10 J	3.6 J	1 R	13.6
LP2-SD24S-D0.0/0.5	E4S34	0 - 0.5	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.39 U	0.19 U	0.39 U	0.39 U	0.39 U	0.39 U	0.47 R	0.19 U	0.19 U	0.19 U	1.9 U	19 U	0.39 U	0.52 J	0.39 U	0.52
LP2-SD24S-D0.5/1.5	E4S35	0.5 - 1.5	0.17 U	0.17 U	0.23	0.17 U	0.17 U	0.17 U	0.66 J	0.17 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.17 U	0.38 R	0.17 U	1.8 J	17 U	1.6 NJ	2.6	1.5 NJ	5.7
LP2-SD24S-D1.5/2.5	E4S36	1.5 - 2.5	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	1.6	0.15 U	0.3 U	0.3 U	0.74 R	0.3 U	0.44 R	0.15 U	0.45 R	0.52 R	2 R	15 U	2.3 R	3.3	1.4 R	3.3
LP2-SD24S-D3.5/4.5	E4S38	3.5 - 4.5	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.68	0.15 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.15 U	0.35 R	0.15 U	1.5 U	15 U	1.5 J	1.6 J	0.82 J	3.92
LP2-SD24S-D4.5/5.5	E4S39	4.5 - 5.5	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.26 U	0.13 U	0.26 U	0.26 U	0.28	0.26 U	0.26 U	0.13 U	0.17 J	0.13 U	1.3 U	13 U	0.66 J	0.68	0.29 J	1.63
LP2-SD24S-D4.5/5.5R	E4S40	4.5 - 5.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.11 J	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.24 J	0.12 U	0.2 J	12 U	1 R	1 J	0.44 J	1.44
LP2-SD24S-D5.5/6.5	E4S41	5.5 - 6.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.062 J	0.24 U	0.062
LP2-SD24S-D6.5/7.5	E4S42	6.5 - 7.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.16	0.12 U	1.2 U	12 U	0.24 U	0.0086	0.24 U	0.0086
LP2-SD25W-E0.0/0.5	E4S43	0 - 0.5	0.15 UJ	0.15 UJ	0.38 NJ	0.74 R	2.9 J	0.15 UJ	1.1 J	0.15 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.52 NJ	0.15 UJ	0.95 NJ	0.15 UJ	2.3 NJ	15 UJ	1.5 J	4.3 J	1.3 NJ	7.1
LP2-SD25W-E0.5/1.5	E4S44	0.5 - 1.5	0.14 UJ	0.14 UJ	0.14 UJ	0.14 UJ	0.81 NJ	0.14 UJ	0.29 UJ	0.14 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.49 R	0.14 UJ	0.25 J	0.48 R	1.4 UJ	14 UJ	1.4 J	1.2 J	0.5 J	3.1
LP2-SD25W-E1.5/2.5	E4S46	1.5 - 2.5	0.13 UJ	0.39 J	0.13 UJ	0.18 R	0.13 UJ	0.13 UJ	0.25 UJ	0.13 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.13 UJ	0.13 UJ	0.41 NJ	0.28 J	13 UJ	0.25 UJ	0.25 UJ	0.25 UJ	ND
LP2-SD25W-E2.5/3.5	E4S48	2.5 - 3.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.033 J	0.23 UJ	0.23 UJ	0.033
LP2-SD26W-D0.0/0.5	E4S11	0 - 0.5	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.3 U	0.15 U	0.3 U	0.3 U	0.3 U	0.3 U	0.38 NJ	0.15 U	0.18	0.15 U	1.5 U	15 U	0.3 U	0.47	0.4 J	0.87
LP2-SD26W-D0.5/1.5	E4S12	0.5 - 1.5	0.18 U	0.18 U	0.42	0.18 U	1.6	0.18 U	0.36 U	0.18 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.18 U	0.44 J	0.45 J	1.8 U	18 U	0.36 U	2.9 J	1.8 J	4.7
LP2-SD26W-D1.5/2.5	E4S13	1.5 - 2.5	0.16 U	0.16 U	0.27 R	0.16 U	1.8 NJ	0.16 U	0.79 J	0.16 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7	0.28 R	0.6 R	0.33 NJ	5.6 R	16 U	5.6	6	4.6 J	16.2
LP2-SD26W-D2.5/3.8	E4S14	2.5 - 3.8	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.21 J	0.21 J	0.24 U	0.42
LP2-SD26W-D2.5/3.8R	E4S15	2.5 - 3.8	0.12 U	0.12 U	0.12 U	0.12 U	0.17	0.12 U	0.23 U	0.12 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.14 J	0.16 J	0.23 U	0.3
LP2-SD27W-A0.0/0.5	E4S16	0 - 0.5	0.22 U	0.22 U	0.22 U	0.22 U	0.35 R	0.22 U	0.44 U	0.22 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.22 U	0.22 U	0.22 U	2.2 U	22 U	0.44 U	0.44 U	0.29 J	0.29
LP2-SD27W-A0.5/1.5	E4S17	0.5 - 1.5	0.15 U	0.15 U	0.65 NJ	0.15 U	0.82 R	0.15 U	1.2 J	0.15 U	0.31 U	0.31 U	0.96 NJ	0.31 U	0.31 U	0.15 U	0.81 R	0.16 R	4.3 R	15 U	4.1	3.7 NJ	4.4 J	12.2
LP2-SD27W-A1.5/2.5	E4S18	1.5 - 2.5	0.13 U	0.13 U	0.17 J	0.13 U	0.49 R	0.13 U	0.25 U	0.13 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.13 U	0.4 R	0.13 U	2.1 J	13 U	1.7 J	1.2	1.5 J	4.4

TABLE C-5
Analytical Results - Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aldrin ug/kg	Alpha BHC ug/kg	Alpha-Chlordane ug/kg	Beta BHC ug/kg	Beta-Chlordane ug/kg	Delta BHC ug/kg	Dieldrin ug/kg	Endosulfan Iug/kg	Endosulfan II ug/kg	Endosulfan Sulfate ug/kg	Endrin Aldehyde ug/kg	Endrin Ketone ug/kg	Endrin ug/kg	Gamma BHC (Lindane) ug/kg	Heptachlor Epoxide ug/kg	Heptachlor ug/kg	Methoxychlor ug/kg	Toxaphene ug/kg	4,4'-DDD ug/kg	4,4'-DDE ug/kg	4,4'-DDT ug/kg	Total DDx
LP2-SD27W-A2.5/3.5	E4S19	2.5 - 3.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.23 UJ	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.036 J	0.11 UJ	1.1 UJ	11 UJ	0.23 UJ	0.037 J	0.23 UJ	0.037
LP2-SD27W-A3.5/4.5	E4S20	3.5 - 4.5	0.12 UJ	0.12 UJ	0.25 J	0.13 R	0.26 R	0.12 UJ	0.38 NJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.26 J	0.12 UJ	1.2 UJ	12 UJ	1.2 J	0.81 J	0.7 NJ	2.71
LP2-SD27W-A4.5/5.5	E4S21	4.5 - 5.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.22 J	0.12 UJ	1.2 UJ	12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD27W-A5.5/6.5	E4S22	5.5 - 6.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.25 UJ	0.12 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.25 UJ	0.25 UJ	0.25 UJ	ND
LP2-SD27W-A6.5/7.5	E4S23	6.5 - 7.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.25 UJ	0.13 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.13 UJ	0.22 NJ	0.13 UJ	1.3 UJ	13 UJ	0.25 UJ	0.25 UJ	0.25 UJ	ND
LP2-SD27W-A7.5/8.9	E4S24	7.5 - 8.9	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 R	0.12 UJ	1.2 UJ	12 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD28W-A0.0/0.5	E4S53	0 - 0.5	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.74 NJ	0.63	0.22 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.22 U	0.24 R	0.22 U	2.2 U	22 U	1.7 J	1.4 NJ	0.94 NJ	4.04
LP2-SD28W-A0.5/1.5	E4S54	0.5 - 1.5	0.15 U	0.15 U	0.51 J	0.15 U	0.15 U	0.15 U	1.4 NJ	0.15 U	0.3 U	0.3 U	0.3 U	0.3 U	0.33 R	0.15 U	0.4 R	0.15 U	1.7 R	15 U	4	2.4	2.1 NJ	8.5
LP2-SD28W-A1.5/2.5	E4S55	1.5 - 2.5	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.28 J	0.11 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.11 U	0.11 U	0.075 J	1.1 U	11 U	1.2	0.54	0.35 R	1.74
LP2-SD28W-A2.5/3.5	E4S56	2.5 - 3.5	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.22 U	0.11 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.11 U	0.022 J	0.11 U	1.1 U	11 U	0.22 U	0.22 U	0.22 U	ND
LP2-SD28W-A2.5/3.5R	E4S57	2.5 - 3.5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.23 UJ	0.11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.11 UJ	0.026 J	0.11 UJ	1.1 UJ	11 UJ	0.23 UJ	0.23 UJ	0.23 UJ	ND
LP2-SD28W-A3.5/4.3	E4S58	3.5 - 4.3	0.12 UJ	0.12 UJ	0.12 UJ	0.12 U	0.12 UJ	0.12 UJ	0.23 UJ	0.12 UJ	0.23 U	0.23 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.12 UJ	0.12 U	0.12 UJ	1.2 UJ	12 UJ	0.23 U	0.23 UJ	0.23 UJ	ND
LP2-SD29W-A0.0/0.5	E4SB1	0 - 0.5	0.22 U	0.22 U	0.31 J	0.22 U	1.2 NJ	0.75 R	0.45 U	0.22 U	0.45 U	0.45 U	0.64 J	0.45 U	0.45 U	0.22 U	0.32	0.22 U	2.4 R	22 U	0.45 U	2.7 NJ	1.3 NJ	4
LP2-SD29W-A0.5/1.8	E4SB2	0.5 - 1.8	0.17 UJ	0.17 UJ	0.46 J	0.17 UJ	1.3 NJ	0.17 UJ	1.4 J	0.17 UJ	0.35 UJ	0.35 UJ	1.3 J	0.35 UJ	0.65 NJ	0.17 UJ	0.37 R	0.28 R	1.7 UJ	17 UJ	3.1 J	2.5 NJ	1.1 R	5.6
LP2-SD29W-A0.5/1.8R	E4SB4	0.5 - 1.8	0.16 UJ	0.16 UJ	0.55 J	0.16 UJ	0.16 UJ	0.16 UJ	1 J	0.16 UJ	0.31 UJ	0.31 UJ	1.3 R	0.31 UJ	0.53 R	0.16 UJ	0.57 R	0.16 UJ	1.6 UJ	16 UJ	3.5 J	3.5 J	1.4 R	7
LP2-SD29W-A1.8/2.9	E4SB3	1.8 - 2.9	0.11 U	0.11 U	0.11 U	0.11 U	0.19 J	0.11 U	0.22 U	0.11 U	0.22 U	0.22 U	0.22 UJ	0.22 U	0.22 U	0.11 U	0.039 J	0.11 U	1.1 U	11 U	0.22 U	0.22 UJ	0.22 U	ND
LP2-SD30W-B0.0/0.5	E4S87	0 - 0.5	0.2 UJ	0.33 R	0.56 J	0.2 UJ	2.6 J	0.2 UJ	0.4 UJ	0.2 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.54 R	0.2 UJ	0.61 NJ	0.2 UJ	2 UJ	20 UJ	0.9 R	2.7 NJ	1.1 R	2.7
LP2-SD30W-B0.5/1.5	E4S88	0.5 - 1.5	0.2 UJ	0.2 UJ	0.86 NJ	0.2 UJ	2 UJ	0.2 UJ	3.6 J	0.2 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	1.7 NJ	0.2 UJ	2 R	0.56 R	4.1 R	20 UJ	17 J	17 J	6.8 NJ	40.8
LP2-SD30W-B0.5/1.5R	E4S89	0.5 - 1.5	0.18 UJ	0.18 UJ	0.63 J	1.8 UJ	2.5 R	0.18 UJ	2.1 J	0.18 UJ	0.36 UJ	0.36 UJ	3.3 J	0.36 UJ	0.97 R	0.18 UJ	1.2 R	0.3 R	4.7 NJ	18 UJ	12 J	8.2 NJ	4.1 R	20.2
LP2-SD30W-B1.5/2.5	E4S90	1.5 - 2.5	0.13 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	1.3 UJ	2.7 UJ	0.13 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	0.27 UJ	1.3 UJ	0.83 J	1.3 UJ	13 UJ	130 UJ	6.4 J	4.7 NJ	2.2 J	13.3
LP2-SD30W-B2.5/3.5	E4S91	2.5 - 3.5	0.12 UJ	0.05 J	0.12 UJ	0.12 UJ	0.22 J	0.12 UJ	0.05 J	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.13 J	0.16 J	0.23 J	0.52
LP2-SD31W-A0.0/0.5	E4S92	0 - 0.5	0.22 UJ	0.22 UJ	0.68 J	0.22 UJ	0.22 UJ	0.22 UJ	2 J	0.22 UJ	0.44 UJ	0.44 UJ	3.5 NJ	0.44 UJ	0.81 R	0.22 UJ	0.45 R	0.22 UJ	2.2 UJ	22 UJ	2.8 R	5.2 J	2.5 R	5.2
LP2-SD31W-A0.5/1.5	E4S93	0.5 - 1.5	0.14 U	0.14 U	0.97 J	0.14 U	2.7 NJ	0.14 U	2.2 NJ	0.14 U	0.29 UJ	0.29 U	1.6 R	0.29 U	0.6 R	0.14 U	0.96 R	0.14 U	5.3 NJ	14 U	12 J	5.3 J	3.7 NJ	21
LP2-SD31W-A1.5/2.5	E4S94	1.5 - 2.5	0.18 U	0.18 U	0.34 J	0.18 U	1.4 R	0.18 U	0.37 U	0.18 U	0.37 U	0.75 R	0.37 U	0.37 U	0.37 U	0.18 U	0.82	0.18 U	2.6 R	18 U	15	4.4 NJ	1.2 NJ	20.6
LP2-SD31W-A2.5/3.5	E4S95	2.5 - 3.5	0.13 U	0.13 U	0.1 J	0.13 U	0.42 NJ	0.13 U	0.26 UJ	0.13 U	0.26 U	0.26 U	0.53 NJ	0.26 U	0.26 U	0.13 U	0.16 J	0.13 UJ	1.3 U	13 U	2.2	0.8	0.63 NJ	3.63
LP2-SD31W-A3.5/4.5	E4S96	3.5 - 4.5	0.13 U	0.13 U	0.13 U	0.13 U	0.41 R	0.23 R	0.25 U	0.13 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	1.3 U	13 U	0.7	0.36	0.25 U	1.06
LP2-SD31W-A4.5/5.5	E4S97	4.5 - 5.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.24 U	0.24 U	ND
LP2-SD32N-C0.0/0.5	E4RT9	0 - 0.5	0.16 U	0.16 U	0.16 U	0.16 U	0.97 R	0.16 U	0.32 U	0.16 U	0.32 U	0.32 U	0.32 U	0.32 U	0.83 R	0.16 U	0.27 J	0.16 U	1.9 R	16 U	1 NJ	1.1 J	0.77 J	2.87
LP2-SD32N-C0.0/0.5R	E4RW0	0 - 0.5	0.14 U	0.14 U	0.14 U	0.14 U	0.66 NJ	0.14 U	0.25 J	0.14 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.14 U	0.14 U	0.14 U	1.9 R	14 U	1.2	1.6 J	1.2 J	4
LP2-SD32N-C0.5/1.5	E4RW1	0.5 - 1.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.1 J	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.13 R	0.12 U	1.2 U	12 U	0.76	0.5 J	0.24 U	1.26
LP2-SD32N-C0.5/1.5R	E4RW2	0.5 - 1.5	0.15 U	0.15 U	0.15 U	0.15 U	1.3 J	0.15 U	0.3 U	0.15 U	0.3 U	0.3 U	0.45 NJ	0.3 U	2 NJ	0.15 U	0.21 R	0.15 U	2.3 R	15 U	1.1 NJ	0.73 R	0.47 R	1.1
LP2-SD32N-C1.5/2.5	E4RW3	1.5 - 2.5	0.15 U	0.15 U	0.15 U	0.15 U	1.3 NJ	0.15 U	0.36 NJ	0.15 U	0.3 U	0.3 U	0.3 U	0.42	0.3 U	0.15 U	0.24 R	0.15 U	1.9 R	15 U	3 J	1.6	0.64 NJ	5.24
LP2-SD32N-C1.5/2.5R	E4RW4	1.5 - 2.5	0.13 U	0.13 U	0.13 U	0.13 U	0.17 R	0.13 U	0.26 U	0.13 U	0.26 U	0.26 U	0.26 U	0.26 U	1.3 R	0.13 U	0.39 NJ	0.13 U	1.3 U	13 U	2.2	1.2 J	0.27 NJ	3.67
LP2-SD32N-C2.5/3.5	E4RW5	2.5 - 3.5	0.12 U	0.12 U	0.12 U	0.12 U	1.4 NJ	0.12 U	0.33 R	0.12 U	0.23 U	0.31 R	0.23 U	0.36 R	0.23 U	0.12 U	0.22 R	0.12 U	1.2 U	12 U	3.2 J	2.1 J	1.1 J	6.4
LP2-SD32N-C3.5/4.5	E4RW6	3.5 - 4.5	0.16 U	0.16 U	0.16 U	0.16 U	1.3 NJ	0.16 U	0.41 NJ	0.16 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.16 U	0.46 R	0.16 U	1.6 U	16 U	3.3	2.1	0.72 J	6.12
LP2-SD32N-C4.5/5.5	E4RW7	4.5 - 5.5	0.12 U	0.12 U	0.12 U	0.12	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.2 NJ	0.12 U	1.2 U	12 U	0.24 U	0.046 J	0.24 U	0.046
LP2-SD32N-C5.5/6.5	E4RW8	5.5 - 6.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.23 U	0.12 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.4 J	0.28 J	0.23 U	0.68
LP2-SD32N-C6.5/7.7	E4RW9	6.5 - 7.7	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.079 J	0.24 U	0.079
LP2-SD33N-E0.0/0.5	E4RX0	0 - 0.5	0.2 U	0.2 U	0.2 U	0.23 R	0.2 U	0.2 U	0.56 J	0.2 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.2 U	2 NJ	0.2 U	2 U	20 U	1.7 J	1.9	0.97 J	4.57
LP2-SD33N-E0.5/1.5	E4RX1	0.5 - 1.5	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.34	0.13 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.13 U	3.8 J	0.18 J	1.3 U	13 U	0.92 NJ	1.1	0.7 J	2.72
LP2-SD33N-E1.5/2.5	E4RX2	1.5 - 2.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 J	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.24 U	0.11 J	0.11
LP2-SD33N-E2.5/3.5	E4RX3	2.5 - 3.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.39 U	0.2 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.2 U	0.35 NJ	0.2 U	2 U	20 U	0.39 U	0.39 U	0.39 U	ND
LP2-SD33N-E3.5/4.5	E4RX4	3.5 - 4.5	0.19 U	0.19 U	0.19 U	0.13 J	0.19 U	0.19 U	0.38 U	0.19 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.19 U	0.32 R	0.19 U	1.9 U	19 U	0.38 U	0.38 U	0.38 U	ND
LP2-SD33N-E4.5/5.5	E4RX5	4.5 - 5.5	0.12 U	0.12 U	0.12 U	0.055 J	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.062 J	0.24 U	0.24 U	0.062
LP2-SD33N-E5.5/6.6	E4RX6	5.5 - 6.6	0.12 U	0.12 U	0.12 U	0.05 J	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.075 J	0.24 U	0.24 U	0.075
LP2-SD34N-D0.0/0.5	E4RX7	0 - 0.5	0.42 U	0.42 U	0.42 U	0.42 U	0.49 R	0.74 NJ	0.85 U	0.42 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.42 U	2.5 R	0.42 U	4.2 U	42 U	0.92 R	0.85 U	0.8 J	0.8
LP2-SD34N-D0.5/1.5	E4RX8	0.5 - 1.5	0.21 UJ	0.21 UJ	0.48 J	0.21 UJ	0.21 UJ	0.21 UJ	2.8 J	0.44 R	0.42 UJ	0.42 UJ	0.42 UJ	0.42 UJ	1.1 J	0.51 NJ	0.75 R	0.91 R	2.1 UJ	21 UJ	6.1 J	3.2 J	2.7 R	9.3
LP2-SD34N-D1.5/2.5	E4RX9	1.5 - 2.5	0.15 UJ	0.15 UJ	0.19 R	0.15 UJ	0.54 R	0.15 UJ	0.31 UJ	0.2 J	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.15 UJ	0.97 NJ	0.15 UJ	1.5 UJ	15 UJ	10 NJ	3.9 R	1.7 R	10
LP2-SD34N-D2.5/3.8	E4RY0	2.5 - 3.8	0.13 J	0.13 UJ	0.13 UJ	0.13 UJ	0.36 J	0.13 UJ	0.27 UJ	0.13 UJ	0.27 UJ	0.27 UJ	0.27 R	0.27 UJ	0.27 UJ	0.13 UJ	0.25 NJ	0.13 UJ	1.3 UJ	13 UJ	0.27 UJ	0.27 UJ	0.27 UJ	ND
LP2-SD34N-H0.0/0.5	E4RY1	0 - 0.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.32 J	0.12 UJ	0.25 UJ	0.12 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.66 J	0.12 UJ	0.58 R	0.12 UJ	1.2 UJ	12 UJ	0.6 R	0.65 R	1.5 J	1.5
LP2-SD34N-H0.5/1.5	E4RY2	0.5 - 1.5	0.18 UJ	0.18 UJ	0.27 R	0.18 UJ	0.67 R	0.18 UJ	2.1 J	0.33 R	0.35 UJ	0.35 UJ	0.35 UJ	0.59 J	0.92 J	0.35 NJ	0.82 R	0.48 R	1.8 UJ	18 UJ	6.2 NJ	4.4 J	3.3 R	10.6
LP2-SD34N-H1.5/2.5	E4RY3	1.5 - 2.5	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	0.77 R	1.7 UJ	1.3 R	0.23 R	0.34 UJ	0.34 UJ	0.34 UJ	0.34 UJ	0.41 J	1.7 UJ	1.7 UJ	0.17 UJ	1.7 UJ	17 UJ	9 R	4 J	7 R	4
LP2-SD34N-H2.5/3.9	E4RY4	2.5 - 3.9	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.31 R	0.13 UJ	0.26 UJ	0.13 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.13 UJ	0.18 R	0.13 UJ	1.3 UJ	13 UJ	0.36 J	0.38 NJ	0.26 UJ	0.74
LP2-SD35E-A0.0/0.5	E4SM0	0 - 0.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4 U	2.1 U	4 U	4 U	4 U	4 U	4 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4 U	4 U	4 U	ND
LP2-SD35E-A0.0/0.5R	E4SM1	0 - 0.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD35E-A0.5/1.7	E4SM2	0.5 - 1.7	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD35W-A0.0/0.5	E4SB9	0 - 0.5	0.16 UJ	0.16 UJ	0.52 J	0.16 UJ	2.8 J	0.16 UJ	1.4 J	0.43 R	0.32 UJ	0.32 UJ	0.32 UJ	0.32 UJ	1 R	0.16 UJ	0.16 UJ	1.4 R	1.6 UJ	16 UJ	1.7 J	2.7 J	1.1 R	4.4
LP2-SD35W-A0.5/1.5	E4SC0	0.5 - 1.5	0.14 UJ	0.43 J	0.52 J	0.14 UJ	2 NJ	0.14 UJ	1.4 R	0.4 J	0.27 UJ	0.27 UJ	0.27 UJ	0.28 J	1.1 NJ	0.14 UJ	0.9 R	0.85 R	1.4 UJ	14 UJ	28 J	0.27 UJ	1.5 NJ	29.5
LP2-SD35W-A1.5/2.5	E4SC1	1.5 - 2.5	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.13 UJ	0.25 UJ	0.13 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.25 UJ	0.13 UJ	0.13 UJ	0.14 J	1.3 UJ	13 UJ	0.083 J	0.25 UJ	0.25 UJ	0.083
LP2-SD35W-A1.5/2.5R	E4SC2	1.5 - 2.5	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.1 J	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.12 UJ	1.2 UJ	12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	ND
LP2-SD35W-A2.5/3.9	E4SC3	2.5 - 3.9	0.12 UJ	0.021 J	0.12 UJ	0.12 UJ	0.12 UJ	0.12 UJ	0.24 UJ	0.12 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.24 UJ	0.12 UJ	0.12 UJ	0.035 J	1.2 UJ	12 UJ	0.049 J	0.24 UJ	0.24 UJ	0.049
LP2-SD36N-C0.0/0.5	E4SC4	0 - 0.5	0.22 UJ	0.22 UJ	0.22 UJ	0.22 UJ	1.2 J	0.22 UJ	0.43 UJ	0.22 UJ	0.43 UJ	0.43 UJ	0.43 UJ	0.43 UJ	0.43 UJ	0.22 UJ	0.49 R	0.3 R	2.2 UJ	22 UJ	0.48 R	0.56 R	0.5 NJ	0.5
LP2-SD36N-C0.5/1.5	E4SC5	0.5 - 1.5	0.18 UJ	0.18 UJ	0.76 R	0.18 UJ	6.2 NJ	0.18 UJ	0.36 UJ	1.5 NJ	0.36 UJ	0.36 UJ	2.1 NJ	0.36 UJ	1.1 R	5.5 J	0.18 UJ	0.18 UJ	3.9 NJ	18 UJ	3.8 R	4.3 R	17 J	17
LP2-SD36N-C0.5/1.5R	E4SC6	0.5 - 1.5	0.18 UJ	0.18 UJ	0.4 J	0.18 UJ	3.6 J	0.18 UJ	3.1 J	0.57 R	0.95 R	0.37 UJ	3.1 NJ	0.37 UJ	1.7 R	0.18 UJ	0.18 UJ	0.18 UJ	3.5 NJ	18 UJ	2.8 R	1.9 R	3.7 J	3.7
LP2-SD36N-C1.5/2.5	E4SC7	1.5 - 2.5	0.16 UJ	0.16 UJ	0.43 J	0.16 UJ	3 NJ	0.16 UJ	0.32 UJ	0.64 J	0.32 UJ	0.32 UJ	1.4 J	0.32 UJ	0.32 UJ	0.16 UJ	0.16 UJ	0.16 UJ	3.4 NJ	16 UJ	5.6 J	5.5 NJ	5.8 J	16.9
LP2-SD36N-C2.5/3.5	E4SC8	2.5 - 3.5	0.15 UJ	0.15 UJ	0.15 UJ	0.15 UJ	0.8 J	0.15 UJ	0.29 UJ	0.15 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.29 UJ	0.33 R	0.15 UJ	0.15 UJ	0.15 UJ	1.5 UJ	15 UJ	0.39 J	0.58 NJ	0.29 UJ	0.97
LP2-SD36N-C3.5/4.5	E4SG7	3.5 - 4.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.028 J	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.24 U	0.05 J	0.05
LP2-SD36S-B0.0/0.5	E4SJ9	0 - 0.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	5.4	4.8	10.2
LP2-SD36S-B0.5/1.5	E4SK0	0.5 - 1.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	1.8 J	1.8
LP2-SD36S-B1.5/2.4	E4SK1	1.5 - 2.4	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.2 U	2.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.2 U	4.2 U	5	5
LP2-SD37E-A0.0/1.3	E4SK5	0 - 1.3	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	5 U	2.6 U	5 U	5 U	5 U	5 U	5 U	2.6 U	2.6 U	2.6 U	26 U	260 U	5 U	5.6	3.5 J	9.1
LP2-SD37E-I0.0/0.5	E4SK8	0 - 0.5	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.2 U	2.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.2 U	2 J	4.2 U	2
LP2-SD37E-I0.5/1.4	E4SK9	0.5 - 1.4	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.5 U	2.3 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.5 U	4.5 U	4.5 U	ND
LP2-SD38W-B0.0/0.5	E4SL0	0 - 0.5	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	4.7 U	2.4 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	2.4 U	2.4 U	2.4 U	24 U	240 U	4.7 U	12	15	27
LP2-SD38W-B0.5/1.9	E4SL1	0.5 - 1.9	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	5.2 U	2.7 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	2.7 U	2.7 U	2.7 U	27 U	270 U	5.2 U	5.2 U	3.7 J	3.7
LP2-SD39W-D0.0/0.5	E4SL2	0 - 0.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4 U	2.1 U	4 U	4 U	4 U	4 U	4 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4 U	4 U	4 U	ND
LP2-SD39W-D0.0/0.5R	E4SL3	0 - 0.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	3.8 J	5.8	9.6
LP2-SD39W-D0.5/1.1	E4SL4	0.5 - 1.1	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4 U	2.1 U	4 U	4 U	4 U	4 U	4 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4 U	4.6	3.9 J	8.5
LP2-SD39W-H0.0/0.4	E4SL5	0 - 0.4	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	4.3 U	2.2 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	2.2 U	2.2 U	2.2 U	22 U	220 U	4.3 U	4.3 U	4.3 U	ND
LP2-SD40E-B0.0/0.6	E4SK6	0 - 0.6	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	4.1 U	2.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4.1 U	4.1 U	4.1 U	ND
LP2-SD40E-H0.0/1.0	E4SL9	0 - 1	2 U	2 U	2 U	2 U	2 U	2 U	3.9 U	2 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	2 U	2 U	2 U	20 U	200 U	3.9 U	3.9 U	1.5 J	1.5
LP2-SD41E-C0.0/0.7	E4SL6	0 - 0.7	2.1 U	2.1 U	2.4 NJ	2.1 U	3.2 U	2.1 U	4 U	2.1 U	4 U	4 U	4 U	4 U	4 U	2.1 U	2.1 U	2.1 U	21 U	210 U	4 U	4 U	23	23
LP2-SD42E-A0.0/0.4	E4SL7	0 - 0.4	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	5.4 U	2.8 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	2.8 U	2.8 U	2.8 U	28 U	280 U	5.4 U	5.4 U	2.5 J	2.5
LP2-SD42E-A0.4/1.0	E4SL8	0.4 - 1	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.5 U	2.3 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.5 U	4.5 U	4.5 U	ND
LP2-SD42E-I0.0/0.6	E4SM3	0 - 0.6	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	3.8 U	1.9 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	1.9 U	1.9 U	1.9 U	19 U	190 U	3.8 U	3.8 U	3.8 U	ND

TABLE C-5
Analytical Results - Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	Aldrin ug/kg	Alpha BHC ug/kg	Alpha-Chlordane ug/kg	Beta BHC ug/kg	Beta-Chlordane ug/kg	Delta BHC ug/kg	Dieldrin ug/kg	Endosolfan I ug/kg	Endosulfan II ug/kg	Endosulfan Sulfate ug/kg	Endrin Aldehyde ug/kg	Endrin Ketone ug/kg	Endrin ug/kg	Gamma BHC (Lindane) ug/kg	Heptachlor Epoxide ug/kg	Heptachlor ug/kg	Methoxychlor ug/kg	Toxaphene ug/kg	4,4'-DDD ug/kg	4,4'-DDE ug/kg	4,4'-DDT ug/kg	Total DDx
LP2-SD43N-A0.0/0.5	E4SM5	0 - 0.5	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.4 U	2.3 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.4 U	12 J	8.6 J	20.6
LP2-SD43N-A0.5/1.7	E4SM6	0.5 - 1.7	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	4.6 U	2.4 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	2.4 U	2.4 U	2.4 U	24 U	240 U	13 J	9.8	6.8	29.6
LP2-SD43N-A0.5/1.7R	E4SM7	0.5 - 1.7	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.5 U	2.3 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.5 U	11 J	7 J	18
LP2-SD43S-A0.0/0.8	E4SM4	0 - 0.8	2 U	2 U	2 U	2 U	2 U	2 U	4 U	2 U	4 U	4 U	4 U	4 U	4 U	2 U	2 U	2 U	20 U	200 U	4 U	4 U	4 U	ND
LP2-SD44N-A0.0/0.5	E4SF5	0 - 0.5	0.18 UJ	0.18 UJ	3.2	0.18 UJ	1.8 U	0.18 UJ	20	1.3 R	1 R	0.36 UJ	0.36 UJ	4.5 NJ	0.36 UJ	2.8 R	0.18 UJ	5.8 NJ	18 U	18 UJ	28	0.36 UJ	21 NJ	49
LP2-SD44N-A0.5/1.5	E4SF6	0.5 - 1.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.28 U	0.14 U	0.28 U	0.28 U	0.34 R	0.28 U	0.28 U	0.084 J	0.27 R	0.19 R	1.4 U	14 U	1.2	1.2 J	0.28 U	2.4
LP2-SD44N-A1.5/2.5	E4SF7	1.5 - 2.5	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.26 U	0.13 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.13 U	0.13 U	0.049 J	1.3 U	13 U	0.26 U	0.26 U	0.26 U	ND
LP2-SD44N-A2.5/3.2	E4SF8	2.5 - 3.2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.23 U	0.12 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.047 J	0.12 U	0.07 J	1.2 U	12 U	0.23 U	0.23 U	0.23 U	ND
LP2-SD45N-A0.0/0.5	E4SG0	0 - 0.5	3	0.17 U	0.29 NJ	0.17 U	0.17 U	0.17 U	3.7	0.17 U	0.34 U	0.34 U	0.6 R	0.34 U	0.74	0.42 R	0.99 R	0.17 U	1.7 U	17 U	3.3 J	3.4 J	1.4 R	6.7
LP2-SD45N-A0.5/1.5	E4SG1	0.5 - 1.5	0.14 UJ	0.14 UJ	0.83 J	1.4 U	1.4 U	0.14 U	1.3 NJ	0.14 UJ	0.28 UJ	0.28 U	2.8 U	0.28 UJ	2.8 U	1.4 U	1.2 R	1.4 U	1.4 UJ	14 U	12	3.4 J	2.5 J	17.9
LP2-SD45N-A0.5/1.5R	E4SG4	0.5 - 1.5	0.15 U	0.15 U	0.89 J	1.5 U	1.3 R	0.15 U	1.2 NJ	0.15 UJ	0.3 UJ	0.3 U	3 U	0.3 UJ	0.3 UJ	1.5 U	1.3 R	0.45 R	1.5 UJ	15 U	17	3.4 NJ	2.4 R	20.4
LP2-SD45N-A1.5/2.5	E4SG2	1.5 - 2.5	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.28 U	0.14 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.14 U	0.099 J	0.28	1.4 U	14 U	0.28 U	0.37 R	0.36 J	0.36
LP2-SD45N-A2.5/3.6	E4SG3	2.5 - 3.6	0.13 U	0.016 J	0.13 U	0.13 U	0.13 U	0.13 U	0.25 U	0.13 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.13 U	0.13 U	0.13 U	1.3 U	13 U	0.25 U	0.25 U	0.25 U	ND
LP2-SD46N-A0.0/0.5	E4SM8	0 - 0.5	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	5 U	2.6 U	5 U	5 U	5 U	5 U	5 U	2.6 U	2.6 U	2.6 U	26 U	260 U	5 U	17	14	31
LP2-SD46N-A0.5/1.8	E4SM9	0.5 - 1.8	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	5.7 U	2.9 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	2.9 U	2.9 U	2.9 U	29 U	290 U	5.7 U	27	23	50
LP2-SD47S-I0.0/0.5	E4SN0	0 - 0.5	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	6.1 U	3.1 U	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	3.1 U	3.1 U	3.1 U	31 U	310 U	6.1 U	20	15	35
LP2-SD47S-I0.5/1.0	E4SN1	0.5 - 1	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	5 U	2.6 U	5 U	5 U	5 U	5 U	5 U	2.6 U	2.6 U	2.6 U	26 U	260 U	5 U	5 U	3 J	3
LP2-SD48N-B10.0/0.8	E4SN5	0 - 0.8	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.5 U	2.3 U	4.5 U	4.5 U	4.5 U	4.5 U	4.5 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.5 U	4.5 U	5.9	5.9
LP2-SD48N-B10.0/0.8R	E4SN6	0 - 0.8	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	4.4 U	2.3 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	2.3 U	2.3 U	2.3 U	23 U	230 U	4.4 U	4.4 U	4.4 U	ND
LP2-SD49N-A0.0/0.5	E4SN3	0 - 0.5	3 U	3 U	3 U	3 U	3 U	3 U	5.9 U	3 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	3 U	3 U	3 U	30 U	300 U	5.9 U	5.9 U	2.8 J	2.8
LP2-SD49N-A0.5/1.3	E4SN4	0.5 - 1.3	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	6.1 U	3.1 U	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U	3.1 U	3.1 U	3.1 U	31 U	310 U	6.1 U	6.1 U	5.2 J	5.2
LP2-SD50N-A0.0/0.8	E4SN2	0 - 0.8	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	7.2 U	3.7 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	3.7 U	3.7 U	3.7 U	37 U	370 U	7.2 U	7.2 U	7.2 U	ND
LP2-SD50N-J0.0/0.8	E4SN7	0 - 0.8	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	5 U	2.6 U	5 U	5 U	5 U	5 U	5 U	2.6 U	2.6 U	2.6 U	26 U	260 U	5 U	45	50	95
LP2-SD51N-B0.0/0.5	E4SN9	0 - 0.5	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	4.2 UJ	2.1 UJ	4.2 UJ	4.2 UJ	4.2 UJ	4.2 UJ	4.2 UJ	2.1 UJ	2.1 UJ	2.1 UJ	21 UJ	210 UJ	4.2 UJ	4.2 UJ	3.5 J	3.5
LP2-SD51N-I0.0/0.7	E4SP2	0 - 0.7	6.3 UJ	6.3 UJ	6.3 UJ	6.3 UJ	6.3 UJ	6.3 UJ	12 UJ	6.3 UJ	12 UJ	12 UJ	12 UJ	12 UJ	12 UJ	6.3 UJ	6.3 UJ	6.3 UJ	63 UJ	630 UJ	12 UJ	12 UJ	7.7 J	7.7
LP2-SD52N-B0.0/1.0	E4SP0	0 - 1	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	4.2 UJ	2.2 UJ	4.2 UJ	4.2 UJ	4.2 UJ	4.2 UJ	4.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	22 UJ	220 UJ	4.2 UJ	4.2 UJ	2.2 J	2.2
LP2-SD52N-B0.0/1.0R	E4SP1	0 - 1	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	4.1 UJ	2.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	4.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	21 UJ	210 UJ	4.1 UJ	4.1 UJ	1.6 J	1.6
LP2-SD53N-I0.0/0.8	E4SN8	0 - 0.8	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	3.5 U	1.8 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	1.8 U	1.8 U	1.8 U	18 U	180 U	3.5 U	3.5 U	3.5 U	ND
LP2-SD54N-I0.0/0.9	E4SQ1	0 - 0.9	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	6.3 UJ	3.2 UJ	6.3 UJ	6.3 UJ	6.3 UJ	6.3 UJ	6.3 UJ	3.2 UJ	3.2 UJ	3.2 UJ	32 UJ	320 UJ	6.3 UJ	6.3 UJ	6.3 UJ	ND
LP2-SD55N-J0.0/0.5	E4SP6	0 - 0.5	3.6 UJ	3.6 UJ	30 J	3.6 UJ	310 UJ	3.6 UJ	7 UJ	3.6 UJ	7 UJ	7 UJ	40 J	7 UJ	7 UJ	3.6 UJ	3.6 UJ	3.6 UJ	36 UJ	360 UJ	7 UJ	380 U	290	290
LP2-SD55N-J0.5/1.6	E4SP7	0.5 - 1.6	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	3.5 UJ	2.6 UJ	5.1 UJ	2.6 UJ	5.1 UJ	5.1 UJ	3 J	5.1 UJ	5.1 UJ	2.6 UJ	2.6 UJ	2.6 UJ	26 UJ	260 UJ	5.1 UJ	11 UJ	9.4 J	9.4
LP2-SD56S-A0.0/0.5	E4SP8	0 - 0.5	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	5 UJ	9.7 UJ	5 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	9.7 UJ	5 UJ	5 UJ	5 UJ	50 UJ	500 UJ	9.7 UJ	9.7 UJ	9.7 UJ	ND
LP2-SD56S-A0.0/0.5R	E4SP9	0 - 0.5	3.9 UJ	3.9 UJ	3.9 UJ	3.9 UJ	8.8 UJ	3.9 UJ	7.5 UJ	3.9 UJ	7.5 UJ	7.5 UJ	7.5 UJ	7.5 UJ	7.5 UJ	3.9 UJ	3.9 UJ	3.9 UJ	39 UJ	390 UJ	7.5 UJ	16 UJ	16 J	16
LP2-SD56S-A0.5/1.3	E4SQ0	0.5 - 1.3	2.9 UJ	2.9 UJ	2.9 UJ	2.9 UJ	11 UJ	2.9 UJ	5.6 UJ	2.9 UJ	5.6 UJ	5.6 UJ	5.3 J	5.6 UJ	5.6 UJ	2.9 UJ	2.9 UJ	2.9 UJ	29 UJ	290 UJ	5.6 UJ	20 UJ	18 J	18
LP2-SD56S-K0.0/0.5	E4SQ2	0 - 0.5	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	2.2 UJ	4.3 UJ	2.2 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	4.3 UJ	2.2 UJ	2.2 UJ	2.2 UJ	22 UJ	220 UJ	4.3 UJ	1.9 UJ	1.7 J	1.7
LP2-SD58S-B0.0/0.5	E4SQ3	0 - 0.5	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	6.2 UJ	3.2 UJ	6.2 UJ	6.2 UJ	6.2 UJ	6.2 UJ	6.2 UJ	3.2 UJ	3.2 UJ	3.2 UJ	32 UJ	320 UJ	6.2 UJ	3.6 UJ	4.5 J	4.5
LP2-SD58S-B0.5/1.5	E4SQ4	0.5 - 1.5	2.9 UJ	2.9 UJ	2.9 UJ	2.9 UJ	2.9 UJ	2.9 UJ	5.7 UJ	2.9 UJ	5.7 UJ	5.7 UJ	5.7 UJ	5.7 UJ	5.7 UJ	2.9 UJ	2.9 UJ	2.9 UJ	29 UJ	290 UJ	5.7 UJ	21 UJ	22 J	22
LP2-SD58S-B1.5/2.3	E4SQ5	1.5 - 2.3	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	2.7 UJ	5.3 UJ	2.7 UJ	5.3 UJ	5.3 UJ	5.3 UJ	5.3 UJ	5.3 UJ	2.7 UJ	2.7 UJ	2.7 UJ	27 UJ	270 UJ	5.3 UJ	9.8 UJ	9.5 J	9.5
LP2-SD58S-G0.0/0.8	E4SP5	0 - 0.8	3.4 UJ	3.4 UJ	3.4 UJ	3.4 UJ	3.4 UJ	3.4 UJ	6.6 UJ	3.4 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	6.6 UJ	3.4 UJ	3.4 UJ	3.4 UJ	34 UJ	340 UJ	6.6 UJ	6.6 UJ	11 J	11
MA-SO01-1.0/2.0	E4SR1	1 - 2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.13 J	0.24 U	0.13
MA-SO01-1.0/2.0-FR	E4SR2	1 - 2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.21 U	0.1 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.21 U	0.21 U	0.073	0.073
MA-SO02-2.0/3.0	E4SR3	2 - 3	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.22 U	0.11 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.11 U	0.11 U	0.11 U	1.1 U	11 U	0.22 U	0.23	0.22 U	0.23
MA-SO03-3.0/4.0	E4SR4	3 - 4	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.27 NJ	0.24 U	0.27
MA-SO04-1.0/2.0	E4SR5	1 - 2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.21 U	0.1 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.1 U	0.1 U	0.1 U	1 U	10 U	0.21 U	0.21 U	0.21 U	ND
MA-SO05-1.0/2.0	E4SR6	1 - 2	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.21 U	0.11 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.11 U	0.11 U	0.11 U	1.1 U	11 U	0.21 U	0.21 U	0.21 U	ND
MA-SO06-1.0/2.0	E4SR7	1 - 2	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.21 U	0.11 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.11 U	0.11 U	0.11 U	1.1 U	11 U	0.21 U	0.21 U	0.21 U	ND
MA-SO07-1.0/2.0	E4SR8	1 - 2	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.23 U	0.11 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.11 U	0.11 U	0.11 U	1.1 U	11 U	0.23 U	0.18 J	0.064	0.244
MA-SO08-1.0/2.0	E4SR9	1 - 2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.25 U	0.12 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.25 U	0.19 J	0.24 J	0.43
MA-SO09-1.0/2.0	E4SS0	1 - 2	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.24 U	0.12 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.12 U	0.12 U	0.12 U	1.2 U	12 U	0.24 U	0.24 U	0.24 U	ND
MA-SO10-1.0/2.0	E4SS1	1 - 2	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.28 U	0.14 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.14 U	0.14 U	0.14 U	1.4 U	14 U	0.28 U	0.19 J	0.11	0.3

Abbreviations:

ND - non detect

Qualifier Definitions:

J : The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

NJ : The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.

U : The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R : The data are unusable. (The compound may or may not be present.)

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD01E-A0.0/1.0	E4SG8	0 - 1	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.074 ND
LP2-SD02E-C0.0/0.5	E4SP3	0 - 0.5	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.074 ND
LP2-SD02E-C0.5/1.5	E4SP4	0.5 - 1.5	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.074 ND
LP2-SD03E-A0.0/0.8	E4SG9	0 - 0.8	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.08 ND
LP2-SD03E-A0.0/0.8R	E4SH0	0 - 0.8	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.084 ND
LP2-SD04E-A0.0/1.0	E4SH2	0 - 1	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.09 ND
LP2-SD04E-A0.0/1.0R	E4SH3	0 - 1	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.084 ND
LP2-SD04E-E0.0/0.5	E4SH1	0 - 0.5	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.076 ND
LP2-SD05W-E0.0/0.5	E4S59	0 - 0.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0072 NJ	0.0026 U	0.0026 U	0.0111
LP2-SD05W-E0.5/1.5	E4S60	0.5 - 1.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.078	0.0026 U	0.097	0.0026 U	0.0026 U	0.1776
LP2-SD05W-E1.5/2.5	E4S61	1.5 - 2.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0042 NJ	0.0022 U	0.0071	0.0022 U	0.0022 U	0.0135
LP2-SD05W-E2.5/3.5	E4S62	2.5 - 3.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0021 J	0.0023 U	0.0023 U	0.00555
LP2-SD05W-I0.0/0.5	E4S49	0 - 0.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0029 J	0.0022 U	0.0022 U	0.0062
LP2-SD05W-I0.5/1.5	E4S50	0.5 - 1.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0029	0.0023 U	0.0023 U	0.00635
LP2-SD05W-I1.5/2.5	E4S51	1.5 - 2.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.00085 J	0.0022 U	0.0022 U	0.00415
LP2-SD05W-I2.5/3.9	E4S52	2.5 - 3.9	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0044 ND
LP2-SD06W-C0.0/0.5	E4S63	0 - 0.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0059	0.0023 U	0.0023 U	0.00935
LP2-SD06W-C0.5/1.5	E4S64	0.5 - 1.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.007	0.0022 U	0.011	0.0022 U	0.0022 U	0.0202
LP2-SD06W-C1.5/3.1	E4S65	1.5 - 3.1	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD06W-C1.5/3.1R	E4S66	1.5 - 3.1	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD06W-H0.0/0.5	E4S80	0 - 0.5	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0045 R	0.0021 U	0.0021 U	0.00315 ND
LP2-SD06W-H0.5/1.5	E4S81	0.5 - 1.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0038 R	0.0022 U	0.0022 U	0.0033 ND
LP2-SD06W-H1.5/2.5	E4S83	1.5 - 2.5	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.022	0.0029 U	0.0029 U	0.02635
LP2-SD06W-H2.5/3.5	E4S84	2.5 - 3.5	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.028	0.023 U	0.023 U	0.0625
LP2-SD06W-H3.5/4.5	E4S85	3.5 - 4.5	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.028	0.023 U	0.023 U	0.0625
LP2-SD06W-H4.5/5.6	E4S86	4.5 - 5.6	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD07E-G0.0/0.5	E4SE9	0 - 0.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0037 R	0.0022 U	0.0022 U	0.0033 ND
LP2-SD07E-G0.5/1.5	E4SF0	0.5 - 1.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0066 R	0.0023 U	0.0023 U	0.00345 ND
LP2-SD07E-G1.5/2.5	E4SF1	1.5 - 2.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0064	0.0026 U	0.0086 R	0.0026 U	0.0026 U	0.009
LP2-SD07E-G2.5/3.5	E4SF2	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.024	0.0024 U	0.0024 U	0.0276
LP2-SD07E-G3.5/4.5	E4SF3	3.5 - 4.5	0.029 U	0.029 U	0.029 U	0.029 U	0.28 J	0.029 U	0.029 U	0.029 U	0.029 U	0.3235
LP2-SD07E-G4.5/5.5	E4SF4	4.5 - 5.5	0.28 U	0.28 U	0.28 U	0.28 U	2.6	0.28 U	0.28 U	0.28 U	0.28 U	3.02
LP2-SD08E-C0.0/0.5	E4SB5	0 - 0.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0092 NJ	0.0024 U	0.0053 J	0.0024 U	0.0024 U	0.0169
LP2-SD08E-C0.5/1.5	E4SB6	0.5 - 1.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD08E-C1.5/3.1	E4SB7	1.5 - 3.1	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD08E-C3.1/4.5	E4SB8	3.1 - 4.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD08E-H0.0/0.5	E4SD4	0 - 0.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.021 J	0.0023 U	0.012 R	0.0023 U	0.0023 U	0.0233
LP2-SD08E-H0.5/1.5	E4SD5	0.5 - 1.5	0.012 U	0.012 U	0.012 U	0.012 U	0.051 J	0.012 U	0.012 U	0.012 U	0.012 U	0.069
LP2-SD08E-H1.5/2.5	E4SD6	1.5 - 2.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.007 J	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0103
LP2-SD08E-H2.5/3.4	E4SD7	2.5 - 3.4	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD09S-C0.0/0.5	E4S67	0 - 0.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0082	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.01165
LP2-SD09S-C0.5/1.5	E4S68	0.5 - 1.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0099	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.01335
LP2-SD09S-C1.5/2.9	E4S69	1.5 - 2.9	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD10S-D0.0/0.9	E4SJ8	0 - 0.9	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.104 ND
LP2-SD11N-E0.0/0.7	E4SH4	0 - 0.7	0.041 U	0.041 U	0.041 U	0.041 U	0.016 J	0.029 J	0.041 U	0.041 U	0.041 U	0.086
LP2-SD12S-B0.0/0.5	E4SH5	0 - 0.5	0.037 U	0.037 U	0.037 U	0.037 U	0.34 J	0.06 R	0.037 U	0.037 U	0.037 U	0.377
LP2-SD12S-B0.5/1.5	E4SH6	0.5 - 1.5	0.043 U	0.043 U	0.043 U	0.043 U	0.38 J	0.12 R	0.044	0.043 U	0.043 U	0.4455
LP2-SD13E-A0.0/0.5	E4SA7	0 - 0.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.033 J	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0369
LP2-SD13E-A0.5/1.7	E4SA8	0.5 - 1.7	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.079	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.08245
LP2-SD13E-A1.7/2.9	E4SA9	1.7 - 2.9	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.15	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.1551
LP2-SD13E-A2.9/4.2	E4SB0	2.9 - 4.2	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0066 NJ	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0102
LP2-SD14E-C0.0/0.5	E4SA2	0 - 0.5	0.0035 UJ	0.0035 UJ	0.0035 UJ	0.0035 UJ	0.011 R	0.0035 UJ	0.0035 UJ	0.0035 UJ	0.0035 UJ	0.00525 ND
LP2-SD14E-C0.5/1.5	E4SA3	0.5 - 1.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.39	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.39375
LP2-SD14E-C0.5/1.5R	E4SA6	0.5 - 1.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.45	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.4539
LP2-SD14E-C1.5/3.2	E4SA4	1.5 - 3.2	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.6	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.6042
LP2-SD14E-C3.2/4.0	E4SA5	3.2 - 4	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD15E-A0.0/0.5	E4S70	0 - 0.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0034 R	0.0025 U	0.0054 J	0.0025 U	0.0025 U	0.0079
LP2-SD15E-A0.5/2.1	E4S71	0.5 - 2.1	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0027	0.0021 U	0.0021 U	0.00585
LP2-SD15E-A2.1/2.8	E4S72	2.1 - 2.8	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0014 J	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.00485
LP2-SD15E-I0.0/0.5	E4S98	0 - 0.5	0.03 U	0.03 U	0.03 U	0.03 U	0.14	0.03 U	0.03 U	0.03 U	0.03 U	0.185
LP2-SD15E-I0.5/1.5	E4S99	0.5 - 1.5	0.034 U	0.034 U	0.034 U	0.034 U	0.64	0.034 U	0.034 U	0.034 U	0.034 U	0.691
LP2-SD15E-I1.5/2.5	E4SA0	1.5 - 2.5	0.032 U	0.032 U	0.032 U	0.032 U	6.3	0.032 U	0.032 U	0.032 U	0.032 U	6.348
LP2-SD15E-I2.5/3.5	E4SA1	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.011	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0146
LP2-SD15W-A0.0/0.9	E4SH7	0 - 0.9	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.086 ND
LP2-SD16E-A0.0/0.5	E4S73	0 - 0.5	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.035	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0392
LP2-SD16E-A0.5/1.5	E4S74	0.5 - 1.5	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.034	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0382
LP2-SD16E-A1.5/2.5	E4S75	1.5 - 2.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.005 ND
LP2-SD16E-A2.5/3.5	E4S76	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD16E-A3.5/4.5	E4S77	3.5 - 4.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD16E-A4.5/6.1	E4S78	4.5 - 6.1	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD16E-A4.5/6.1R	E4S79	4.5 - 6.1	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0021 U	0.0042 ND
LP2-SD16W-C0.0/0.5	E4SC9	0 - 0.5	0.041 U	0.041 U	0.041 U	0.041 U	0.14	0.041 U	0.041 U	0.041 U	0.041 U	0.2015
LP2-SD16W-C0.5/1.5	E4SD0	0.5 - 1.5	0.029 U	0.029 U	0.029 U	0.029 U	0.12	0.029 U	0.029 U	0.029 U	0.029 U	0.1635
LP2-SD16W-C1.5/2.4	E4SD2	1.5 - 2.4	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.014	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0173
LP2-SD16W-C2.4/3.6	E4SD3	2.4 - 3.6	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD16W-H0.0/0.5	E4SH8	0 - 0.5	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.076 ND
LP2-SD16W-H0.5/1.8	E4SH9	0.5 - 1.8	0.038 U	0.038 U	0.038 U	0.038 U	0.093 NJ	0.14 J	0.038 U	0.038 U	0.038 U	0.271
LP2-SD17E-D0.0/0.5	E4RZ2	0 - 0.5	0.004 U	0.004 U	0.004 U	0.004 U	0.022	0.004 U	0.014 J	0.004 U	0.004 U	0.04
LP2-SD17E-D0.5/1.5	E4RZ3	0.5 - 1.5	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.29	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.29585
LP2-SD17E-D0.5/1.5R	E4RZ4	0.5 - 1.5	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.24	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.24495
LP2-SD17E-D1.5/2.5	E4RZ5	1.5 - 2.5	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.18	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.18405
LP2-SD17E-D2.5/3.5	E4RZ6	2.5 - 3.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.00056 J	0.0023 U	0.0023 U	0.00401

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD17W-E0.0/0.5	E4SE4	0 - 0.5	0.11 J	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.031 R	0.0038 U	0.0038 U	0.1138
LP2-SD17W-E0.5/1.5	E4SE5	0.5 - 1.5	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.66	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.6651
LP2-SD17W-E1.5/2.5	E4SE6	1.5 - 2.5	0.034 U	0.034 U	0.034 U	0.034 U	2.5	0.034 U	0.034 U	0.034 U	0.034 U	2.551
LP2-SD17W-E2.5/3.5	E4SE7	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.2	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.2036
LP2-SD17W-E3.5/4.4	E4SE8	3.5 - 4.4	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.011	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0143
LP2-SD17W-L0.0/0.5	E4SJ0	0 - 0.5	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.082 ND
LP2-SD17W-L0.5/1.5	E4SJ1	0.5 - 1.5	0.043 U	0.043 U	0.043 U	0.043 U	0.8 NJ	0.33 R	0.043 U	0.043 U	0.043 U	0.843
LP2-SD17W-L1.5/2.1	E4SJ2	1.5 - 2.1	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.102 ND
LP2-SD18E-E0.0/0.5	E4S06	0 - 0.5	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.0069	0.0042 U	0.0042 U	0.0132
LP2-SD18E-E0.5/1.5	E4S07	0.5 - 1.5	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.19	0.0038 U	0.08	0.0038 U	0.0038 U	0.2738
LP2-SD18E-E0.5/1.5R	E4S08	0.5 - 1.5	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.11	0.0039 U	0.05 J	0.0039 U	0.0039 U	0.1639
LP2-SD18E-E1.5/2.5	E4S09	1.5 - 2.5	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.19 J	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.1951
LP2-SD18E-E2.5/4.1	E4S10	2.5 - 4.1	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0047	0.0024 U	0.0015 J	0.0024 U	0.0024 U	0.0086
LP2-SD18E-I0.0/0.5	E4SJ3	0 - 0.5	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.084 ND
LP2-SD18E-I0.0/0.5R	E4SJ4	0 - 0.5	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.086 ND
LP2-SD18E-I0.5/1.9	E4SJ5	0.5 - 1.9	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.086 ND
LP2-SD18W-B0.0/0.5	E4SD9	0 - 0.5	0.004 U	0.004 U	0.004 U	0.004 U	0.025	0.004 U	0.004 U	0.004 U	0.004 U	0.031
LP2-SD18W-B0.5/1.5	E4SE0	0.5 - 1.5	0.039 U	0.039 U	0.039 U	0.039 U	0.18	0.039 U	0.13	0.039 U	0.039 U	0.349
LP2-SD18W-B1.5/2.5	E4SE1	1.5 - 2.5	0.0034 U	0.0034 U	0.0034 U	0.0034 U	7.1	0.0034 U	0.0034 U	0.0034 U	0.0034 U	7.1051
LP2-SD18W-B1.5/2.5R	E4SE2	1.5 - 2.5	0.33 U	0.33 U	0.33 U	0.33 U	2.2	0.33 U	0.33 U	0.33 U	0.33 U	2.695
LP2-SD18W-B2.5/3.5	E4SE3	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.18	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.1836
LP2-SD19E-B0.0/0.5	E4RZ7	0 - 0.5	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.014 R	0.0044 U	0.0064 NJ	0.0044 U	0.0044 U	0.0108
LP2-SD19E-B0.5/1.5	E4RZ8	0.5 - 1.5	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.14	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.1466
LP2-SD19E-B1.5/2.5	E4RZ9	1.5 - 2.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.024	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0276
LP2-SD19E-B2.5/3.5	E4S00	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD19E-B3.5/5.1	E4S01	3.5 - 5.1	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0054 ND
LP2-SD19E-I0.0/0.5	E4RY8	0 - 0.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.022 J	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.02575
LP2-SD19E-I0.5/1.5	E4RY9	0.5 - 1.5	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.82	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.82435
LP2-SD19E-I1.5/2.5	E4RZ0	1.5 - 2.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.082	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.08575
LP2-SD19E-I2.5/3.6	E4RZ1	2.5 - 3.6	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0047	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.00815
LP2-SD19E-N0.0/0.5	E4RY5	0 - 0.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.084	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0879
LP2-SD19E-N0.5/1.5	E4RY6	0.5 - 1.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.09 J	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0936
LP2-SD19E-N1.5/2.6	E4RY7	1.5 - 2.6	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0044 ND
LP2-SD19E-S0.0/0.5	E4SJ6	0 - 0.5	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.082 ND
LP2-SD19E-S0.5/1.3	E4SJ7	0.5 - 1.3	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.082 ND
LP2-SD20E-D0.0/0.5	E4RS0	0 - 0.5	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0072 ND
LP2-SD20E-D0.5/1.5	E4RS1	0.5 - 1.5	0.004 U	0.004 U	0.004 U	0.004 U	0.025 NJ	0.004 U	0.033 J	0.004 U	0.004 U	0.062
LP2-SD20E-D1.5/2.5	E4RS2	1.5 - 2.5	0.003 U	0.003 U	0.003 U	0.003 U	0.12	0.003 U	0.035 J	0.003 U	0.003 U	0.158
LP2-SD20E-D2.5/3.7	E4RS3	2.5 - 3.7	0.011 J	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0146
LP2-SD20E-I0.0/0.5	E4RS4	0 - 0.5	0.013 R	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.012 R	0.0043 U	0.0043 U	0.0043 ND
LP2-SD20E-I0.5/1.5	E4RS5	0.5 - 1.5	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.017 NJ	0.0033 U	0.019 J	0.0033 U	0.0033 U	0.0393
LP2-SD20E-I1.5/2.5	E4RS6	1.5 - 2.5	0.0033 U	0.0033 U	0.0033 U	0.0033 U	1.5	0.0033 U	0.0033 U	0.0033 U	0.0033 U	1.50495
LP2-SD20E-I2.5/3.5	E4RS7	2.5 - 3.5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.33	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.33465
LP2-SD20E-I3.5/4.5	E4RS8	3.5 - 4.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0058	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0094

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD20E-M0.0/0.5	E4S02	0 - 0.5	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.063	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.06735
LP2-SD20E-M0.5/1.5	E4S03	0.5 - 1.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.57	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.5733
LP2-SD20E-M1.5/2.7	E4S05	1.5 - 2.7	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0078 ND
LP2-SD20W-A0.0/0.5	E4SK2	0 - 0.5	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.08 ND
LP2-SD20W-A0.5/1.5	E4SK3	0.5 - 1.5	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.082 ND
LP2-SD20W-A1.5/2.5	E4SK4	1.5 - 2.5	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.076 ND
LP2-SD21E-F0.0/0.5	E4RS9	0 - 0.5	0.012 J	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.012 NJ	0.0043 U	0.0043 U	0.0283
LP2-SD21E-F0.5/1.5	E4RT0	0.5 - 1.5	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.0041 U	0.032	0.0041 U	0.0041 U	0.03815
LP2-SD21E-F1.5/2.5	E4RT1	1.5 - 2.5	0.13	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.097	0.0036 U	0.0036 U	0.2306
LP2-SD21E-F2.5/3.5	E4RT2	2.5 - 3.5	0.0034 U	0.0034 U	0.0034 U	0.0034 U	1.1 J	0.0034 U	0.0034 U	0.0034 U	0.0034 U	1.1051
LP2-SD21E-F3.5/4.5	E4RT3	3.5 - 4.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0097	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0133
LP2-SD21E-J0.0/0.5	E4RT4	0 - 0.5	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.027 J	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0312
LP2-SD21E-J0.5/1.5	E4RT5	0.5 - 1.5	0.032 U	0.032 U	0.032 U	0.032 U	2.4 J	0.032 U	0.032 U	0.032 U	0.032 U	2.448
LP2-SD21E-J0.5/1.5R	E4RT6	0.5 - 1.5	0.033 U	0.033 U	0.033 U	0.033 U	2.1 J	0.033 U	0.033 U	0.033 U	0.033 U	2.1495
LP2-SD21E-J1.5/2.5	E4RT7	1.5 - 2.5	0.067	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0709
LP2-SD21E-J2.5/3.6	E4RT8	2.5 - 3.6	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.00086 J	0.0023 U	0.0023 U	0.00431
LP2-SD22S-G0.0/0.5	E4S25	0 - 0.5	0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.0048 U	0.0048 UJ	0.0048 U	0.0048 U	0.0096 ND
LP2-SD22S-G0.5/1.5	E4S26	0.5 - 1.5	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.012 J	0.0027 U	0.0027 U	0.01605
LP2-SD22S-G1.5/2.5	E4S27	1.5 - 2.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 UJ	0.0023 U	0.0023 U	0.0046 ND
LP2-SD22S-G2.5/4.0	E4S29	2.5 - 4	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD23N-C0.0/0.5	E4S30	0 - 0.5	0.0046 U	0.0046 U	0.0046 U	0.0046 U	0.0046 U	0.0046 U	0.019 NJ	0.0046 U	0.0046 U	0.0259
LP2-SD23N-C0.5/1.5	E4S31	0.5 - 1.5	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.14	0.0039 U	0.0039 U	0.14585
LP2-SD23N-C1.5/2.5	E4S32	1.5 - 2.5	0.003 U	0.003 U	0.003 U	0.003 U	0.59	0.003 U	0.42	0.003 U	0.003 U	1.013
LP2-SD23N-C2.5/3.5	E4S33	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.061 NJ	0.0024 U	0.0024 U	0.0646
LP2-SD24S-D0.0/0.5	E4S34	0 - 0.5	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.012 J	0.0039 U	0.0058 J	0.0039 U	0.0039 U	0.0217
LP2-SD24S-D0.5/1.5	E4S35	0.5 - 1.5	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.02 J	0.0034 U	0.0034 U	0.0251
LP2-SD24S-D1.5/2.5	E4S36	1.5 - 2.5	0.003 U	0.003 U	0.003 U	0.003 U	0.051 J	0.003 U	0.034 UJ	0.003 U	0.003 U	0.071
LP2-SD24S-D3.5/4.5	E4S38	3.5 - 4.5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.016 J	0.0031 U	0.011 J	0.0031 U	0.0031 U	0.0301
LP2-SD24S-D4.5/5.5	E4S39	4.5 - 5.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0038 J	0.0026 U	0.0026 U	0.0077
LP2-SD24S-D4.5/5.5R	E4S40	4.5 - 5.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0046 J	0.0024 U	0.0033 J	0.0024 U	0.0024 U	0.0103
LP2-SD24S-D5.5/6.5	E4S41	5.5 - 6.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.002 J	0.0024 U	0.0024 UJ	0.0024 U	0.0024 U	0.0056
LP2-SD24S-D6.5/7.5	E4S42	6.5 - 7.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 UJ	0.0024 U	0.0024 U	0.0048 ND
LP2-SD25W-E0.0/0.5	E4S43	0 - 0.5	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.058 J	0.003 U	0.003 U	0.0625
LP2-SD25W-E0.5/1.5	E4S44	0.5 - 1.5	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.024 J	0.0029 U	0.0029 U	0.02835
LP2-SD25W-E1.5/2.5	E4S46	1.5 - 2.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.005 ND
LP2-SD25W-E2.5/3.5	E4S48	2.5 - 3.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD26W-D0.0/0.5	E4S11	0 - 0.5	0.003 U	0.003 U	0.003 U	0.003 U	0.0054 J	0.003 U	0.0059 J	0.003 U	0.003 U	0.0143
LP2-SD26W-D0.5/1.5	E4S12	0.5 - 1.5	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.036 NJ	0.0036 U	0.0036 U	0.0414
LP2-SD26W-D1.5/2.5	E4S13	1.5 - 2.5	0.0033 U	0.0033 U	0.0033 U	0.0033 U	0.096 J	0.0033 U	0.094 NJ	0.0033 U	0.0033 U	0.1933
LP2-SD26W-D2.5/3.8	E4S14	2.5 - 3.8	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 UJ	0.0024 U	0.0024 U	0.0048 ND
LP2-SD26W-D2.5/3.8R	E4S15	2.5 - 3.8	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 UJ	0.0023 U	0.0023 U	0.0046 ND
LP2-SD27W-A0.0/0.5	E4S16	0 - 0.5	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 UJ	0.0044 U	0.0044 U	0.0088 ND
LP2-SD27W-A0.5/1.5	E4S17	0.5 - 1.5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.095 J	0.0031 U	0.0031 U	0.09965
LP2-SD27W-A1.5/2.5	E4S18	1.5 - 2.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.013 J	0.0025 U	0.0025 U	0.01675 ND
LP2-SD27W-A2.5/3.5	E4S19	2.5 - 3.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD27W-A3.5/4.5	E4S20	3.5 - 4.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.017 NJ	0.0023 U	0.0023 U	0.02045
LP2-SD27W-A4.5/5.5	E4S21	4.5 - 5.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD27W-A5.5/6.5	E4S22	5.5 - 6.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.005 ND
LP2-SD27W-A6.5/7.5	E4S23	6.5 - 7.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.005 ND
LP2-SD27W-A7.5/8.9	E4S24	7.5 - 8.9	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD28W-A0.0/0.5	E4S53	0 - 0.5	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.02 J	0.0044 U	0.0044 U	0.0266
LP2-SD28W-A0.5/1.5	E4S54	0.5 - 1.5	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.084 J	0.003 U	0.003 U	0.0885
LP2-SD28W-A1.5/2.5	E4S55	1.5 - 2.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0062 NJ	0.0023 U	0.0023 U	0.00965
LP2-SD28W-A2.5/3.5	E4S56	2.5 - 3.5	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0044 ND
LP2-SD28W-A2.5/3.5R	E4S57	2.5 - 3.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD28W-A3.5/4.3	E4S58	3.5 - 4.3	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0046 ND
LP2-SD29W-A0.0/0.5	E4SB1	0 - 0.5	0.0045 U	0.0045 U	0.0045 U	0.0045 U	0.0045 U	0.0045 U	0.028	0.0045 U	0.0045 U	0.03475
LP2-SD29W-A0.5/1.8	E4SB2	0.5 - 1.8	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.053	0.035 U	0.035 U	0.1055
LP2-SD29W-A0.5/1.8R	E4SB4	0.5 - 1.8	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.052	0.0031 U	0.0031 U	0.05665
LP2-SD29W-A1.8/2.9	E4SB3	1.8 - 2.9	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0022 U	0.0044 ND
LP2-SD30W-B0.0/0.5	E4S87	0 - 0.5	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.031 R	0.004 U	0.004 U	0.006 ND
LP2-SD30W-B0.5/1.5	E4S88	0.5 - 1.5	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.31	0.04 U	0.04 U	0.37
LP2-SD30W-B0.5/1.5R	E4S89	0.5 - 1.5	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.22	0.0036 U	0.0036 U	0.2254
LP2-SD30W-B1.5/2.5	E4S90	1.5 - 2.5	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.012 R	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.00405 ND
LP2-SD30W-B2.5/3.5	E4S91	2.5 - 3.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0027	0.0024 U	0.0024 U	0.0063
LP2-SD31W-A0.0/0.5	E4S92	0 - 0.5	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.12 J	0.0044 U	0.0044 U	0.1266
LP2-SD31W-A0.5/1.5	E4S93	0.5 - 1.5	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.063 J	0.0029 U	0.0029 U	0.06735
LP2-SD31W-A1.5/2.5	E4S94	1.5 - 2.5	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.0037 U	0.0074 ND
LP2-SD31W-A2.5/3.5	E4S95	2.5 - 3.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.015 J	0.0026 U	0.0026 U	0.0189
LP2-SD31W-A3.5/4.5	E4S96	3.5 - 4.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.005 ND
LP2-SD31W-A4.5/5.5	E4S97	4.5 - 5.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD32N-C0.0/0.5	E4RT9	0 - 0.5	0.0057 NJ	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0057	0.0032 U	0.0032 U	0.0146
LP2-SD32N-C0.0/0.5R	E4RW0	0 - 0.5	0.0053 NJ	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0057 NJ	0.0027 U	0.0027 U	0.0137
LP2-SD32N-C0.5/1.5	E4RW1	0.5 - 1.5	0.0027 J	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0021 J	0.0024 U	0.0024 U	0.0072
LP2-SD32N-C0.5/1.5R	E4RW2	0.5 - 1.5	0.0076 NJ	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0051 R	0.003 U	0.003 U	0.0106
LP2-SD32N-C1.5/2.5	E4RW3	1.5 - 2.5	0.0099 NJ	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.0064 J	0.003 U	0.003 U	0.0193
LP2-SD32N-C1.5/2.5R	E4RW4	1.5 - 2.5	0.0087 NJ	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0059	0.0026 U	0.0026 U	0.0172
LP2-SD32N-C2.5/3.5	E4RW5	2.5 - 3.5	0.0083	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0085	0.0023 U	0.0023 U	0.0191
LP2-SD32N-C3.5/4.5	E4RW6	3.5 - 4.5	0.0062 R	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0032 U	0.0055 NJ	0.0032 U	0.0032 U	0.0087
LP2-SD32N-C4.5/5.5	E4RW7	4.5 - 5.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.00066 J	0.0024 U	0.0024 U	0.00426
LP2-SD32N-C5.5/6.5	E4RW8	5.5 - 6.5	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0017 J	0.0023 U	0.0023 U	0.00515
LP2-SD32N-C6.5/7.7	E4RW9	6.5 - 7.7	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.00072 J	0.0024 U	0.0024 U	0.00432
LP2-SD33N-E0.0/0.5	E4RX0	0 - 0.5	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.017 J	0.004 U	0.004 U	0.023
LP2-SD33N-E0.5/1.5	E4RX1	0.5 - 1.5	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.011 J	0.0027 U	0.0027 U	0.01505
LP2-SD33N-E1.5/2.5	E4RX2	1.5 - 2.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.00066 J	0.0024 U	0.0024 U	0.00426
LP2-SD33N-E2.5/3.5	E4RX3	2.5 - 3.5	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0078 ND
LP2-SD33N-E3.5/4.5	E4RX4	3.5 - 4.5	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0076 ND
LP2-SD33N-E4.5/5.5	E4RX5	4.5 - 5.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD33N-E5.5/6.6	E4RX6	5.5 - 6.6	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD34N-D0.0/0.5	E4RX7	0 - 0.5	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.0085 U	0.01 NJ	0.0085 U	0.0085 U	0.02275

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD34N-D0.5/1.5	E4RX8	0.5 - 1.5	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.16	0.0042 U	0.0042 U	0.0042 U	0.0042 U	0.1663
LP2-SD34N-D1.5/2.5	E4RX9	1.5 - 2.5	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.0031 U	0.09 NJ	0.0031 U	0.0031 U	0.0031 U	0.09465
LP2-SD34N-D2.5/3.8	E4RY0	2.5 - 3.8	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0027 U	0.0054 ND
LP2-SD34N-H0.5/1.5	E4RY2	0.5 - 1.5	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.14 J	0.12 J	0.0035 U	0.0035 U	0.0035 U	0.2635
LP2-SD34N-H1.5/2.5	E4RY3	1.5 - 2.5	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.073 NJ	0.13 J	0.0034 U	0.0034 U	0.0034 U	0.2064
LP2-SD34N-H2.5/3.9	E4RY4	2.5 - 3.9	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0052 ND
LP2-SD35E-A0.0/0.5	E4SM0	0 - 0.5	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.08 ND
LP2-SD35E-A0.0/0.5R	E4SM1	0 - 0.5	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.055 J	0.041 UJ	0.01 J	0.041 UJ	0.041 UJ	0.106
LP2-SD35E-A0.5/1.7	E4SM2	0.5 - 1.7	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.082 ND
LP2-SD35W-A0.0/0.5	E4SB9	0 - 0.5	0.032 U	0.032 U	0.032 U	0.032 U	0.11	0.032 U	0.032 U	0.032 U	0.032 U	0.158
LP2-SD35W-A0.5/1.5	E4SC0	0.5 - 1.5	0.027 U	0.027 U	0.027 U	0.027 U	1.2	0.027 U	0.027 U	0.027 U	0.027 U	1.2405
LP2-SD35W-A1.5/2.5	E4SC1	1.5 - 2.5	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0044	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.00815
LP2-SD35W-A1.5/2.5R	E4SC2	1.5 - 2.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD35W-A2.5/3.9	E4SC3	2.5 - 3.9	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0048 ND
LP2-SD36N-C0.0/0.5	E4SC4	0 - 0.5	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.029 NJ	0.0043 U	0.0043 U	0.0043 U	0.0043 U	0.03545
LP2-SD36N-C0.5/1.5	E4SC5	0.5 - 1.5	0.036 U	0.036 U	0.036 U	0.036 U	1.5	0.036 U	0.036 U	0.036 U	0.036 U	1.554
LP2-SD36N-C0.5/1.5R	E4SC6	0.5 - 1.5	0.037 U	0.037 U	0.037 U	0.037 U	1.6	0.037 U	0.037 U	0.037 U	0.037 U	1.6555
LP2-SD36N-C1.5/2.5	E4SC7	1.5 - 2.5	0.032 U	0.032 U	0.032 U	0.032 U	0.61	0.032 U	0.032 U	0.032 U	0.032 U	0.658
LP2-SD36N-C2.5/3.5	E4SC8	2.5 - 3.5	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0029 U	0.0058 ND
LP2-SD36N-C3.5/4.5	E4SG7	3.5 - 4.5	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0029 J	0.0024 U	0.0024 U	0.0024 U	0.0024 U	0.0065
LP2-SD36S-B0.0/0.5	E4SJ9	0 - 0.5	0.041 U	0.041 U	0.041 U	0.041 U	0.52 J	0.12 R	0.038 J	0.041 U	0.041 U	0.5785
LP2-SD36S-B0.5/1.5	E4SK0	0.5 - 1.5	0.04 U	0.04 U	0.04 U	0.04 U	0.16 NJ	0.04 U	0.04 U	0.04 U	0.04 U	0.22
LP2-SD36S-B1.5/2.4	E4SK1	1.5 - 2.4	0.042 U	0.042 U	0.042 U	0.042 U	0.19 J	0.042 U	0.042 U	0.042 U	0.042 U	0.253
LP2-SD37E-A0.0/1.3	E4SK5	0 - 1.3	0.05 U	0.05 U	0.05 U	0.05 U	0.23 J	0.05 U	0.045 J	0.05 U	0.05 U	0.325
LP2-SD37E-I0.0/0.5	E4SK8	0 - 0.5	0.042 U	0.042 U	0.042 U	0.042 U	0.34 J	0.092 R	0.042 U	0.042 U	0.042 U	0.382
LP2-SD37E-I0.5/1.4	E4SK9	0.5 - 1.4	0.045 U	0.045 U	0.045 U	0.045 U	0.25	0.075 R	0.045 U	0.045 U	0.045 U	0.295
LP2-SD38W-B0.0/0.5	E4SL0	0 - 0.5	0.047 U	0.047 U	0.047 U	0.047 U	0.3 J	0.22 NJ	0.11	0.047 U	0.047 U	0.6535
LP2-SD38W-B0.5/1.9	E4SL1	0.5 - 1.9	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 J	0.03 J	0.052 U	0.052 U	0.134
LP2-SD39W-D0.0/0.5	E4SL2	0 - 0.5	0.04 U	0.04 U	0.04 U	0.04 U	0.2 NJ	0.065 R	0.021 J	0.04 U	0.04 U	0.241
LP2-SD39W-D0.0/0.5R	E4SL3	0 - 0.5	0.041 U	0.041 U	0.041 U	0.041 U	0.24 J	0.095 R	0.049	0.041 U	0.041 U	0.3095
LP2-SD39W-D0.5/1.1	E4SL4	0.5 - 1.1	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.55 J	0.25 NJ	0.04 J	0.04 UJ	0.04 UJ	0.86
LP2-SD39W-H0.0/0.4	E4SL5	0 - 0.4	0.043 U	0.043 U	0.043 U	0.043 U	0.053 NJ	0.043 U	0.043 U	0.043 U	0.043 U	0.1175
LP2-SD40E-B0.0/0.6	E4SK6	0 - 0.6	0.04 U	0.04 U	0.04 U	0.04 U	0.07 J	0.04 U	0.04 U	0.04 U	0.04 U	0.13
LP2-SD40E-H0.0/1.0	E4SL9	0 - 1	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.25 NJ	0.055 R	0.013 J	0.04 UJ	0.04 UJ	0.283
LP2-SD41E-C0.0/0.7	E4SL6	0 - 0.7	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.08 ND
LP2-SD42E-A0.0/0.4	E4SL7	0 - 0.4	0.054 UJ	0.054 UJ	0.054 UJ	0.054 UJ	0.09 NJ	0.059 NJ	0.025 J	0.054 UJ	0.054 UJ	0.201
LP2-SD42E-A0.4/1.0	E4SL8	0.4 - 1	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.088 ND
LP2-SD42E-I0.0/0.6	E4SM3	0 - 0.6	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.04 J	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.097
LP2-SD43N-A0.0/0.5	E4SM5	0 - 0.5	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.29 J	0.32 NJ	0.12 J	0.044 UJ	0.044 UJ	0.752
LP2-SD43N-A0.5/1.7	E4SM6	0.5 - 1.7	0.046 UJ	0.046 UJ	0.046 UJ	0.046 UJ	0.25 J	0.22 NJ	0.046 UJ	0.046 UJ	0.046 UJ	0.516
LP2-SD43N-A0.5/1.7R	E4SM7	0.5 - 1.7	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.31 J	0.32 NJ	0.076 J	0.044 UJ	0.044 UJ	0.728
LP2-SD43S-A0.0/0.8	E4SM4	0 - 0.8	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.08 ND

TABLE C-6

Analytical Results - PCBs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	PCB-1016 mg/kg	PCB-1221 mg/kg	PCB-1232 mg/kg	PCB-1242 mg/kg	PCB-1248 mg/kg	PCB-1254 mg/kg	PCB-1260 mg/kg	PCB-1262 mg/kg	PCB-1268 mg/kg	Total PCB mg/kg
LP2-SD44N-A0.0/0.5	E4SF5	0 - 0.5	0.18 U	0.18 U	0.18 U	0.18 U	1.1	0.18 U	0.18 U	0.18 U	0.18 U	1.37
LP2-SD44N-A0.5/1.5	E4SF6	0.5 - 1.5	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.036	0.0056 U	0.0056 U	0.0056 U	0.0056 U	0.0444
LP2-SD44N-A1.5/2.5	E4SF7	1.5 - 2.5	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0038 J	0.0026 U	0.0026 U	0.0026 U	0.0026 U	0.0077
LP2-SD44N-A2.5/3.2	E4SF8	2.5 - 3.2	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.0086 J	0.0023 U	0.0023 U	0.0023 U	0.0023 U	0.01205
LP2-SD45N-A0.0/0.5	E4SG0	0 - 0.5	0.034 U	0.034 U	0.034 U	0.034 U	0.21	0.034 U	0.034 U	0.034 U	0.034 U	0.261
LP2-SD45N-A0.5/1.5	E4SG1	0.5 - 1.5	0.028 U	0.028 U	0.028 U	0.028 U	0.13	0.028 U	0.028 U	0.028 U	0.028 U	0.172
LP2-SD45N-A0.5/1.5R	E4SG4	0.5 - 1.5	0.003 U	0.003 U	0.003 U	0.003 U	0.19	0.003 U	0.003 U	0.003 U	0.003 U	0.1945
LP2-SD45N-A1.5/2.5	E4SG2	1.5 - 2.5	0.056 U	0.056 U	0.056 U	0.056 U	0.32	0.056 U	0.056 U	0.056 U	0.056 U	0.404
LP2-SD45N-A2.5/3.6	E4SG3	2.5 - 3.6	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.0025 U	0.005 ND
LP2-SD46N-A0.0/0.5	E4SM8	0 - 0.5	0.051 UJ	0.051 UJ	0.051 UJ	0.051 UJ	1.1 J	0.51 U	0.16 J	0.051 UJ	0.051 UJ	1.5405
LP2-SD46N-A0.5/1.8	E4SM9	0.5 - 1.8	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.67 J	0.57 NJ	0.22 J	0.057 UJ	0.057 UJ	1.4885
LP2-SD47S-I0.0/0.5	E4SN0	0 - 0.5	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	1.7	0.49 R	0.16 J	0.061 UJ	0.061 UJ	1.8905
LP2-SD47S-I0.5/1.0	E4SN1	0.5 - 1	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.22 J	0.11 R	0.038 J	0.05 UJ	0.05 UJ	0.283
LP2-SD48N-B0.0/0.8	E4SN5	0 - 0.8	0.045 UJ	0.045 UJ	0.045 UJ	0.045 UJ	0.15 J	0.061 R	0.025 J	0.045 UJ	0.045 UJ	0.1975
LP2-SD48N-B0.0/0.8R	E4SN6	0 - 0.8	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.088 ND
LP2-SD49N-A0.0/0.5	E4SN3	0 - 0.5	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.087 J	0.077 NJ	0.036 J	0.059 UJ	0.059 UJ	0.2295
LP2-SD49N-A0.5/1.3	E4SN4	0.5 - 1.3	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.082 J	0.048 J	0.061 UJ	0.061 UJ	0.191
LP2-SD50N-A0.0/0.8	E4SN2	0 - 0.8	0.071 UJ	0.071 UJ	0.071 UJ	0.071 UJ	0.055 J	0.071 UJ	0.024 J	0.071 UJ	0.071 UJ	0.15
LP2-SD50N-J0.0/0.8	E4SN7	0 - 0.8	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.5 U	2.9 J	0.75 J	0.05 UJ	0.05 UJ	3.925
LP2-SD51N-B0.0/0.5	E4SN9	0 - 0.5	0.041 U	0.041 U	0.041 U	0.041 U	0.3	0.041 U	0.027 J	0.041 U	0.041 U	0.368
LP2-SD51N-I0.0/0.7	E4SP2	0 - 0.7	0.12 U	0.12 U	0.12 U	0.12 U	0.2 NJ	0.12 U	0.044 J	0.12 U	0.12 U	0.364
LP2-SD52N-B0.0/1.0	E4SP0	0 - 1	0.043 U	0.043 U	0.043 U	0.043 U	0.21 J	0.043 U	0.022 J	0.043 U	0.043 U	0.275
LP2-SD52N-B0.0/1.0R	E4SP1	0 - 1	0.041 U	0.041 U	0.041 U	0.041 U	0.17 J	0.041 U	0.014 J	0.041 U	0.041 U	0.225
LP2-SD53N-I0.0/0.8	E4SN8	0 - 0.8	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.069 R	0.041 NJ	0.0099 J	0.036 UJ	0.036 UJ	0.0689
LP2-SD54N-I0.0/0.9	E4SQ1	0 - 0.9	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.126 ND
LP2-SD55N-J0.0/0.5	E4SP6	0 - 0.5	0.07 U	0.07 U	0.07 U	0.07 U	23 NJ	10 R	2.8 J	0.07 U	0.07 U	25.835
LP2-SD55N-J0.5/1.6	E4SP7	0.5 - 1.6	0.051 U	0.051 U	0.051 U	0.051 U	0.051 U	0.092 NJ	0.061	0.051 U	0.051 U	0.204
LP2-SD56S-A0.0/0.5	E4SP8	0 - 0.5	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.096 U	0.192 ND
LP2-SD56S-A0.0/0.5R	E4SP9	0 - 0.5	0.075 U	0.075 U	0.075 U	0.075 U	0.52	0.34 NJ	0.17	0.075 U	0.075 U	1.0675
LP2-SD56S-A0.5/1.3	E4SQ0	0.5 - 1.3	0.056 U	0.056 U	0.056 U	0.056 U	0.52	0.45 NJ	0.2	0.056 U	0.056 U	1.198
LP2-SD56S-K0.0/0.5	E4SQ2	0 - 0.5	0.043 U	0.043 U	0.043 U	0.043 U	0.29 NJ	0.065 R	0.018 J	0.043 U	0.043 U	0.3295
LP2-SD58S-B0.0/0.5	E4SQ3	0 - 0.5	0.062 U	0.062 U	0.062 U	0.062 U	0.12 J	0.14 NJ	0.067	0.062 U	0.062 U	0.358
LP2-SD58S-B0.5/1.5	E4SQ4	0.5 - 1.5	0.056 U	0.056 U	0.056 U	0.056 U	0.7	0.59 NJ	0.28	0.056 U	0.056 U	1.598
LP2-SD58S-B1.5/2.3	E4SQ5	1.5 - 2.3	0.053 U	0.053 U	0.053 U	0.053 U	0.053 J	0.13	0.071	0.053 U	0.053 U	0.2805
LP2-SD58S-G0.0/0.8	E4SP5	0 - 0.8	0.066 U	0.066 U	0.066 U	0.066 U	0.38	0.066 U	0.087	0.066 U	0.066 U	0.533

Abbreviations:

ND - non detect

Qualifier Definitions:

J : The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

U : The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ : The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

NJ : The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.

R : The data are unusable. (The compound may or may not be present.)

TABLE C-7

Analytical Results - PAHs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	2-Methylnaph-Thalene	Acenaphthene ug/kg	Acenaphthylene ug/kg	Anthracene ug/kg	Benzo(A) Anthracene ug/kg	Benzo(A) Pyrene ug/kg	Benzo(B) Fluoranthene ug/kg	Benzo(G,H,I) Perylene ug/kg	Benzo(K) Fluoranthene ug/kg	Chrysene ug/kg	Dibenz(A,H) Anthracene ug/kg	Fluoranthene ug/kg	Fluorene ug/kg	Indeno(1,2,3-C,D) Pyrene ug/kg	Naphthalene ug/kg	Phenanthrene ug/kg	Pyrene ug/kg	Total PAH ug/kg	Total PAH mg/kg
LP2-SD01E-A0.0/1.0	E4SG8	0 - 1	3.7 U	6.1	4.4	92	190 J	140	130	88 J	130	220 J	53	390 J	13	79	3.7 U	180	260 J	1,979.2	1.9792
LP2-SD02E-C0.0/0.5	E4SP3	0 - 0.5	3.7 U	3.7 U	4.8	7.4	31	48	47 J	25 J	47	42	12 J	58	3.7 U	24 J	3.7 U	19	40	412.6	0.4126
LP2-SD02E-C0.5/1.5	E4SP4	0.5 - 1.5	3.7 U	12	3.7 U	36	71	100	98 J	86 J	110	95	26 J	270	14	75	4.3	160 J	170	1,331	1.331
LP2-SD03E-A0.0/0.8	E4SG9	0 - 0.8	4.1 U	10	4.6	39	170	130	130	96 J	130	230	36	350	12	83	4.1 U	220	230	1,874.7	1.8747
LP2-SD03E-A0.0/0.8R	E4SH0	0 - 0.8	4.3	29	4.2 U	100	260	180	270	130 J	190	250	49	600	30	110	12	280	360	2,856.4	2.8564
LP2-SD04E-A0.0/1.0	E4SH2	0 - 1	4.4 U	12	4.4 U	38	180	130	150	97 J	140	240	51	440	17	86	4.3 J	280	260	2,129.7	2.1297
LP2-SD04E-A0.0/1.0R	E4SH3	0 - 1	390 J	2,100	100 J	12,000	13,000	11,000	11,000	5,200	7,700	13,000	3,100	31,000	3,400 J	5,400	340	27,000	24,000	169,730	169.73
LP2-SD04E-E0.0/0.5	E4SH1	0 - 0.5	3.7 U	3.7 U	3.7 U	14	59	36	35	26 J	38	77	22	160	4.9	22	3.7 U	81	120	702.3	0.7023
LP2-SD05W-E0.0/0.5	E4SS9	0 - 0.5	2.5 U	1.2 J	0.74 J	10	69	94	170 J	47	47	79	10	210	1.9 J	92	2.5 U	64	200	1,098.34	1.09834
LP2-SD05W-E0.5/1.5	E4SS0	0.5 - 1.5	26 U	10 J	26 U	30	150	140	170 J	55	34	110	13 J	290	11 J	59	26 U	160	250	1,521	1.521
LP2-SD05W-E1.5/2.5	E4SS1	1.5 - 2.5	22 U	22 U	22 U	15 J	44	29	39	24	12 J	43	4.4 J	140	22 U	27	22 U	45	84	561.4	0.5614
LP2-SD05W-E2.5/3.5	E4SS2	2.5 - 3.5	2.1 U	0.58 J	2.1 U	1.7 J	6.7	7.8	10	3.7	3.2	6.7	1.3 J	15	0.71 J	6.3	2.1 U	4.4	17	88.24	0.08824
LP2-SD05W-I0.0/0.5	E4SS9	0 - 0.5	2 U	2 J	0.57 J	14	45	52	71	16	12	44	6.3	170	3.7	46	2 U	56	110	650.57	0.65057
LP2-SD05W-I0.5/1.5	E4SS0	0.5 - 1.5	2.2 U	0.58 J	1.4 J	7.5	36	39	49	16	17	33	6.3	70	1.3 J	33	2.2 U	23	53 J	388.28	0.38828
LP2-SD05W-I1.5/2.5	E4SS1	1.5 - 2.5	2.3 U	2.3 U	2.3 U	2.3 U	1.8 J	2.3 J	3.2	2.9	0.69 J	2.1 J	2.3 U	3.6	2.3 U	2.4	2.3 U	2.2 J	4.5 J	33.74	0.03374
LP2-SD05W-I2.5/3.9	E4SS2	2.5 - 3.9	2.3 U	2.3 U	2.3 U	2.3 U	1.3 J	2.5	3.5	2.5	0.69 J	3.4	0.43 J	1.5 J	2.3 U	2.6	2.3 U	1.6 J	2.6 J	29.52	0.02952
LP2-SD06W-C0.0/0.5	E4SG3	0 - 0.5	23 U	23 U	23 U	8.7 J	36	29	44	27	14 J	39	5.1 J	87	23 U	29	23 U	29	61	466.3	0.4663
LP2-SD06W-C0.5/1.5	E4SG4	0.5 - 1.5	22 U	8.1 J	22 U	34	180	150	230 J	84	49	160	19 J	370	10 J	96	22 U	140	300	1,863.1	1.8631
LP2-SD06W-C1.5/3.1	E4SG5	1.5 - 3.1	2.3 U	2.3 U	2.3 U	1.2 J	3.7	2.2 J	2.3 J	2.1 J	0.76 J	3.5	2.3 U	7.1	0.56 J	1.6 J	2.3 U	4	8	42.77	0.04277
LP2-SD06W-C1.5/3.1R	E4SG6	1.5 - 3.1	2.3 U	2.3 U	2.3 U	1.2 J	6.5	7.1	7.4	5.4	1.8 J	6.8	0.75 J	10	2.3 U	4.1	2.3 U	4.1	14	74.9	0.0749
LP2-SD06W-H0.0/0.5	E4SG0	0 - 0.5	4.5	6.6	0.63 J	36	58	48	110	39	17	53	6.7	210	8.2	44	5	150	160	956.63	0.95663
LP2-SD06W-H0.5/1.5	E4SG1	0.5 - 1.5	1.4 J	2.8	0.79 J	28	82	81	150	63	37	70	11	220	5.4	72	2.7	130	180	1,137.09	1.13709
LP2-SD06W-H1.5/2.5	E4SG3	1.5 - 2.5	2 J	2.7 J	2 J	22	150	150	240	110	64	110	18	310	4.9	130	3.4	94	260	1,673	1.673
LP2-SD06W-H2.5/3.5	E4SG4	2.5 - 3.5	2.2 J	5.2	1.3 J	19	130	130	230	88	51	140	14	320	4.4	100	2.9	68	260	1,566	1.566
LP2-SD06W-H3.5/4.5	E4SG5	3.5 - 4.5	3.4	5.9	2 J	23	80	79	150	57	38	90	10	230	5.7	66	4.1	72	240	1,156.1	1.1561
LP2-SD06W-H4.5/5.6	E4SG6	4.5 - 5.6	2.3 U	2.3 U	2.3 U	1.6 J	3.8	4.6	5.8	4.6	1.5 J	6.3	0.66 J	8.8	0.6 J	3.4	2.3 U	4	9.8	60.06	0.06006
LP2-SD07E-G0.0/0.5	E4SE9	0 - 0.5	22 U	22 U	22 U	12 J	56	39	140	30	53 J	52	6 J	170 J	22 U	34	22 U	52	120	819	0.819
LP2-SD07E-G0.5/1.5	E4SF0	0.5 - 1.5	1.5 J	2 J	1.1 J	11	64	69	160	57	33	63	13	200	2.3	65	2.2 J	44	180 J	968.1	0.9681
LP2-SD07E-G1.5/2.5	E4SF1	1.5 - 2.5	26 UJ	26 UJ	26 UJ	7.3 J	24 J	37 J	53 J	26 J	19 J	23 J	5.9 J	61 J	26 UJ	28 J	26 UJ	27 J	40 J	416.2	0.4162
LP2-SD07E-G2.5/3.5	E4SF2	2.5 - 3.5	2.6	11	1.7 J	51	240	210	310	140	60	250	24 U	480	8.9	170	5.6	260	480	2,692.8	2.6928
LP2-SD07E-G3.5/4.5	E4SF3	3.5 - 4.5	5.5	20	2.4 J	52	240	230	360	78	56	270	25	540	26	89	5.5	440	520	2,959.4	2.9594
LP2-SD07E-G4.5/5.5	E4SF4	4.5 - 5.5	11	45	2.7 J	190	410	360	500 J	130	170	460	37	730	150	150 J	9.5	1,000	890	5,245.2	5.2452
LP2-SD08E-C0.0/0.5	E4SB5	0 - 0.5	4.3	6.8	1.2 J	30	190	200	300 J	150	59	220	22	490	8.8	130	2.6	230	370	2,414.7	2.4147
LP2-SD08E-C0.5/1.5	E4SB6	0.5 - 1.5	1.9 J	1.8 J	0.69 J	5	19	21	34	19	10	22	3.7	54	1.7 J	19	3.5	19	46	281.29	0.28129
LP2-SD08E-C1.5/3.1	E4SB7	1.5 - 3.1	2.4 U	2.4 U	2.4 U	2.4 U	0.94 J	1.3 J	2 J	3.4	2.4 U	1.3 J	2.4 U	2.2 J	2.4 U	1.5 J	2.4 U	1.4 J	2.7	26.34	0.02634
LP2-SD08E-C3.1/4.5	E4SB8	3.1 - 4.5	2.3 U	2.3 U	2.3 U	0.84 J	3.2	2.3 U	3.2	2.9	2.3 U	4.1	2.3 U	7.1	2.3 U	3	2.3 U	3.9	6.5	43.94	0.04394
LP2-SD08E-H0.0/0.5	E4SD4	0 - 0.5	3.1	7.6	1.5 J	38	170	170	250	57	38	180	14	390	8.9	65	4.4	230	350	1,977.5	1.9775
LP2-SD08E-H0.5/1.5	E4SD5	0.5 - 1.5	2.2 J	10	1.9 J	40	160	140	220	96	48	170	20	350	15	100	3.3	180	340	1,896.4	1.8964
LP2-SD08E-H1.5/2.5	E4SD6	1.5 - 2.5	1.4 J	1.5 J	2.2 U	7.2	29	37	50	32	13	28	5.5	61	1.6 J	33	2.4	22	47	372.7	0.3727
LP2-SD08E-H2.5/3.4	E4SD7	2.5 - 3.4	2.4 U	2.4 U	2.4 U	2.4 U	0.96 J	1.4 J	2 J	2.5	0.61 J	1.8 J	2.4 U	2.1 J	2.4 U	2.4 U	2.4 U	1.4 J	2.8	25.17	0.02517
LP2-SD09S-C0.0/0.5	E4SG7	0 - 0.5	23 U	23 U	23 U	13 J	60	46	67	40	21 J	59	7.9 J	150	23 U	46	23 U	44	130	741.4	0.7414
LP2-SD09S-C0.5/1.5	E4SG8	0.5 - 1.5	23 U	23 U	23 U	8.3 J	35	41	65	38	23 J	44	5.7 J	120	23 U	41	23 U	31	150 J	659.5	0.6595

TABLE C-7

Analytical Results - PAHs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	2-Methylnaph-Thalene	Acenaphthene ug/kg	Acenaphthylene ug/kg	Anthracene ug/kg	Benzo(A) Anthracene ug/kg	Benzo(A) Pyrene ug/kg	Benzo(B) Fluoranthene ug/kg	Benzo(G,H,I) Perylene ug/kg	Benzo(K) Fluoranthene ug/kg	Chrysene ug/kg	Dibenz(A,H) Anthracene ug/kg	Fluoranthene ug/kg	Fluorene ug/kg	Indeno(1,2,3-C,D) Pyrene ug/kg	Naphthalene ug/kg	Phenanthrene ug/kg	Pyrene ug/kg	Total PAH ug/kg	Total PAH mg/kg
LP2-SD09S-C1.5/2.9	E4S69	1.5 - 2.9	24 U	6 J	24 U	13 J	29	42 J	33	21 J	9.5 J	39	24 U	91	24 U	21 J	24 U	62	130	556.5	0.5565
LP2-SD10S-D0.0/0.9	E4SJ8	0 - 0.9	9.6	20	11	460	290 J	290	290	2,400 J	1,100 J	390 J	1,200 J	590 J	31	2,400 J	6.6	790	570 J	10,848.2	10.8482
LP2-SD11N-E0.0/0.7	E4SH4	0 - 0.7	4 U	4 U	4 U	15	320	400	410	340	270	370	180	270	5.5	320	4 U	83	190	3,181.5	3.1815
LP2-SD12S-B0.0/0.5	E4SH5	0 - 0.5	6.2	33	7.1	140	320	360	340	270	230	320	120	370	35	260	11	210	290	3,322.3	3.3223
LP2-SD12S-B0.5/1.5	E4SH6	0.5 - 1.5	73	260	21	330	1,200	1,200	1,000	1,000	1,100	1,700	400	3,900	250	870	13	2,300	2,500	18,117	18.117
LP2-SD13E-A0.0/0.5	E4SA7	0 - 0.5	1.6 J	4.3	2.6	27	200	180	260 J	110	56	210	34	440	6.9	130	2.7	170	300	2,135.1	2.1351
LP2-SD13E-A0.5/1.7	E4SA8	0.5 - 1.7	2.5	7.2	3.3	18	140	110	190 J	64	34	130	14	270	5.3	76	4	50	220	1,338.3	1.3383
LP2-SD13E-A1.7/2.9	E4SA9	1.7 - 2.9	30 J	180	23 J	430	1,300	1,300	1,900	1,100	600	1,600	310	2,200	110	1,400	38	1,800	3,000	17,321	17.321
LP2-SD13E-A2.9/4.2	E4SB0	2.9 - 4.2	2.4 U	1.6 J	2.4 U	3.6	10	10	17	11	4.9	13	1.7 J	34	1 J	9.9	2.4 U	17	23	161.3	0.1613
LP2-SD14E-C0.0/0.5	E4SA2	0 - 0.5	34 U	37	34 U	230	870	940	1,500	720	480	990	90	1,700	68	870	34 U	1,300	1,700	11,546	11.546
LP2-SD14E-C0.5/1.5	E4SA3	0.5 - 1.5	25 U	35	54	300	1,300	1,000	1,400	830	380	1,000	190	1,400	59	1,000	25 U	880	2,200	12,053	12.053
LP2-SD14E-C0.5/1.5R	E4SA6	0.5 - 1.5	26 U	41	7.9 J	220	860	820	1,200	640	310	910	150	1,300	52	770	26 U	710	1,600 J	9,616.9	9.6169
LP2-SD14E-C1.5/3.2	E4SA4	1.5 - 3.2	87	190	23 J	900 J	2,400	2,300 J	2,800 J	2,000 J	890 J	2,700	180	4,500	630	2,200 J	63	4,100 J	4,800	30,763	30.763
LP2-SD14E-C3.2/4.0	E4SA5	3.2 - 4	2.3 U	2.3 U	2.3 U	0.95 J	2.9	2.3 U	2.9	2.6	2.3 U	3.9	2.3 U	6.3	2.3 U	2.9	2.3 U	4.1	5.8	41.55	0.04155
LP2-SD15E-A0.0/0.5	E4S70	0 - 0.5	25 U	25 U	25 U	16 J	91	130	200 J	69	48	140	13 J	320	7 J	83	25 U	160	210 J	1,537	1.537
LP2-SD15E-A0.5/2.1	E4S71	0.5 - 2.1	20 U	20 U	20 U	14 J	61	67	100	52	32	59	11 J	110	5.1 J	62	20 U	61	130 J	804.1	0.8041
LP2-SD15E-A2.1/2.8	E4S72	2.1 - 2.8	2.3 U	2.3 U	2.3 U	2.3 U	0.47 J	0.88 J	1.6 J	2.4	2.3 U	1.9 J	2.3 U	1.1 J	2.3 U	1.2 J	2.3 U	1.9 J	2.1 J	22.75	0.02275
LP2-SD15E-I0.0/0.5	E4S98	0 - 0.5	30 U	47	8.1 J	240	1,100	1,200	1,700	590	650	1,100	110	2,200	55	760	30 U	1,100	2,100	12,990.1	12.9901
LP2-SD15E-I0.5/1.5	E4S99	0.5 - 1.5	24 J	230	21 J	470	2,200	2,200	3,800	1,200	1,200	2,300	280	6,600	270	1,400	30 J	2,100	5,100	29,425	29.425
LP2-SD15E-I1.5/2.5	E4SA0	1.5 - 2.5	1,200	890	25 J	950	1,600	1,200	1,600	460	620	1,600	150	3,800	1,600	600	230	6,600	3,800	26,925	26.925
LP2-SD15E-I2.5/3.5	E4SA1	2.5 - 3.5	20	5.8	2.4 U	6	10	9.6	11	6	2.9	10	2.4 U	25	7.6	6.6	4.4	35	20	182.3	0.1823
LP2-SD15W-A0.0/0.9	E4SH7	0 - 0.9	4.3 U	5.4	3.9 J	17	160	290	280	240	190	190	130	250	7.9	230	4.3 U	89	180	2,267.5	2.2675
LP2-SD16E-A0.0/0.5	E4S73	0 - 0.5	1.9 J	3.2	1.3 J	11	110	180	270 J	96	65	200	20	350	3.7	140	3.1	82	230	1,767.2	1.7672
LP2-SD16E-A0.5/1.5	E4S74	0.5 - 1.5	2.8 U	0.91 J	2.8 U	3.1	45	52	55	17	8.7	51	5.2	47	0.88 J	21	2.8 U	14	75	399.99	0.39999
LP2-SD16E-A1.5/2.5	E4S75	1.5 - 2.5	2.4 U	2.4 U	2.4 U	2.4 U	0.57 J	2.4 U	1.3 J	2.3 J	2.4 U	0.65 J	2.4 U	1.4 J	2.4 U	2.4 U	2.4 U	1.6 J	1.7 J	21.52	0.02152
LP2-SD16E-A2.5/3.5	E4S76	2.5 - 3.5	2.4 U	0.59 J	2.4 U	1.3 J	7.1	10	14	5.5	3.9	7.9	1.8 J	13	0.62 J	9.5	2.4 U	7.1	12	97.91	0.09791
LP2-SD16E-A3.5/4.5	E4S77	3.5 - 4.5	2.4 U	2.4 U	2.4 U	2.4 U	1.6 J	2.7	4.4	4.5	1.3 J	2.2 J	0.5 J	3.5	2.4 U	3.3	2.4 U	1.5 J	3.4 J	36.1	0.0361
LP2-SD16E-A4.5/6.1	E4S78	4.5 - 6.1	2.3 U	2.3 U	2.3 U	2.3 U	1.6 J	2 J	2.8	1.7 J	0.84 J	2.1 J	2.3 U	3.2	2.3 U	2.3 U	2.3 U	1.8 J	3.6 J	28.84	0.02884
LP2-SD16E-A4.5/6.1R	E4S79	4.5 - 6.1	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	0.61 J	2.2 U	1.1 J	2.2 U	0.88 J	2.2 U	0.81 J	2.2 U	2.2 U	2.2 U	0.72 J	1.4 J	17.62	0.01762
LP2-SD16W-C0.0/0.5	E4SC9	0 - 0.5	41 U	12 J	41 U	48	410	480	770	320	280	490	48	1,000 J	12 J	390	41 U	320	780	5,421.5	5.4215
LP2-SD16W-C0.5/1.5	E4SD0	0.5 - 1.5	29 U	55	7.1 J	160	830	810	1,100	390	370	890	76	1,900 J	43	510	29 U	720	1,600	9,490.1	9.4901
LP2-SD16W-C1.5/2.4	E4SD2	1.5 - 2.4	22 U	22 U	22 U	6.8 J	40	42	67	34	21 J	46	6 J	160 J	22 U	36	22 U	24	120	657.8	0.6578
LP2-SD16W-C2.4/3.6	E4SD3	2.4 - 3.6	2.4 U	2.4 U	2.4 U	2.4 U	1.2 J	2 J	3.1	3.3	0.78 J	2.8	2.4 U	2.9	2.4 U	1.8 J	2.4 U	1.4 J	3.5 J	31.18	0.03118
LP2-SD16W-H0.0/0.5	E4SH8	0 - 0.5	3.8 U	3.8 U	3.8 U	6.7	37	52	54	46	38	26 J	32	68	3.8 U	43	3.8 U	14	34 J	460.2	0.4602
LP2-SD16W-H0.5/1.8	E4SH9	0.5 - 1.8	3.8 U	3.8 U	3.8 U	12	80	110	110	84	72	91	44	140	3.8 U	79	3.8 U	24	130	985.5	0.9855
LP2-SD17E-D0.0/0.5	E4RZ2	0 - 0.5	2.4 J	10 J	1.3 J	30	250	290	420 J	95	85	290	34	640	13	210	3.7 J	310	450	3,134.4	3.1344
LP2-SD17E-D0.5/1.5	E4RZ3	0.5 - 1.5	6.8	32 J	3.8 J	210 J	530	580	700 J	150	300 J	820	66	1,500	33	290	12	650 J	1,300	7,183.6	7.1836
LP2-SD17E-D0.5/1.5R	E4RZ4	0.5 - 1.5	3.8	12 J	3.8	67	600	620	720 J	180	250 J	630	64	860	13	290	5.4	350	1,100	5,769	5.769
LP2-SD17E-D1.5/2.5	E4RZ5	1.5 - 2.5	240	490	260	1,200	1,500	1,100	1,600 J	260	310 J	960	110	3,700	830	480	510	4,200	2,400	20,150	20.15
LP2-SD17E-D2.5/3.5	E4RZ6	2.5 - 3.5	2.3 U	2.3 U	2.3 U	1.3 J	4.1	5.9	7	15	2.2 J	5.4	0.73 J	9.5	0.64 J	4.7	2.3 U	6.7	8.8 J	76.57	0.07657
LP2-SD17W-E0.0/0.5	E4SE4	0 - 0.5	38 U	38 U	38 U	32 J	400	490	810	270	250	480	59	1,100 J	10 J	330	38 U	320	710	5,337	5.337
LP2-SD17W-E0.5/1.5	E4SE5	0.5 - 1.5	34 U	180	11 J	320	1,400	1,400	2,100	1,100	640	1,500	260	2,400	86	1,400	34 U	1,500	3,200	17,531	17.531
LP2-SD17W-E1.5/2.5	E4SE6	1.5 - 2.5	38	780	32 J	1,000	2,500	2,100	3,100	1,000	1,200	2,700	260	6,500	1,100	1,200	58	4,100	5,900	33,568	33.568
LP2-SD17W-E2.5/3.5	E4SE7	2.5 - 3.5	24 U	29	11 J	60	560	440	770	380	240	680	60	990	26	460	24 U	370	1,200 J	6,300	6.3
LP2-SD17W-E3.5/4.4	E4SE8	3.5 - 4.4	2.2 U	0.71 J	2.2 U	1.9 J	7.5	8.3	13	7.4	3.5	8.2	0.97 J	20	0.92 J	6.9	1.8 J	7.6	16	106.9	0.1069
LP2-SD17W-L0.0/0.5	E4SJ0	0 - 0.5	4.1 U	7.4	4.1 U	30	120	130	130	120	88	130	57	300	11	110	4.1 U	160	220	1,619.55	1.61955
LP2-SD17W-L0.5/1.5	E4SJ1	0.5 - 1.5	6.9	63 J	19	390	430	400	480	290	370	520	320	1,300	75 J	240	6.9	700	890	6,500.8	6.5008
LP2-SD17W-L1.5/2.1	E4SJ2	1.5 - 2.1	9.1	58	50	210	530	500	540	360	460	730	200	1,400	55	300	11	670	910	6,993.1	6.9931
LP2-SD18E-E0.0/0.5	E4S06	0 - 0.5	4.2 U	5.1 J	1.4 J	24	160	230	420 J	49	84	280	32	480	6.5	110	4.2 U	150	370	2,406.2	2.4062
LP2-SD18E-E0.5/1.5	E4S07	0.5 - 1.5	7.6 U	12	2.8 J	32	240	270	360 J	91	70	250	33	480	12	150	7.6 U	150	530	2,690.4	2.6904
LP2-SD18E-E0.5/1.5R	E4S08	0.5 - 1.5	3.9 U	1.6 J	3.9 U	4.8	38	34	60	18	13	41	5.8	79	1.7 J	28	3.9 U	27	66	423.75	0.42375
LP2-SD18E-E1.5/2.5	E4S09	1.5 - 2.5	5.8	21 J	3.4 J	62	410	360	590 J	93	140	430	44	840	25	210	6.9	460	680	4,381.1	4.3811
LP2-SD18E-E2.5/4.1	E4S10	2.5 - 4.1	2.4 U	0.92 J	2.4 U	1.7 J	8.5	9	13	9.2	3.7	9.7	1.5 J	19	0.88 J	7.3	2.4 U	11	17 J	116	0.116
LP2-SD18E-I0.0/0.5	E4SJ3	0 - 0.5	4.2 U	7.7	3.9 J	34	210	210	210	190	130	230	92	390	9.9	170	4.2 U	150	290	2,331.7	2.3317
LP2-SD18E-I0.0/0.5R	E4SJ4	0 - 0.5	4.2 U	8.9	6.2	38	220	210	200	190	140	240	70	380	12	160	4.2 U	190	330	2,399.3	2.3993
LP2-SD18E-I0.5/1.9	E4SJ5	0.5 - 1.9	4.3 U	14	9.7	77	190	170	150 J	120 J	150	240	65	380	13	100	4.3 U	250	300	2,233	2.233
LP2-SD18W-B0.0/0.5	E4SD9	0 - 0.5	5.1	8.9	3.3 J	35	380	490	750	360	260	510	69	1,000	10	430	9	320	740	5,380.3	5.3803
LP2-SD18W-B0.5/1.5	E4SE0	0.5 - 1.5	11	20	6.3	58	750	890	1,500	560	400	850	120	2,000	19	700	17	610	1,600	10,111.3	10.1113
LP2-SD18W-B1.5/2.5	E4SE1	1.5 - 2.5	42	200	32 J	660 J	3,400	3,600	5,800	3,400	1,400	4,200	320	6,700	170	4,000	40	2,600 J	7,600	44,164	44.164
LP2-SD18W-B1.5/2.5R	E4SE2	1.5 - 2.5	11	75	7	200	1,100	1,200	1,700	1,000	510	1,300	250	1,700	64	1,100	13	880	2,400	13,510	13.51
LP2-SD18W-B2.5/3.5	E4SE3	2.5 - 3.5	24 U	16 J	24 U	37	170	150	260	130	67	240	22 J	410	18 J	150	24 U	300	440	2,446	2.446
LP2-SD19E-B0.0/0.5	E4RZ7	0 - 0.5	4.4 U	2.6 J	4.4 U	8.7	97	130	260 J	72	56	120	21	290	3 J	140	4.4 U	71 J	250	1,527.9	1.5279
LP2-SD19E-B0.5/1.5	E4RZ8	0.5 - 1.5	4.4 U	6.2	1.6 J	15	110	130	180	69	50	130	23	310	4.6	120	4.4 U	81	320	1,554.8	1.5548

TABLE C-7

Analytical Results - PAHs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	2-Methylnaph-Thalene	Acenaphthene ug/kg	Acenaphthylene ug/kg	Anthracene ug/kg	Benzo(A) Anthracene ug/kg	Benzo(A) Pyrene ug/kg	Benzo(B) Fluoranthene ug/kg	Benzo(G,H,I) Perylene ug/kg	Benzo(K) Fluoranthene ug/kg	Chrysene ug/kg	Dibenz(A,H) Anthracene ug/kg	Fluoranthene ug/kg	Fluorene ug/kg	Indeno(1,2,3-C,D) Pyrene ug/kg	Naphthalene ug/kg	Phenanthrene ug/kg	Pyrene ug/kg	Total PAH ug/kg	Total PAH mg/kg
LP2-SD19E-B1.5/2.5	E4RZ9	1.5 - 2.5	1.6 J	3.9	1.1 J	8.9	69	67	130 J	32	29	84	11	190	3.6	62	1.9 J	50	230	975	0.975
LP2-SD19E-B2.5/3.5	E4S00	2.5 - 3.5	2.4 U	2.4 U	2.4 U	2.4 U	1.9 J	1.9 J	2.8	3.8	0.67 J	2.4	2.4 U	4	2.4 U	2 J	2.4 U	2.2 J	3.6	33.67	0.03367
LP2-SD19E-B3.5/5.1	E4S01	3.5 - 5.1	2.7 U	2.7 U	2.7 U	2.7 U	0.66 J	0.77 J	1.2 J	1.3 J	2.7 U	1.4 J	2.7 U	1.5 J	2.7 U	1.1 J	2.7 U	1.3 J	1.8 J	21.83	0.02183
LP2-SD19E-I0.0/0.5	E4RY8	0 - 0.5	2.9	8.4 J	2.3 J	54	470	380	600 J	230	150 J	380	52	820	12	260	4.3	420	770	4,615.9	4.6159
LP2-SD19E-I0.5/1.5	E4RY9	0.5 - 1.5	12	83 J	5.9	250	1,000	790	1,200 J	300	290 J	930	96	1,600	190	380	12	1,100	2,100	10,338.9	10.3389
LP2-SD19E-I1.5/2.5	E4RZ0	1.5 - 2.5	3.5	4.7 J	1.2 J	11	50	42	67	35	20	58	7.3	150	6.7	40	3.4	66	140	705.8	0.7058
LP2-SD19E-I2.5/3.6	E4RZ1	2.5 - 3.6	2.3 U	2.3 U	2.3 U	0.58 J	2 J	2.1 J	3.4	2.6	0.87 J	3.3	2.3 U	5.5	2.3 U	2 J	2.3 U	3.8	5 J	38.05	0.03805
LP2-SD19E-N0.0/0.5	E4RY5	0 - 0.5	5.2 U	12	3.5 J	42	210	190	310 J	70	65	290	28	470	16	130 J	5.2 U	220	460	2,521.7	2.5217
LP2-SD19E-N0.5/1.5	E4RY6	0.5 - 1.5	5	8	1.9 J	23	100	130	210 J	55	46	120	17	330	11	99	5.4	190	270	1,621.3	1.6213
LP2-SD19E-N1.5/2.6	E4RY7	1.5 - 2.6	3 J	4.4 U	4.4 U	1.8 J	7.9	7.1	11	4.4 J	2.6 J	12	1.2 J	14	1.4 J	5.4	4.4 U	11	16	105.4	0.1054
LP2-SD19E-S0.0/0.5	E4SJ6	0 - 0.5	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	35.7	0.0357
LP2-SD19E-S0.5/1.3	E4SJ7	0.5 - 1.3	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	34.85	0.03485
LP2-SD20E-D0.0/0.5	E4RS0	0 - 0.5	3.6 U	6.9	1.4 J	37	320	310	590 J	260	190 J	370	48	730	9	210	3.8	310	460	3,857.9	3.8579
LP2-SD20E-D0.5/1.5	E4RS1	0.5 - 1.5	3 J	7.9	1.9 J	31	430	380	730 J	280	200 J	400	57	890	9.2	240	5.5	310	720	4,695.5	4.6955
LP2-SD20E-D1.5/2.5	E4RS2	1.5 - 2.5	4.8	24	3.1	95	590	580	790 J	320	230 J	660	56	1,100	29	250	7.3	670	1,100	6,509.2	6.5092
LP2-SD20E-D2.5/3.7	E4RS3	2.5 - 3.7	5	14	2.5	39	81	78	120 J	44	38	73	9.3	260	15	51	7.1	240	170	1,246.9	1.2469
LP2-SD20E-I0.0/0.5	E4RS4	0 - 0.5	2.5 J	7.6	2.3 J	39	430	410	760 J	320	200	440	61	930	10	290	5.3	360	680	4,947.7	4.9477
LP2-SD20E-I0.5/1.5	E4RS5	0.5 - 1.5	2.9 J	5	2.5 J	22	200	210	370 J	160	120	210	29	370	5.6	200	3.8	120	360	2,390.8	2.3908
LP2-SD20E-I1.5/2.5	E4RS6	1.5 - 2.5	6.3	24	4.8	74	670	500	770 J	270	200 J	520	54	1,000	28	220	9.1	410	1,200	5,960.2	5.9602
LP2-SD20E-I2.5/3.5	E4RS7	2.5 - 3.5	3.8	23	4	59	400	340	520 J	190	150	390	42	930	44	180	5.2	450	710	4,441	4.441
LP2-SD20E-I3.5/4.5	E4RS8	3.5 - 4.5	2.4 U	0.83 J	2.4 U	2.5	11	14	27	9.9	7	15	1.9 J	30	1.3 J	11	2.4 U	16	29	180.03	0.18003
LP2-SD20E-M0.0/0.5	E4S02	0 - 0.5	7.5	66	2 J	300	480	450	680 J	150	170 J	530	92	1,000	84	240	11	890	1,200	6,352.5	6.3525
LP2-SD20E-M0.5/1.5	E4S03	0.5 - 1.5	4.5 J	15	2.8 J	32	170	140	230 J	44	53	190	20	360	23	92	5.1	250	340	1,971.4	1.9714
LP2-SD20E-M1.5/2.7	E4S05	1.5 - 2.7	3.9 U	2.7 J	3.9 U	5.3	28	27	47	20	12	36	5.1	74	3.8 J	24	3.9 U	33	58	381.75	0.38175
LP2-SD20W-A0.0/0.5	E4SK2	0 - 0.5	3.9 U	3.9 U	3.9 U	4	11	16	14	11	10	12	5.8	9	3.9 U	11	3.9 J	11	10	136.5	0.1365
LP2-SD20W-A0.5/1.5	E4SK3	0.5 - 1.5	4.1 U	4.1 U	4.1 U	4.1 U	5.2	12 J	9.1 J	7.4 J	6.8 J	5.8	4 J	4.1 U	4.1 U	7.2 J	4.1 U	4.3	4.1 U	78.2	0.0782
LP2-SD20W-A1.5/2.5	E4SK4	1.5 - 2.5	3.8 U	3.8 U	3.8 U	3.6 J	93	76	38	37	29 J	100	22 J	12	3.8 U	32	3.8 U	5.1	16	473.2	0.4732
LP2-SD21E-F0.0/0.5	E4RS9	0 - 0.5	3.3 J	2.7 J	0.96 J	15	120	200	310 J	150	110	150	30	380	3.6 J	180	3.9 J	96	270	2,025.46	2.02546
LP2-SD21E-F0.5/1.5	E4RT0	0.5 - 1.5	5.1	7.7	2.4 J	27	410	450	920 J	300	240 J	430	53	750	8.7	260	12	250	730	4,855.9	4.8559
LP2-SD21E-F1.5/2.5	E4RT1	1.5 - 2.5	9.1	63	5.9	230	970	780	1,500 J	500	320 J	860	77	1,900	77	460	17	1,200	2,100	11,069	11.069
LP2-SD21E-F2.5/3.5	E4RT2	2.5 - 3.5	15	90	7.2	220	960	840	1,300 J	440	360 J	930	88	2,000	180	330	13	1,300	2,000	11,073.2	11.0732
LP2-SD21E-F3.5/4.5	E4RT3	3.5 - 4.5	2.4 U	2.4 U	2.4 U	0.8 J	3	3.9	6.4	3.5	2.4 U	4.9	0.53 J	6.8	2.4 U	3	2.4 U	5.8	7.7	53.53	0.05353
LP2-SD21E-J0.0/0.5	E4RT4	0 - 0.5	3	15	3.2	49	330	330	630 J	180	140 J	400	41	780	16	180	7.6	420	600	4,124.8	4.1248
LP2-SD21E-J0.5/1.5	E4RT5	0.5 - 1.5	24	76	5.7	240	900	800	1,100 J	420	290 J	850	81	1,500	200	390	10	1,100	1,400	9,386.7	9.3867
LP2-SD21E-J0.5/1.5R	E4RT6	0.5 - 1.5	33	110	6.3	290	1,200	1,000	1,600 J	510	490 J	1,200	97	1,900	260	420	22	1,600	2,200	12,938.3	12.9383
LP2-SD21E-J1.5/2.5	E4RT7	1.5 - 2.5	6.7	12	3.5	38	190	220	340 J	110	96	240	23	430	13	120	10	270	390	2,512.2	2.5122
LP2-SD21E-J2.5/3.6	E4RT8	2.5 - 3.6	1.7 J	2.3 U	2.3 U	0.67 J	2.4	2.3 J	4.1	2.8	0.86 J	4.8	2.3 U	3.7	2.3 U	2.4	5.6	3	4.4	43.33	0.04333
LP2-SD22S-G0.0/0.5	E4S25	0 - 0.5	4.8 U	1.7 J	4.8 U	8.6	65	97	150	67	46	74	14	150	2.4 J	81	4.8 U	53	130	946.9	0.9469
LP2-SD22S-G0.5/1.5	E4S26	0.5 - 1.5	2.8 U	3.3	1.8 J	12	150	150	230 J	48	33	76	11	270	3.6	58	3.1	62	220 J	1,333.2	1.3332
LP2-SD22S-G1.5/2.5	E4S27	1.5 - 2.5	1.5 J	2.9	2.3 U	12	23	19	19	9.3	7.6	20	2.2 J	58	4.7	12	1.8 J	44	47	285.15	0.28515
LP2-SD22S-G2.5/4.0	E4S29	2.5 - 4	1.9 J	0.77 J	2.2 U	2.7	5.3	6.8	9.4	3.8	1.9 J	11	1.1 J	12	1.2 J	4.7	1.9 J	9.2	13	87.77	0.08777
LP2-SD23N-C0.0/0.5	E4S30	0 - 0.5	3 J	3.9 J	1.4 J	15	150	280	500 J	95	92	310	33	580	5	200	5.1	140	410	2,823.4	2.8234
LP2-SD23N-C0.5/1.5	E4S31	0.5 - 1.5	6.7	11	4.2	36 J	460	570	1,100 J	270	280 J	620	77	1,200	12	520	9.6	370	870	6,416.5	6.4165
LP2-SD23N-C1.5/2.5	E4S32	1.5 - 2.5	9.9	78	10	180	960	1,000	1,500 J	380	340 J	1,100	110	2,000	110	540	11	1,100	1,600	11,028.9	11.0289
LP2-SD23N-C2.5/3.5	E4S33	2.5 - 3.5	3.8	16	2.2 J	44	170	150	230 J	50	51	260	21	430	41	89	3.7	420	420	2,401.7	2.4017
LP2-SD24S-D0.0/0.5	E4S34	0 - 0.5	3.9 U	3 J	3.9 U	11	110	150	280 J	100	77	130	21	360	4	120	3.9 U	110	230 J	1,711.85	1.71185
LP2-SD24S-D0.5/1.5	E4S35	0.5 - 1.5	31	130	2.1 J	430	910	850	1,200 J	530	350 J	860	85	2,200	210	470	58	1,500	1,600 J	11,416.1	11.4161
LP2-SD24S-D1.5/2.5	E4S36	1.5 - 2.5	2.7 J	26	2.5 J	77	430	330	420 J	200	89	350	27 J	810	29	180	4.2	550	680 J	4,207.4	4.2074
LP2-SD24S-D3.5/4.5	E4S38	3.5 - 4.5	2.7 U	7.5	0.79 J	23	200	200	190 J	110	100	180	14	290	11	130	2.7 U	200	220 J	1,878.99	1.87899
LP2-SD24S-D4.5/5.5	E4S39	4.5 - 5.5	2.5 U	4.6	0.66 J	9	39	39	55	25	20	45	6.6	160	5.4	30	2.5 U	62	73	576.76	0.57676
LP2-SD24S-D4.5/5.5R	E4S40	4.5 - 5.5	2.4 U	3.6	2.4 U	9.1	35	37	51	22	17	39	5.8	88	4.5	29	2.4 U	51	62	457.6	0.4576
LP2-SD24S-D5.5/6.5	E4S41	5.5 - 6.5	2.4 U	2.4 U	2.4 U	1.1 J	4.5	5.5	8.3	3.9	2.4 J	7.1	0.8 J	11	0.65 J	4.1	2.4 U	7.1	9.8	71.05	0.07105
LP2-SD24S-D6.5/7.5	E4S42	6.5 - 7.5	2 U	2 U	2 U	2 U	1.1 J	1.6 J	2.4	2 U	0.6 J	3.3	2 U	1.9 J	2 U	2 U	2 U	1.7 J	2.7	24.3	0.0243
LP2-SD25W-E0.0/0.5	E4S43	0 - 0.5	7.9	22	7.9	78	780	830	1,300 J	400	450 J	930	150	1,800	25	640	13	500	1,600	9,533.8	9.5338
LP2-SD25W-E0.5/1.5	E4S44	0.5 - 1.5	11	15	4.8	62	340	370	630 J	180	200 J	460	46	860	17	230	13	300	840	4,578.8	4.5788
LP2-SD25W-E1.5/2.5	E4S46	1.5 - 2.5	2.2 J	1.1 J	2.5 U	4.2	17	11	17	10	4.8	20	2.4 J	36	1.7 J	13	2.5 J	23	34	201.15	0.20115
LP2-SD25W-E2.5/3.5	E4S48	2.5 - 3.5	2.4 U	2.4 U	2.4 U	0.82 J	1.9 J	3.2	4.8	3	0.87 J	6.5	0.51 J	4.4	2.4 U	2.4	2.4 U	4.6	5.6	44.6	0.0446
LP2-SD26W-D0.0/0.5	E4S11	0 - 0.5	3 U	3.8	0.85 J	19	150 J	160	260 J	110	67	180	20	400	5	140	2.7 J	140	290 J	1,949.85	1.94985
LP2-SD26W-D0.5/1.5	E4S12	0.5 - 1.5	3.9	15	3.6	83	660	640	1,300 J	520	210 J	670	77	1,300	18	470	6.5	510	1,100 J	7,587	7.587
LP2-SD26W-D1.5/2.5	E4S13	1.5 - 2.5	7.2	68	4.8	190	740	750	930 J	390	190 J	800	78	1,700	64	410	10	1,100	1,300 J	8,732	8.732
LP2-SD26W-D2.5/3.8	E4S14	2.5 - 3.8	2.3 U	1.5 J	2.3 U	4	14	14	21	7.5	6.3	15	2 J	36	1.7 J	9.5	2.3 U	19	27	181.95	0.18195
LP2-SD26W-D2.5/3.8R	E4S15	2.5 - 3.8	2.3 U	2.3 U	2.3 U	1.3 J	5.8	6.5	9.2	4.1	2.7	6.1	1 J	13	0.63 J	5	2.3 U	6.6	11	77.53	0.07753
LP2-SD27W-A0.0/0.5	E4S16	0 - 0.5	4.3 U	4 J	4.3 U	20	130	160	360 J	110	81	260	23	420	5	130	4.3 U	120	380 J	2,209.45	2.20945

TABLE C-7

Analytical Results - PAHs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	2-Methylnaph-Thalene	Acenaphthene ug/kg	Acenaphthylene ug/kg	Anthracene ug/kg	Benzo(A) Anthracene ug/kg	Benzo(A) Pyrene ug/kg	Benzo(B) Fluoranthene ug/kg	Benzo(G,H,I) Perylene ug/kg	Benzo(K) Fluoranthene ug/kg	Chrysene ug/kg	Dibenz(A,H) Anthracene ug/kg	Fluoranthene ug/kg	Fluorene ug/kg	Indeno(1,2,3-C,D) Pyrene ug/kg	Naphthalene ug/kg	Phenanthrene ug/kg	Pyrene ug/kg	Total PAH ug/kg	Total PAH mg/kg
LP2-SD27W-A0.5/1.5	E4S17	0.5 - 1.5	3	23	5.2	91	850	760	1,000 J	490	270 J	960	93	1,900	24	450	4.7	800	1,500 J	9,223.9	9.2239
LP2-SD27W-A1.5/2.5	E4S18	1.5 - 2.5	2.6 U	2.4 J	0.79 J	8.7	58	67	140 J	39	34	63	9.8	170	3.4	49	2.6 U	58	99	804.69	0.80469
LP2-SD27W-A2.5/3.5	E4S19	2.5 - 3.5	2.3 U	2.3 U	2.3 U	2.3 U	1.1 J	1.2 J	2.2 J	0.75 J	0.62 J	1.4 J	2.3 U	2.5	2.3 U	1.1 J	2.3 U	1.3 J	3.5	23.72	0.02372
LP2-SD27W-A3.5/4.5	E4S20	3.5 - 4.5	1.9 J	7.3 J	2.9	27	200	220	300 J	43	69	230	28	510	9	150	2.9	210	350	2,361	2.361
LP2-SD27W-A4.5/5.5	E4S21	4.5 - 5.5	2.3 U	2.3 U	2.3 U	2.3 U	1.7 J	1.6 J	2.5	1.2 J	0.79 J	2.2 J	2.3 U	3.5	2.3 U	1.6 J	2.3 U	1.7 J	4.1	28.94	0.02894
LP2-SD27W-A5.5/6.5	E4S22	5.5 - 6.5	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	0.59 J	2.3 U	2.3 U	0.67 J	2.3 U	0.76 J	2.3 U	2.3 U	2.3 U	0.79 J	1.3 J	17.91	0.01791
LP2-SD27W-A6.5/7.5	E4S23	6.5 - 7.5	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	0.7 J	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	21.5	0.0215
LP2-SD27W-A7.5/8.9	E4S24	7.5 - 8.9	2.3 U	2.3 U	2.3 U	2.3 U	0.6 J	0.66 J	1.5 J	1.4 J	2.3 U	3.4	2.3 U	1.1 J	2.3 U	0.72 J	2.3 U	2.5	2.2 J	23.28	0.02328
LP2-SD28W-A0.0/0.5	E4S53	0 - 0.5	4.3 U	4.4	1.4 J	19	220	260	460 J	110	100	300	32	570	5.4	240	3.7 J	130	370	2,828.05	2.82805
LP2-SD28W-A0.5/1.5	E4S54	0.5 - 1.5	5.6	19	15	250	1,000	690	1,200 J	410	290 J	1,100	160	1,900	38	510	7.6	900	1,500	9,995.2	9.9952
LP2-SD28W-A1.5/2.5	E4S55	1.5 - 2.5	2.3 J	0.93 J	0.59 J	3.4	24	21	39	32	9.2	29	4.3	45	1.4 J	22	2.6	19	41	296.72	0.29672
LP2-SD28W-A2.5/3.5	E4S56	2.5 - 3.5	1.4 J	1.2 J	0.98 J	5.8	11	11	13	6.3	4.6	9.5	1.6 J	26	2.6	8.2	2.3	25	21	151.48	0.15148
LP2-SD28W-A2.5/3.5R	E4S57	2.5 - 3.5	2.3 U	2.3 U	2.3 U	2.3 U	0.64 J	0.89 J	1.2 J	1.9 J	2.3 U	0.8 J	2.3 U	1.8 J	2.3 U	1.1 J	2.3 U	1.4 J	2.4	21.33	0.02133
LP2-SD28W-A3.5/4.3	E4S58	3.5 - 4.3	2.3 U	2.3 U	2.3 U	0.63 J	2.7	3.2	4.4	4.1	1.5 J	3.2	0.46 J	6.8	2.3 U	3.2	2.3 U	3	5.9	44.84	0.04484
LP2-SD29W-A0.0/0.5	E4SB1	0 - 0.5	4.5	9.3	2.4 J	39	370	470	690 J	360	140	470	64	910	11	320	8.1	310	590	4,768.3	4.7683
LP2-SD29W-A0.5/1.8	E4SB2	0.5 - 1.8	34	20	3.5	69	430	400	530	220	190	480	53	850	29	240	12	410	800	4,770.5	4.7705
LP2-SD29W-A0.5/1.8R	E4SB4	0.5 - 1.8	31 U	18 J	31 U	45	300	320	460	230	110	370	38	560	22 J	280	31 U	340	650	3,789.5	3.7895
LP2-SD29W-A1.8/2.9	E4SB3	1.8 - 2.9	1.3 J	1 J	2.2 U	3.4	7	3.9	5.3	3.7	2.2 U	5.5	2.2 U	15	1.3 J	4.2	2.2 U	8.8	15	79.8	0.0798
LP2-SD30W-B0.0/0.5	E4S87	0 - 0.5	40 U	49	15 J	120	1,100	1,500 J	2,200 J	820 J	780 J	1,100	170	2,700	54	1,100 J	42	1,000	1,700	14,470	14.47
LP2-SD30W-B0.5/1.5	E4S88	0.5 - 1.5	40 U	270	23 J	630	2,800	2,600	3,700	1,300	1,100	2,700	350	6,900	290	1,700	40 U	2,600	5,100	32,103	32.103
LP2-SD30W-B0.5/1.5R	E4S89	0.5 - 1.5	40	290	29 J	670	2,800	2,700	3,700	2,400	1,300	4,000 J	600	6,300 J	310	2,900	81 J	2,200	6,400 J	36,720	36.72
LP2-SD30W-B1.5/2.5	E4S90	1.5 - 2.5	26 U	16 J	26 U	54	360	350	550	280	160	460	43	760	19 J	300	26 U	390	780	4,561	4.561
LP2-SD30W-B2.5/3.5	E4S91	2.5 - 3.5	12	2.1 J	2.4 U	4.5	17	16	35	46	5.9	34	3.2	44	4	14	9.4	33	39	320.3	0.3203
LP2-SD31W-A0.0/0.5	E4S92	0 - 0.5	44 U	74 J	44 U	150	1,200	1,100	1,800	1,000	500	1,200	240	1,500	47	1,300	44 U	880	1,800 J	12,857	12.857
LP2-SD31W-A0.5/1.5	E4S93	0.5 - 1.5	13	68	15	400	1,400	1,200	1,600 J	680 J	760 J	1,300	160	3,000	89	580	19	1,500	1,900	14,684	14.684
LP2-SD31W-A1.5/2.5	E4S94	1.5 - 2.5	11	26	6.4	110	660	610	920 J	350	220 J	660	93	1,700	28	350	19	680	1,200	7,643.4	7.6434
LP2-SD31W-A2.5/3.5	E4S95	2.5 - 3.5	2.5 J	5 J	1.9 J	33	170 J	150	210 J	78	41	170 J	17	480 J	7.2	93	3.9	210	260 J	1,932.5	1.9325
LP2-SD31W-A3.5/4.5	E4S96	3.5 - 4.5	2.5 U	2.9	2.5 U	13	41	34	46	17	12	42	5.3	150	3.9	21	2.5 J	58	67	518.1	0.5181
LP2-SD31W-A4.5/5.5	E4S97	4.5 - 5.5	2.4 U	2.4 U	2.4 U	1.1 J	3.5	3	3.3	3.5	2.4 U	5.7	2.4 U	6.4	2.4 U	3.1	2.4 U	5.8	6.4	50.2	0.0502
LP2-SD32N-C0.0/0.5	E4RT9	0 - 0.5	4.9	24	5.4	94	480	380	590 J	210	190 J	470	50	1,100	27	190	8.3	520	660	5,003.6	5.0036
LP2-SD32N-C0.0/0.5R	E4RW0	0 - 0.5	550 J	3,000	9 J	5,000	10,000	11,000	13,000 J	4,800	5,500 J	9,300	1,000 J	20,000	2,800	4,600	440 J	17,000	16,000	123,999	123.999
LP2-SD32N-C0.5/1.5	E4RW1	0.5 - 1.5	2.7	8	1 J	31	150	230	260 J	190	48	150	14	280	9.6	170	5.7	160	220	1,930	1.93
LP2-SD32N-C0.5/1.5R	E4RW2	0.5 - 1.5	1.6 J	2.1 J	0.75 J	11	43	43	61	20	15	42	5.5	81	2.7 J	26	4.5	35	66	460.15	0.46015
LP2-SD32N-C1.5/2.5	E4RW3	1.5 - 2.5	2.6 J	14	5	39	210	210	360 J	77	64	220	20	510	13	92	6.1	240	350	2,432.7	2.4327
LP2-SD32N-C1.5/2.5R	E4RW4	1.5 - 2.5	5.5	17	4.5	56	200	160	210 J	53	45	180	16	430	20	64	6.6	320	330	2,117.6	2.1176
LP2-SD32N-C2.5/3.5	E4RW5	2.5 - 3.5	2 J	12	3.1	130	430	420	570 J	180	230 J	450	47	880	16	180	4.3	400	670	4,624.4	4.6244
LP2-SD32N-C3.5/4.5	E4RW6	3.5 - 4.5	3.9	9.5	1.3 J	32 J	160	120	220 J	68	56	170	21	370	11	82	6.3	210	350	1,891	1.891
LP2-SD32N-C4.5/5.5	E4RW7	4.5 - 5.5	1.4 J	2.1 J	2.4 U	4.8	19	21	30	13	7.9	23	3.1	44	1.6 J	21	4.2	21	34	252.3	0.2523
LP2-SD32N-C5.5/6.5	E4RW8	5.5 - 6.5	1.6 J	2.3 U	2.3 U	1.6 J	5.7	5.8	7.4	3.4	1.8 J	7.2	0.77 J	8.6	2.3 U	4.5	2.8	6.6	8.5	69.72	0.06972
LP2-SD32N-C6.5/7.7	E4RW9	6.5 - 7.7	3.1	2.4 U	2.4 U	1.2 J	1.8 J	1.5 J	2.5	2 J	2.4 U	4.7	2.4 U	3.1	2.4 U	1.6 J	4	8	3.1	42.6	0.0426
LP2-SD33N-E0.0/0.5	E4RX0	0 - 0.5	2.6 J	7.9	1.3 J	31	220	260	440 J	150	120	260	26	510	11	190	3.6 J	250	440	2,923.4	2.9234
LP2-SD33N-E0.5/1.5	E4RX1	0.5 - 1.5	2.2 J	16	1.5 J	64	260	270	390 J	150	120	300	26	580	20	150	2.9	320	480	3,152.6	3.1526
LP2-SD33N-E1.5/2.5	E4RX2	1.5 - 2.5	2.4 U	2.4 U	2.4 U	2.3 J	12	13	19	8.4	6.1	13	1.8 J	24	0.72 J	9.9	2.4 U	11	21	147.02	0.14702
LP2-SD33N-E2.5/3.5	E4RX3	2.5 - 3.5	3.9 U	3.9 U	3.9 U	3.1 J	11	13	21	8	5.8	12	1.9 J	24	0.98 J	9.8	3.9 U	11	18	147.38	0.14738
LP2-SD33N-E3.5/4.5	E4RX4	3.5 - 4.5	3.8 U	3.8 U	3.8 U	3.8 U	2.4 J	4.2	6.1	3.8 U	1.9 J	4.2	3.8 U	6.1	3.8 U	3.8 U	3.8 U	4.1	6.7	52.8	0.0528
LP2-SD33N-E4.5/5.5	E4RX5	4.5 - 5.5	2.3 U	2.3 U	2.3 U	2.3 U	0.56 J	2.3 U	2.3 U	2.3 U	2.3 U	1.2 J	2.3 U	0.7 J	2.3 U	2.3 U	2.3 U	0.97 J	1.2 J	18.43	0.01843
LP2-SD33N-E5.5/6.6	E4RX6	5.5 - 6.6	2.3 U	2.3 U	2.3 U	2.3 U	0.74 J	2.3 U	2.3 U	2.3 U	2.3 U	1.2 J	2.3 U	1.6 J	2.3 U	2.3 U	2.3 U	1.9 J	2.1 J	21.34	0.02134
LP2-SD34N-D0.0/0.5	E4RX7	0 - 0.5	10 U	10 U	10 U	10 J	110	190	300	150	90	160	24	260	3.3 J	180	10 U	77	230	1,804.3	1.8043
LP2-SD34N-D0.5/1.5	E4RX8	0.5 - 1.5	6	32	5.9	130	890	910	1,400 J	450	430 J	790	81	1,700	39	390	8.2	800	1,300	9,362.1	9.3621
LP2-SD34N-D1.5/2.5	E4RX9	1.5 - 2.5	5.4	13	5	41	360	350	650 J	250	160	450	43	890	16	220	10	340	800	4,603.4	4.6034
LP2-SD34N-D2.5/3.8	E4RY0	2.5 - 3.8	2.8	1.6 J	2.7 U	6.6	23	23	40	16	10	27	3.4	61	2.9	18	3.3	30	62	331.95	0.33195
LP2-SD34N-H0.0/0.5	E4RY1	0 - 0.5	4.5	4.3	1.2 J	18	270	280	570 J	230	160 J	290	36	670	5.5	190	6	260 J	480	3,475.5	3.4755
LP2-SD34N-H0.5/1.5	E4RY2	0.5 - 1.5	4.3	31	5.1	190	620	700	960 J	350	300 J	710	70	1,600	34	290	5.3	630	1,000	7,499.7	7.4997
LP2-SD34N-H1.5/2.5	E4RY3	1.5 - 2.5	9.4	27	8.3	110	950	780	1,300 J	490	340 J	860	93	1,600	46	480	12	880	1,400	9,385.7	9.3857
LP2-SD34N-H2.5/3.9	E4RY4	2.5 - 3.9	2.4 J	2.3 J	1.3 J	9.6	66	80	140 J	55	43	78	12	180	3.7	66	3.4	53	200	995.7	0.9957
LP2-SD35E-A0.0/0.5	E4SM0	0 - 0.5	3.7 J	21	7.3	190	300	320	230	260	260	330	89	800	26	230	4.5	370	490	3,931.5	3.9315
LP2-SD35E-A0.0/0.5R	E4SM1	0 - 0.5	3.8 J	16	8.7	40	260	310	370	270	330	350	63	830	19	250	4.3	340	540	4,004.8	4.0048
LP2-SD35E-A0.5/1.7	E4SM2	0.5 - 1.7	4.1 U	4.1 U	4.1 U	4.5	32	56 J	46 J	48 J	29 J	38	27 J	11	4.1 U	50 J	4.1 U	8.3	11	371.05	0.37105
LP2-SD35W-A0.0/0.5	E4SB9	0 - 0.5	32 U	9.8 J	32 U	37	590	710	870	380	270	800	98	990	13 J	450	32 U	290	1,300	6,855.8	6.8558
LP2-SD35W-A0.5/1.5	E4SC0	0.5 - 1.5	13	4	9.1	16	350	440	630	290	190	400	35	690	7.9	340	12	210	660	4,297	4.297
LP2-SD35W-A1.5/2.5	E4SC1	1.5 - 2.5	1.9 J	2.5 U	2.5 U	1.6 J	8.6	12	16	11	3.8	12	2 J	18	0.88 J	10	2.7	8.1	23	134.08	0.13408
LP2-SD35W-A1.5/2.5R	E4SC2	1.5 - 2.5	2.4 U	2.4 U	2.4 U	0.69 J	2.2 J	2.7	4.2	3.3	1.2 J	3.6	2.4 U	5.5	2.4 U	2.9	2 J	3.7	7.9	45.89	0.04589
LP2-SD35W-A2.5/3.9	E4SC3	2.5 - 3.9	2 J	2.4 U	2.4 U	0.83 J	2.4	3.4	6.5	7.9	2.4 U	9	0.81 J	3.8	2.4 U	4.2	2.3 J	2.9	6.7	57.54	0.05754

TABLE C-7

Analytical Results - PAHs

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Field Sample ID	CLP Sample ID	Sample Interval (ft)	2-Methylnaph-Thalene	Acenaphthene ug/kg	Acenaphthylene ug/kg	Anthracene ug/kg	Benzo(A) Anthracene ug/kg	Benzo(A) Pyrene ug/kg	Benzo(B) Fluoranthene ug/kg	Benzo(G,H,I) Perylene ug/kg	Benzo(K) Fluoranthene ug/kg	Chrysene ug/kg	Dibenz(A,H) Anthracene ug/kg	Fluoranthene ug/kg	Fluorene ug/kg	Indeno(1,2,3-C,D) Pyrene ug/kg	Naphthalene ug/kg	Phenanthrene ug/kg	Pyrene ug/kg	Total PAH ug/kg	Total PAH mg/kg
LP2-SD36N-C0.0/0.5	E4SC4	0 - 0.5	43 U	43 U	43 U	20 J	250	300	440	98	60	230	19 J	530 J	43 U	220	43 U	94	370	2,738.5	2.7385
LP2-SD36N-C0.5/1.5	E4SC5	0.5 - 1.5	36 U	100	36 U	690	1,800	1,700	2,200	730	650	1,400	200	4,100	260	950	36 U	2,100	2,800	19,734	19.734
LP2-SD36N-C0.5/1.5R	E4SC6	0.5 - 1.5	37 U	22 J	37 U	62	740	830	1,200	440	440	790	78	1,600 J	22 J	550	37 U	500	1,300	8,629.5	8.6295
LP2-SD36N-C1.5/2.5	E4SC7	1.5 - 2.5	32 U	40	18 J	70	870	1,000	1,600	480	550	1,100	99	2,500 J	26 J	650	32 U	430	1,800	11,265	11.265
LP2-SD36N-C2.5/3.5	E4SC8	2.5 - 3.5	28 J	16	6	91	590	410	620	270	230	670	58	1,300	22	290	26 J	220	1,500	6,347	6.347
LP2-SD36N-C3.5/4.5	E4SG7	3.5 - 4.5	2.4 U	2.4 U	2.4 U	2.4 U	0.96 J	1.2 J	2 J	2.5	2.4 U	2.3 J	2.4 U	2.2 J	2.4 U	2.4 U	1.9 J	1.9 J	3	27.56	0.02756
LP2-SD36S-B0.0/0.5	E4SJ9	0 - 0.5	34	49	440	3,100	4,500 J	2,900	2,300	1,500	2,300	4,600 J	620	8,400 J	260	1,500	26	3,100	5,500 J	41,129	41.129
LP2-SD36S-B0.5/1.5	E4SK0	0.5 - 1.5	59	140	33	310	680 J	900	580	420	650	750 J	230	960 J	200 J	390	92	780	950 J	8,124	8.124
LP2-SD36S-B1.5/2.4	E4SK1	1.5 - 2.4	5,900 J	8,700	27 J	8,200	5,800	4,100 J	2,100 J	1,100 J	2,100 J	6,800	690 J	10,000	13,000	1,100 J	15,000	40,000	14,000	138,617	138.617
LP2-SD37E-A0.0/1.3	E4SK5	0 - 1.3	8.6	26	26	200	750 J	680	400	390	510	900 J	88	1,400 J	54 J	380	12	360	1,200 J	7,384.6	7.3846
LP2-SD37E-I0.0/0.5	E4SK8	0 - 0.5	6.8	27	35	99	370	420	350	300	340	460	58	780	31	260	10	240	540	4,326.8	4.3268
LP2-SD37E-I0.5/1.4	E4SK9	0.5 - 1.4	160	530 J	46	930	2,000 J	2,400	2,300	1,600	2,600	2,700 J	760	7,000	640	1,500	310	6,100	5,600	37,176	37.176
LP2-SD38W-B0.0/0.5	E4SL0	0 - 0.5	300 J	450	140	890	1,500	1,300 J	1,200 J	740 J	1,200 J	2,300	310 J	3,600	820	660 J	56	3,400	3,300	22,166	22.166
LP2-SD38W-B0.5/1.9	E4SL1	0.5 - 1.9	68	97	82	310	840	870 J	1,100 J	650 J	850 J	1,400	270 J	3,900	190 J	610 J	20	1,400	1,800	14,457	14.457
LP2-SD39W-D0.0/0.5	E4SL2	0 - 0.5	4.8	14	16	120	230 J	210	210	420 J	340	250 J	210	460 J	26	400	6.4	230	320 J	3,467.2	3.4672
LP2-SD39W-D0.0/0.5R	E4SL3	0 - 0.5	4 U	17	8.1	98	350	360	400	290	220	220	150	380	21	280	4.3	220	270	3,290.4	3.2904
LP2-SD39W-D0.5/1.1	E4SL4	0.5 - 1.1	5.2	50	27	220	360	350	270	230	360	430	59	1,000	76	210	5	480	670	4,802.2	4.8022
LP2-SD39W-H0.0/0.4	E4SL5	0 - 0.4	4.4	21	11	120	350	380	350	270	300	410	71	640	32	270	5.4	260	440	3,934.8	3.9348
LP2-SD40E-B0.0/0.6	E4SK6	0 - 0.6	4.1 U	21	9.2	69	230	230	240	120 J	210	260	72	380	31	110	4.1 U	280	290	2,556.3	2.5563
LP2-SD40E-H0.0/1.0	E4SL9	0 - 1	3.9 J	28	6.4	200	230	240	210	83 J	140	270	52	810	30	76	4 U	420 J	570	3,371.3	3.3713
LP2-SD41E-C0.0/0.7	E4SL6	0 - 0.7	3.8 J	18	8.3	69	160	110	100	69 J	110	200	49 J	280	19	60	5.8	160	200 J	1,621.9	1.6219
LP2-SD42E-A0.0/0.4	E4SL7	0 - 0.4	12	54	27	350	700	740	950	520	630	840	200 J	2,000	63	490	8	960	1,200	9,744	9.744
LP2-SD42E-A0.4/1.0	E4SL8	0.4 - 1	4.5 U	14	9.4	62	150	110	100	70 J	110	210	58 J	300	16	60	4.5 U	150	300	1,723.9	1.7239
LP2-SD42E-I0.0/0.6	E4SM3	0 - 0.6	3.8 U	6.6	3.9	22	80	61	53	51 J	60	110	23	220	8	39	3.8 U	78 J	140	959.3	0.9593
LP2-SD43N-A0.0/0.5	E4SM5	0 - 0.5	8.4	35	77	280	880	990	1,100	770	810	1,000	340	2,300	65	720	8.6	750	1,400	11,534	11.534
LP2-SD43N-A0.5/1.7	E4SM6	0.5 - 1.7	4.6 U	6.7	37	83	230 J	260	260	89 J	130	250	46	540	12	78	6.2	160 J	390	2,580.2	2.5802
LP2-SD43N-A0.5/1.7R	E4SM7	0.5 - 1.7	7.8	6.8	74	96	390	340	340	67 J	230 J	380	65 J	840	12	58	4.9	210	930	4,051.5	4.0515
LP2-SD43S-A0.0/0.8	E4SM4	0 - 0.8	4 U	4 U	4 U	9.2	28	21	36	37	22 J	42	20 J	72	3.9 J	37	4 U	26	55	417.1	0.4171
LP2-SD44N-A0.0/0.5	E4SF5	0 - 0.5	9.1	49	11	290	1,300	1,400	1,900	1,100	570	1,400	300	1,700	52	1,300	17	1,100	2,300	14,798.1	14.7981
LP2-SD44N-A0.5/1.5	E4SF6	0.5 - 1.5	1.9 J	1.9 J	2.3 J	14	84	94	200	72	40	85	17	260	2.6 J	80	3.4	55	210	1,223.1	1.2231
LP2-SD44N-A1.5/2.5	E4SF7	1.5 - 2.5	4.1	2.5 J	5.7	22	85	130	160 J	54	33	79	12	260	3.3	61	10	51	260	1,232.6	1.2326
LP2-SD44N-A2.5/3.2	E4SF8	2.5 - 3.2	6.4	0.6 J	2.3 U	1.6 J	3.7	4.8	5	3.4	1.4 J	4.9	2.3 U	8.8	0.86 J	3.1	5.4	8.6	9.8	70.66	0.07066
LP2-SD45N-A0.0/0.5	E4SG0	0 - 0.5	64	510 J	61	2,900 J	10,000	9,400	13,000 J	3,100 J	4,700 J	11,000	650 J	19,000	710 J	3,900 J	94	14,000	24,000	117,089	117.089
LP2-SD45N-A0.5/1.5	E4SG1	0.5 - 1.5	14	38	17	270	1,300	1,300	1,700	1,000	550	1,400	260	1,700	45	1,200	22	1,100	2,200	14,116	14.116
LP2-SD45N-A0.5/1.5R	E4SG4	0.5 - 1.5	14	45	19	190	1,300	1,300	1,700	890	550	1,400	150	2,100	58	1,000	21	1,300	2,300	14,337	14.337
LP2-SD45N-A1.5/2.5	E4SG2	1.5 - 2.5	7	5	2.4 J	27	160	160	240 J	86	60	170	19	360	7.3	96	8.7	210	330	1,948.4	1.9484
LP2-SD45N-A2.5/3.6	E4SG3	2.5 - 3.6	2.6	0.92 J	2.5 U	1.7 J	11	12	17	9	5	10	2.5 U	21	0.88 J	9.6	3.2	8.2	18	132.6	0.1326
LP2-SD46N-A0.0/0.5	E4SM8	0 - 0.5	14	82	39	270	1,400	1,600	1,500	1,100	1,300	1,700	460	4,000	84	1,000	17	1,500	2,400	18,466	18.466
LP2-SD46N-A0.5/1.8	E4SM9	0.5 - 1.8	7.4	42	68	330	930	1,000	1,300	770	970	1,200	290 J	2,500	53	740	8.9	840	1,900	12,949.3	12.9493
LP2-SD47S-I0.0/0.5	E4SN0	0 - 0.5	14	88	50	370	790	910	1,000	770	820	960	330	2,000	95	700	21	970	1,500	11,388	11.388
LP2-SD47S-I0.5/1.0	E4SN1	0.5 - 1	45	270	78	810	2,600	1,700	3,000	1,600	2,100	3,000	690	6,100	400	1,400	51 J	3,900	5,100	32,844	32.844
LP2-SD48N-B10.0/0.8	E4SN5	0 - 0.8	12	62	41	290	810	570	620	500	640	930	240	2,600	85	490	12	1,100	1,200	10,202	10.202
LP2-SD48N-B10.0/0.8R	E4SN6	0 - 0.8	12	58	32	230 J	740	760	810	610	740	890	270	2,700	91	560	18	1,000	1,200	10,721	10.721
LP2-SD49N-A0.0/0.5	E4SN3	0 - 0.5	5.9 U	28	26	200	610	530	810	540	600	770	180	1,700	32	490	5.9 U	510	920	7,951.9	7.9519
LP2-SD49N-A0.5/1.3	E4SN4	0.5 - 1.3	6.3	22	19	150	470	580	590	480	520	620	150	1,400	27	450	6.8	420	780	6,691.1	6.6911
LP2-SD50N-A0.0/0.8	E4SN2	0 - 0.8	7.8	33	43	380	840	760	840	760	930	1,100	330	2,600	48	700	8.6	710	1,400	11,490.4	11.4904
LP2-SD50N-J0.0/0.8	E4SN7	0 - 0.8	13	180	81	540	2,100	1,500	1,700	1,100	1,600	2,900	600	7,300	310	1,100	18	1,400	3,800	26,242	26.242
LP2-SD51N-B0.0/0.5	E4SN9	0 - 0.5	4.7	19	12	100	240	230	290	260 J	440 J	280	130	380	20	260	7.5	280	390	3,343.2	3.3432
LP2-SD51N-I0.0/0.7	E4SP2	0 - 0.7	21	43	33	120	610	830	650	660 J	1,200	710 J	310	1,100 J	63	630	20	620	760 J	8,380	8.38
LP2-SD52N-B0.0/1.0	E4SP0	0 - 1	6.5	14	12	81	330	400	420	260 J	320	390	130	280	20	260	5.5	210	250	3,389	3.389
LP2-SD52N-B0.0/1.0R	E4SP1	0 - 1	5.5	17	15	93	250	270	310	210 J	240	310	100	500	24	210	5.1	290	350	3,199.6	3.1996
LP2-SD53N-I0.0/0.8	E4SN8	0 - 0.8	4.2	10	13	89	280	260	340	300	330	380	94	890	16	220	3.9	260	470	3,960.1	3.9601
LP2-SD54N-I0.0/0.9	E4SQ1	0 - 0.9	34	240	60	910	3,000	3,200	3,900	2,700	2,700	3,200	800	9,700 J	380	2,300	39	4,300	4,200	41,663	41.663
LP2-SD55N-J0.0/0.5	E4SP6	0 - 0.5	24	67	89	330	1,300 J	2,000 J	1,600 J	1,000 J	1,900 J	1,900 J	560 J	2,700 J	93	1,200 J	21	660	2,000 J	17,444	17.444
LP2-SD55N-J0.5/1.6	E4SP7	0.5 - 1.6	22	61	66	320	830 J	960 J	970 J	490 J	890 J	1,200 J	290 J	2,600 J	89	540 J	29	810	1,400 J	11,567	11.567
LP2-SD56S-A0.0/0.5	E4SP8	0 - 0.5	11	49	59	300	790	980	1,000	790	900	1,100	390	1,600	61	690	13	600	1,300	10,633	10.633
LP2-SD56S-A0.0/0.5R	E4SP9	0 - 0.5	8.6	28	47	200	520	670	790	530	560	750	270	990	40	480	12	510 J	850	7,255.6	7.2556
LP2-SD56S-A0.5/1.3	E4SQ0	0.5 - 1.3	16	45	100	250	770	1,000	1,400	790	1,000	1,200	370	1,400	57	720	19	410	1,300	10,847	10.847
LP2-SD56S-K0.0/0.5	E4SQ2	0 - 0.5	4.8	18	29	130	460	440	290	300	370	540	110	1,100	28	280	5.3	320	800	5,225.1	5.2251
LP2-SD58S-B0.0/0.5	E4SQ3	0 - 0.5	10	51	52	220	900	990	1,100	760	820	1,100	240	2,600	59	700	13	870	2,000	12,485	12.485
LP2-SD58S-B0.5/1.5	E4SQ4	0.5 - 1.5	9.4	52	75	270	900	950	950	790	810	1,200	330	2,600	57	710	11	810	2,100	12,624.4	12.6244
LP2-SD58S-B1.5/2.3	E4SQ5	1.5 - 2.3	11	28	39	110	470	490	460	380	480	680	150	1,200	38	350	15	290	1,000	6,191	6.191
LP2-SD58S-G0.0/0.8	E4SP5	0 - 0.8	34	55	28	250	450 J	520	1,100	370	1,000	690 J	120	1,200 J	70	370	42	600	800 J	7,699	7.699

Qualifier Definitions:

U : The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J : The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

UJ : The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Appendix D
Sample Photograph Log

Sample: SD-34N-H-0.0/0.5

Sample: SD-34N-H-0.5/1.5

Sample: SD-34N-H-1.5/2.5

Sample: SD-34N-H-2.5/3.9

Sample: SD-34N-D-0.5/1.5

Sample: SD-34N-D-1.5/2.5

Sample: SD-34N-D-2.5/3.8

SAMPLE COLLECTION DATE: 02/25/10

Sample: SD-20E-I-0.0/0.5

Sample: SD-20E-I-2.5/3.5

Sample: SD-20E-I-0.5/1.5

Sample: SD-20E-I-1.5/2.5

SAMPLE COLLECTION DATE: 02/25/10

Sample: SD-20E-I-2.5/3.5

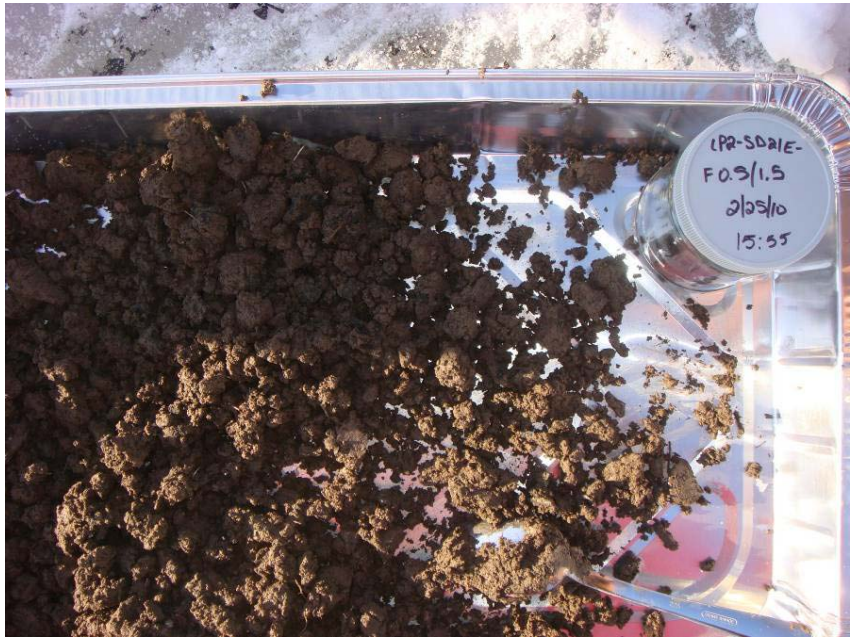
Sample: SD-20E-I-3.5/4.5

Sample: SD-21E-J-0.0/0.5

Sample: SD-21E-J-0.5/1.5

Sample: SD-21E-J-1.5/2.5

Sample: SD-21E-F-0.0/0.5



Sample: SD-21E-F-0.5/1.5

Sample: SD-21E-F-1.5/2.5

SAMPLE COLLECTION DATE: 02/25/10

Sample: SD-21E-F-2.5/3.5

Sample: SD-21E-F-3.5/4.5

Sample: SD-32N-C-0.0/0.5

Sample: SD-32N-C-0.5/1.5R

Sample: SD-32N-C-1.5/2.5

Sample: SD-32N-C-2.5/3.5

Sample: SD-32N-C-3.5/4.5

Sample: SD-32N-C-4.5/5.5

SAMPLE COLLECTION DATE: 02/25/10

Sample: SD-32N-C-5.5/6.5

Sample: SD-32N-C-6.5/7.7

Sample: SD-33N-E-0.0/0.5

Sample: SD-33N-E-0.5/1.5

Sample: SD-33N-E-1.5/2.5

Sample: SD-33N-E-2.5/3.5

Sample: SD-33N-E-3.5/4.5

Sample: SD-33N-E-4.5/5.5

SAMPLE COLLECTION DATE: 02/25/10

Sample: SD-33N-E-5.5/6.6

SAMPLE COLLECTION DATE: 02/26/10

Sample: SD-19E-B-0.0/0.5

Sample: SD-19E-B-0.5/1.5

Sample: SD-19E-B-1.5/2.5

Sample: SD-19E-B-2.5/3.5

Sample: SD-19E-B-3.5/5.1

Sample: SD-20E-M-0.0/0.5

Sample: SD-20E-M-0.5/1.5

Sample: SD-20E-M-1.5/2.7

Sample: SD-18E-E-0.0/0.5

Sample: SD-18E-E-0.5/1.5R

Sample: SD-18E-E-1.5/2.5

Sample: SD-18E-E-2.5/4.1

SAMPLE COLLECTION DATE: 02/26/10

Sample: SD-18E-D-0.0/0.5

Sample: SD-17E-D-0.5/1.5

Sample: SD-17E-D-1.5/2.5

Sample: SD-17E-D-2.5/3.5

SAMPLE COLLECTION DATE: 02/26/10

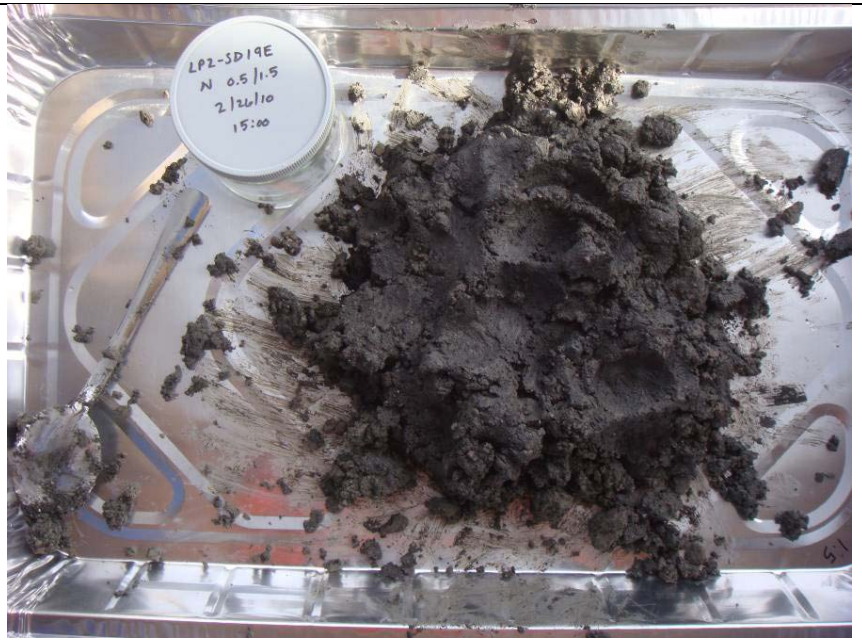
Sample: SD-19E-I-0.0/0.5

Sample: SD-19E-I-0.5/1.5

Sample: SD-19E-I-1.5/2.5

Sample: SD-19E-I-2.5/3.5

Sample: SD-19E-N-0.0/0.5



Sample: SD-19E-N-0.5/1.5

Sample: SD-19E-N-1.5/2.5

SAMPLE COLLECTION DATE: 03/01/10

Sample: SD-22S-G-0.0/0.5

Sample: SD-22S-G-0.5/1.5

Sample: SD-22S-G-1.5/2.5

Sample: SD-22S-G-2.5/4.0

Sample: SD-23N-C-0.0/0.5

Sample: SD-23N-C-0.5/1.5

Sample: SD-23N-C-1.5/2.5

Sample: SD-23N-C-2.5/3.5

Sample: SD-24S-D-0.5/1.5

Sample: SD-24S-D-1.5/2.5

Sample: SD-24S-D-3.5/4.5

Sample: SD-24S-D-4.5/5.5 and 4.5/5.5R

Sample: SD-24S-D-5.5/6.5

Sample: SD-24S-D-6.5/7.5

Sample: SD-26W-D-0.0/0.5

Sample: SD-26W-D-0.5/1.5

Sample: SD-26W-D-1.5/2.5

Sample: SD-26W-D-2.5/3.8 and 2.5/3.8R

Sample: SD-27W-A-0.0/0.5

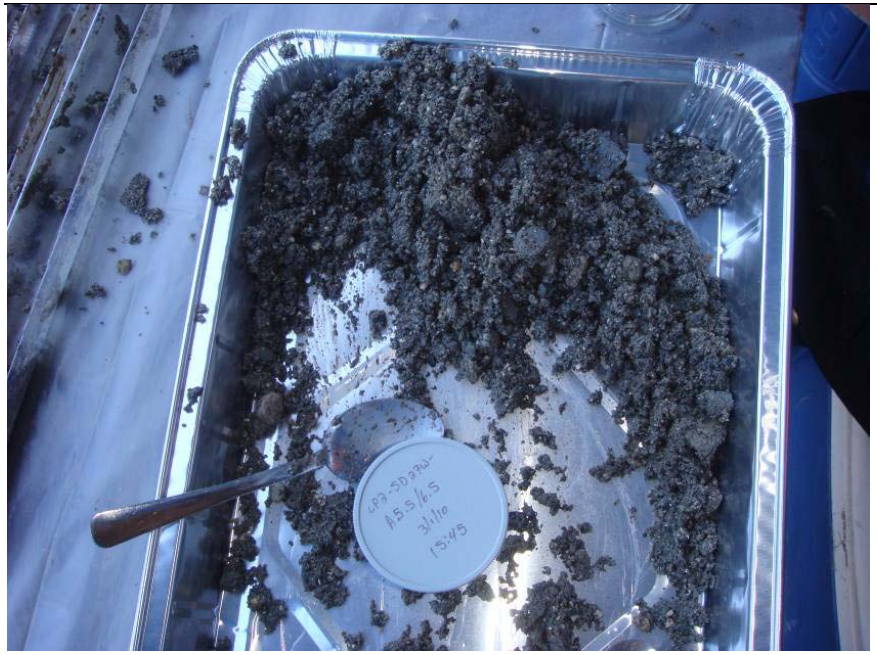
Sample: SD-27W-A-0.5/1.5

Sample: SD-27W-A-1.5/2.5

Sample: SD-27W-A-2.5/3.5

Sample: SD-27W-A-3.5/4.5

Sample: SD-27W-A-4.5/5.5



Sample: SD-27W-A-5.5/6.5

Sample: SD-27W-A-6.5/7.5

Sample: SD-27W-A-7.5/8.9

Sample: SD-09S-C-0.0/0.5

Sample: SD-09S-C-0.5/1.5

Sample: SD-09S-C-1.5/2.9

Sample: SD-15E-A-0.0/0.5

Sample: SD-15E-A-0.5/2.1

Sample: SD-15E-A-2.1/2.8

Sample: SD-16E-A-0.0/0.5

Sample: SD-16E-A-0.5/1.5

SAMPLE COLLECTION DATE: 03/02/10

Sample: SD-16E-A-1.5/2.5

Sample: SD-16E-A-2.5/3.5

Sample: SD-16E-A-3.5/4.5

Sample: SD-16E-A-4.5/6.1

SAMPLE COLLECTION DATE: 03/03/10

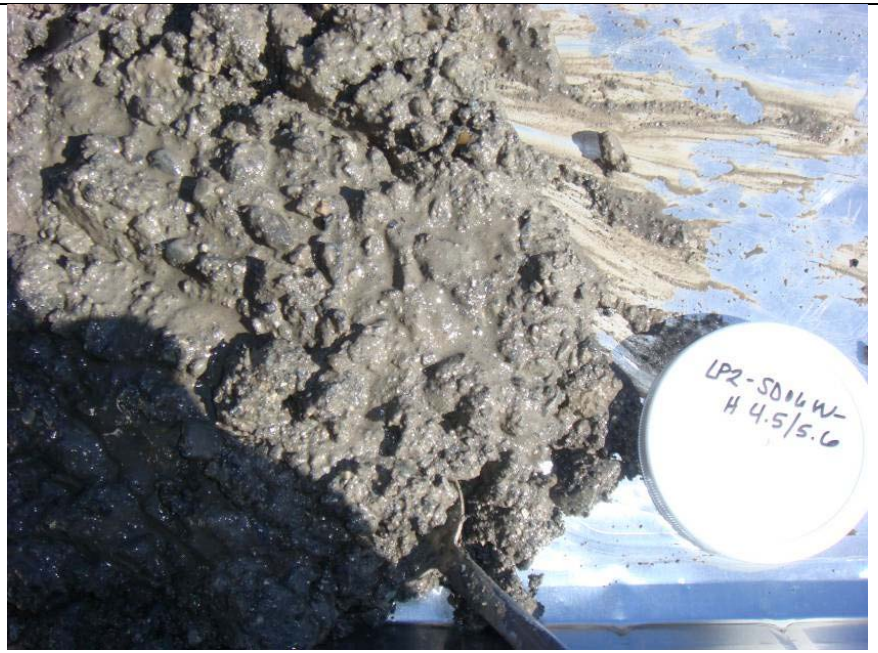
Sample: SD-06W-H-0.0/0.5

Sample: SD-06W-H-0.5/1.5 and 0.5/1.5R

Sample: SD-06W-H-1.5/2.5

Sample: SD-06W-H-2.5/3.5

Sample: SD-06W-H-3.5/4.5



Sample: SD-06W-H-4.5/5.6

Sample: SD-30W-B-0.0/0.5

Sample: SD-30W-B-0.5/1.5

Sample: SD-30W-B-1.5/2.5

Sample: SD-30W-B-2.5/3.5

Sample: SD-31W-A-0.0/0.5

Sample: SD-31W-A-0.5/1.5

SAMPLE COLLECTION DATE: 03/03/10

Sample: SD-31W-A-1.5/2.5

Sample: SD-31W-A-2.5/3.5

Sample: SD-31W-A-3.5/4.5

Sample: SD-31W-A-4.5/5.5

Sample: SD-15E-I-0.0/0.5

Sample: SD-15E-I-1.5/2.5

Sample: SD-15E-I-2.5/3.6

Sample: SD-14E-C-0.0/0.5

Sample: SD-14E-C-0.5/1.5

Sample: SD-14E-D-3.2/4.0

Sample: SD-13E-A-0.0/0.5

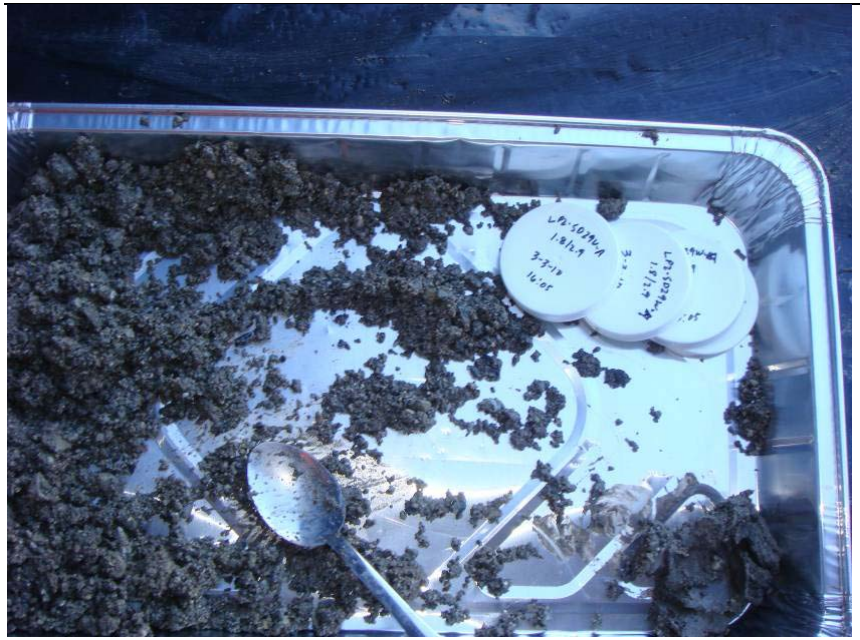
Sample: SD-13E-A-0.5/1.7

Sample: SD-13E-A-1.7/2.9

Sample: SD-13E-A-2.9/4.2

Sample: SD-29W-A-0.0/0.5

Sample: SD-29W-A-0.5/1.8



Sample: SD-29W-A-1.8/2.9

Sample: SD-08E-C-0.0/0.5

Sample: SD-08E-C-0.5/1.5

Sample: SD-08E-C-1.5/3.1

SAMPLE COLLECTION DATE: 03/03/10

Sample: SD-08E-C-3.1/4.5

Sample: SD-07E-G-0.0/0.5

Sample: SD-07E-G-0.5/1.5

Sample: SD-07E-G-1.5/2.5

Sample: SD-07E-G-2.5/3.5

Sample: SD-07E-G-3.5/4.5

Sample: SD-07E-G-4.5/5.5

Sample: SD-08E-H-0.5/1.5

Sample: SD-08E-H-1.5/2.5

Sample: SD-08E-H-2.5/3.5

Sample: SD-18W-B-0.0/0.5

Sample: SD-18W-B-0.5/1.5

Sample: SD-18W-B-1.5/2.5

SAMPLE COLLECTION DATE: 03/04/10

Sample: SD-16W-C-0.0/0.5

Sample: SD-16W-C-0.5/1.5

Sample: SD-16W-C-1.5/2.4

Sample: SD-16W-C-2.4/3.6

SAMPLE COLLECTION DATE: 03/04/10

Sample: SD-17W-E-0.0/0.5

Sample: SD-17W-E-0.5/1.5

Sample: SD-17W-E-1.5/2.5

Sample: SD-17W-E-2.5/3.5

SAMPLE COLLECTION DATE: 03/04/10

Sample: SD-17W-E-3.5/4.4

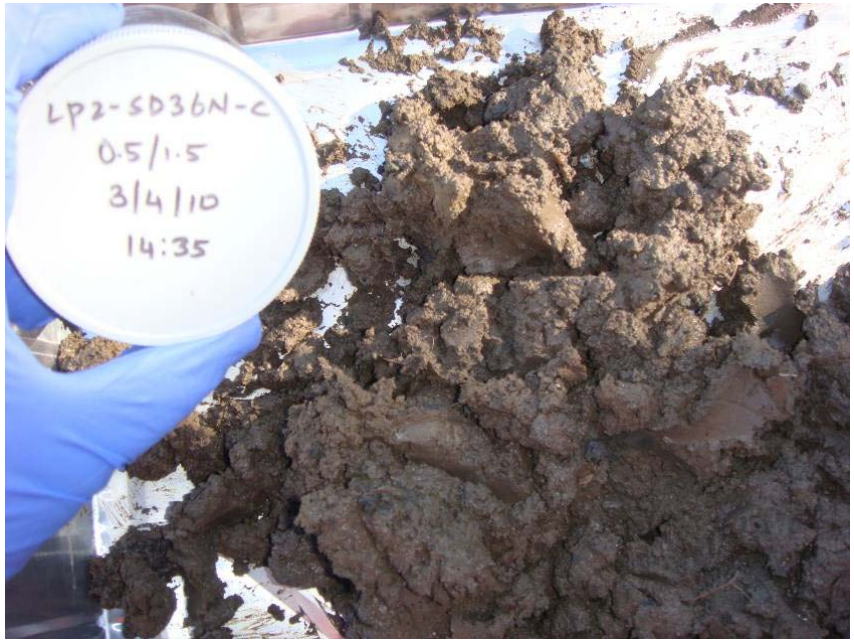
Sample: SD-35W-A-0.0/0.5

Sample: SD-35W-A-0.5/1.5

Sample: SD-35W-A-1.5/2.5

Sample: SD-35W-A-2.5/3.9

Sample: SD-36N-C-0.0/0.5



Sample: SD-36N-C-0.5/1.5

Sample: SD-36N-C-1.5/2.5

SAMPLE COLLECTION DATE: 03/04/10

Sample: SD-36N-C-2.5/3.5

Sample: SD-36N-C-3.5/4.5

SAMPLE COLLECTION DATE: 03/05/10

Sample: SD-44N-A-0.0/0.5

Sample: SD-44N-A-0.5/1.5

Sample: SD-44N-A-1.5/2.5

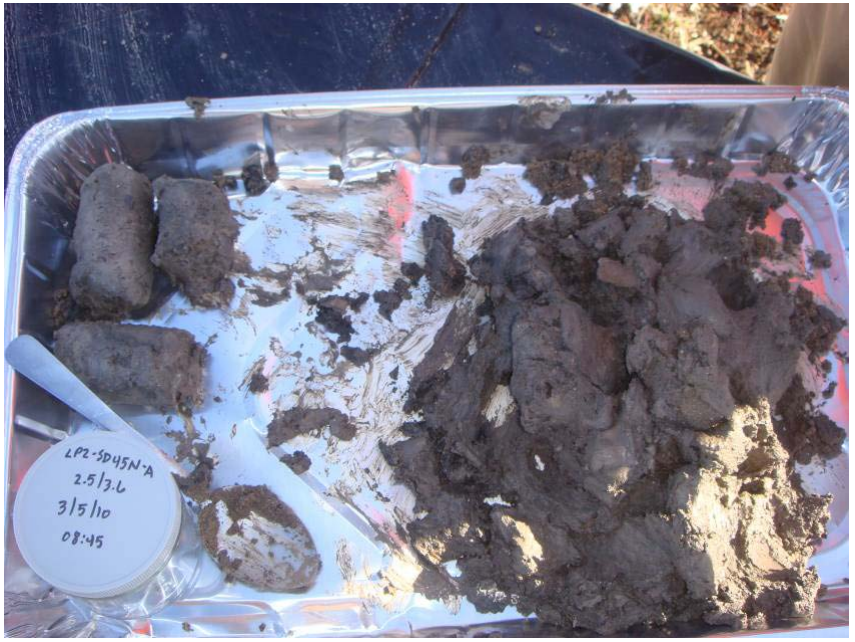
Sample: SD-44N-A-2.5/3.5

SAMPLE COLLECTION DATE: 03/05/10

Sample: SD-45N-A-0.0/0.5

Sample: SD-45N-A-0.5/1.5 and 0.5/1.5R

Sample: SD-45N-A-1.5/2.5

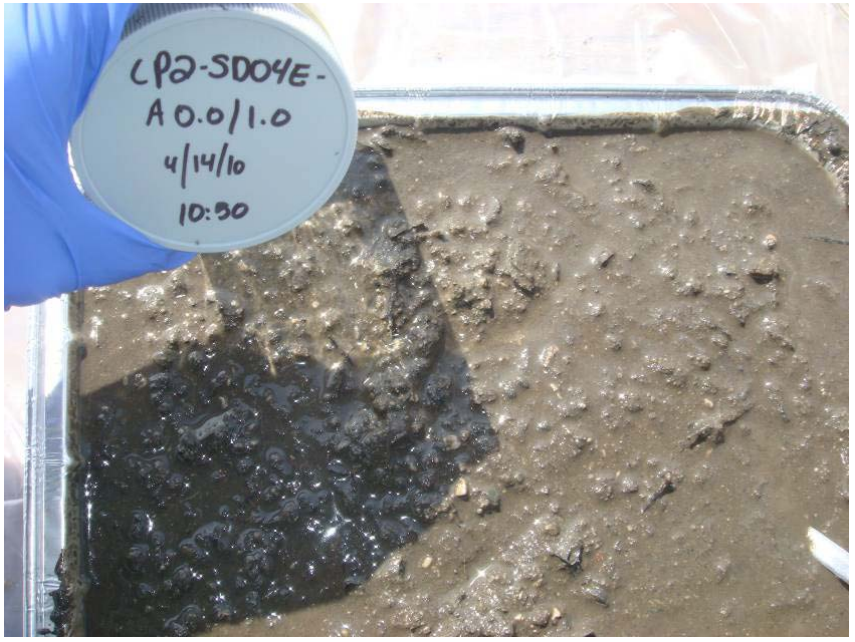


Sample: SD-45N-A-2.5/3.6

Sample: SD-01E-A-0.0/1.0

Sample: SD-03E-A-0.0/0.8

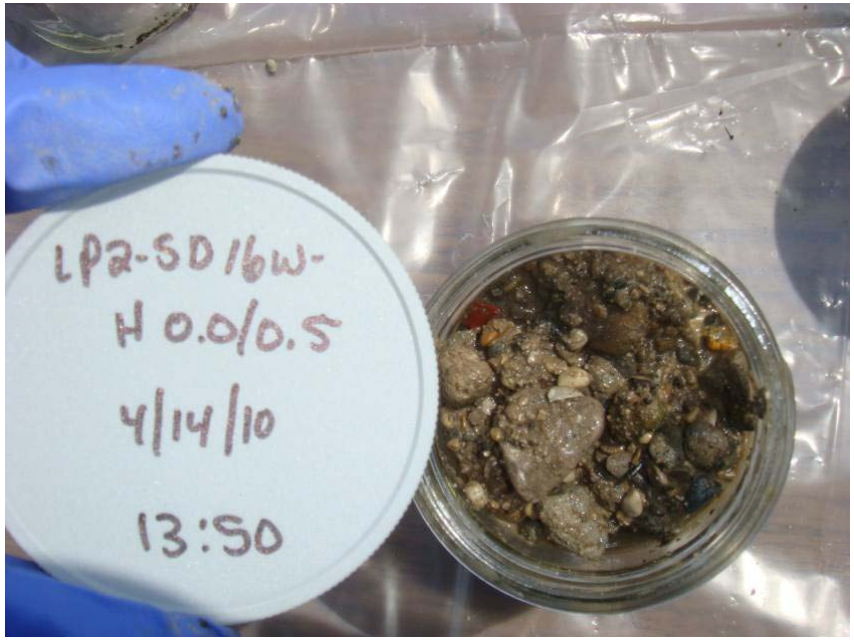
Sample: SD-04E-E-0.0/0.5



Sample: SD-04E-A-0.0/1.0

Sample: SD-12S-B-0.0/0.5

Sample: SD-12S-B-0.5/1.5



Sample: SD-16W-H-0.0/0.5

Sample: SD-16W-H-0.5/1.8

Sample: SD-11N-E-0.0/0.7

Sample: SD-17W-L-0.0/0.5

Sample: SD-17W-L-0.5/1.5

Sample: SD-17W-L-1.5/2.1

SAMPLE COLLECTION DATE: 04/14/10

Sample: SD-18E-I-0.0/0.5

Sample: SD-18E-I-0.5/1.9

Sample: SD-15W-A-0.0/0.9

Sample: SD-19E-S-0.0/0.5

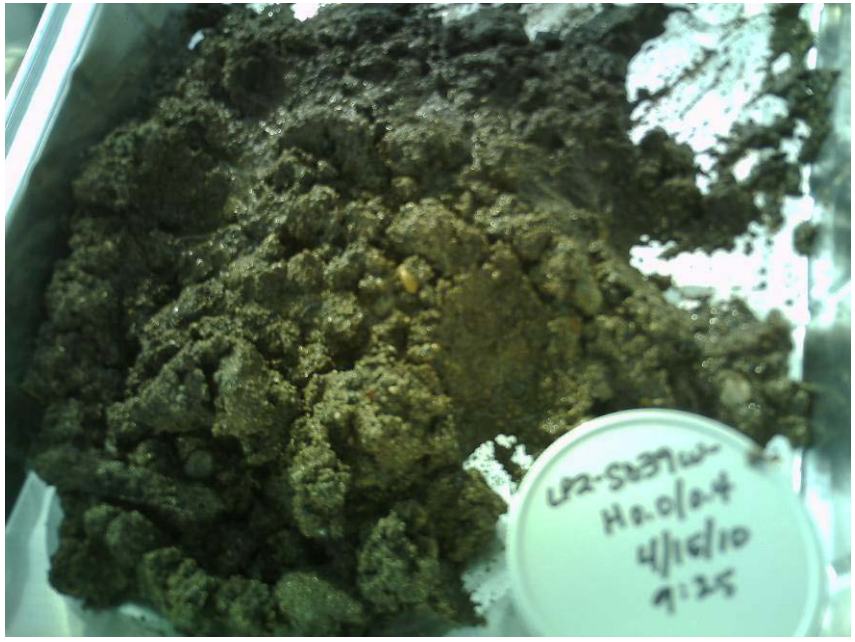
Sample: SD-E-S-0.5/1.3

Sample: SD-10S-D-0.0/0.9

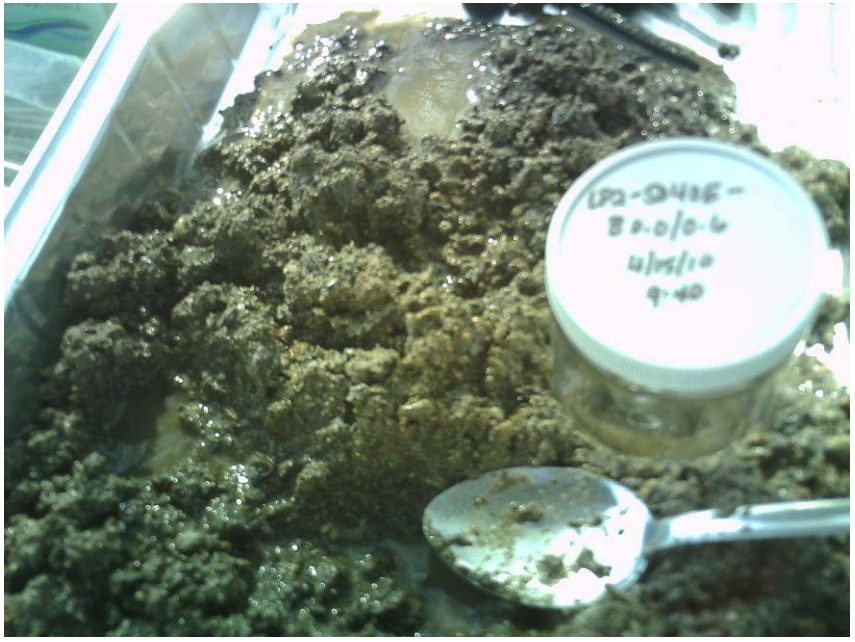
Sample: SD-36S-B-0.0/0.5

Sample: SD-20W-A-0.0/0.5

Sample: SD-20W-A-0.5/1.5



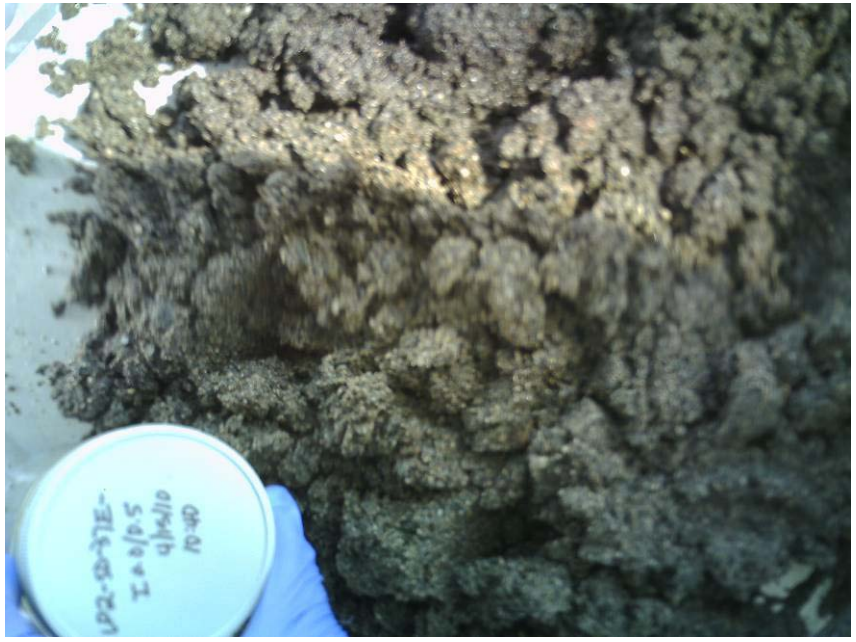
Sample: SD-39W-H-0.0/0.4



Sample: SD-40E-B-0.0/0.6

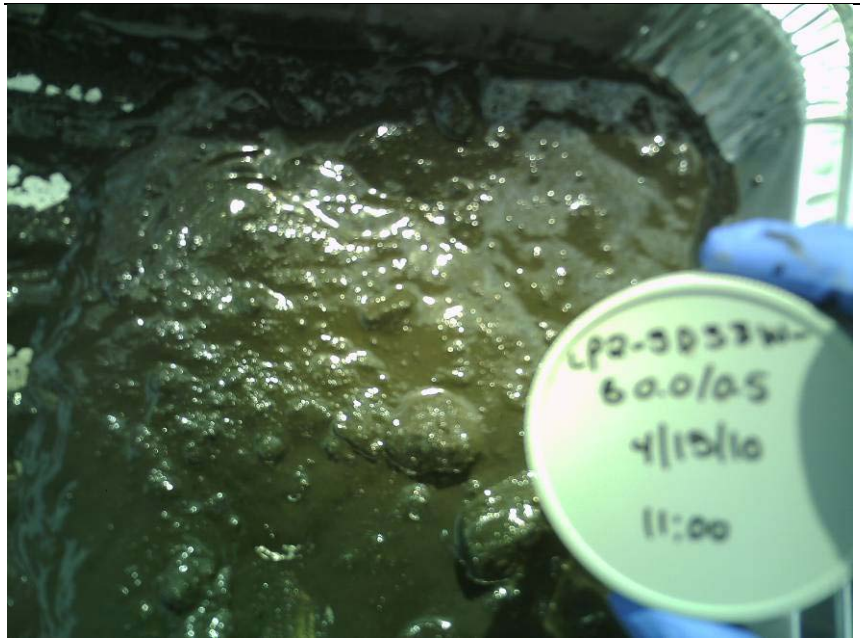
Sample: SD-37E-A-0.0/1.3

Sample: SD-40E-H-0.0/1.0



Sample: SD-37E-I-0.0/0.5

Sample: SD-37E-I-0.5/1.4



Sample: SD-53W-B-0.0/0.5

Sample: SD-33W-B-0.5-1.9

Sample: SD-39W-D-0.0/0.5

Sample: SD-39W-D-0.5/1.1

Sample: SD-41E-C-0.0/0.7

Sample: SD-42E-A-0.0/0.4

Sample: SD-42E-A-0.4/1.0

Sample: SD-42E-I-0.0/0.6

Sample: SD-35E-A-0.0/0.5

Sample: SD-35E-A-0.5/1.7

Sample: SD-43S-A-0.0/0.8

Sample: SD-43N-A-0.0/0.5

Sample: SD-43N-A-0.5/1.7

Sample: SD-46N-A-0.0/0.5

Sample: SD-47S-I-0.0/0.5

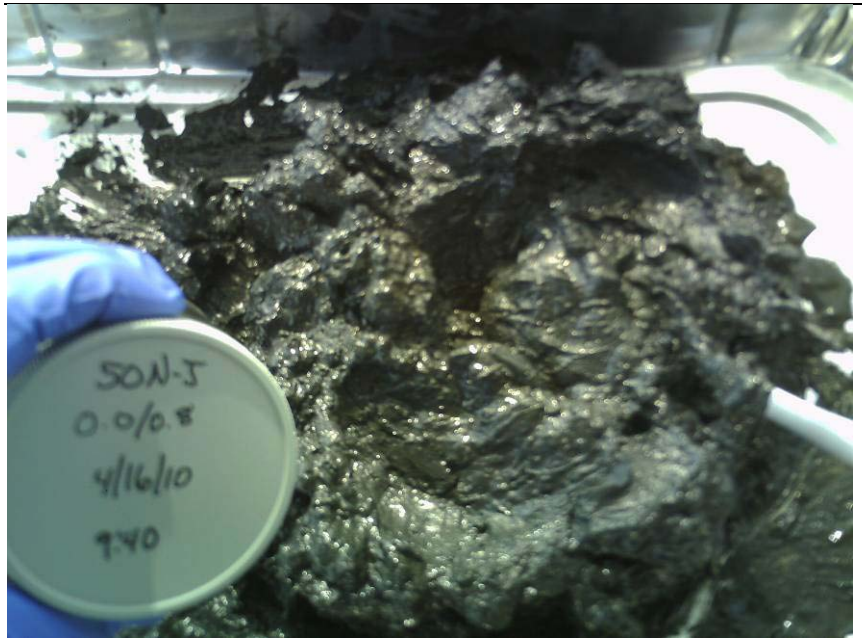
Sample: SD-47S-I-0.5/1.0

Sample: SD-50N-A-0.0/0.8

Sample: SD-49N-A-0.0/0.5

Sample: SD-49N-A-0.5/1.3

Sample: SD-48N-B1-0.0/0.8

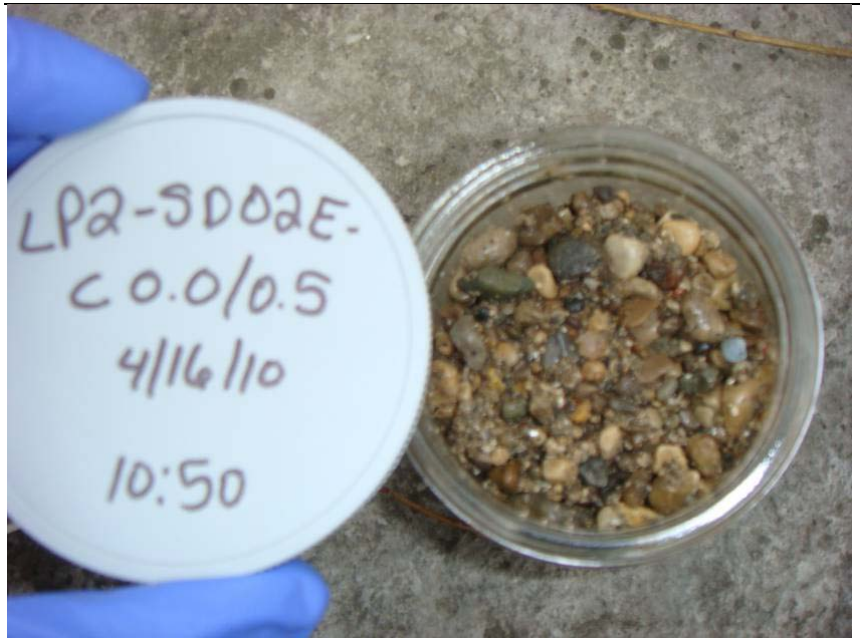


Sample: SD-50N-J-0.0/0.8

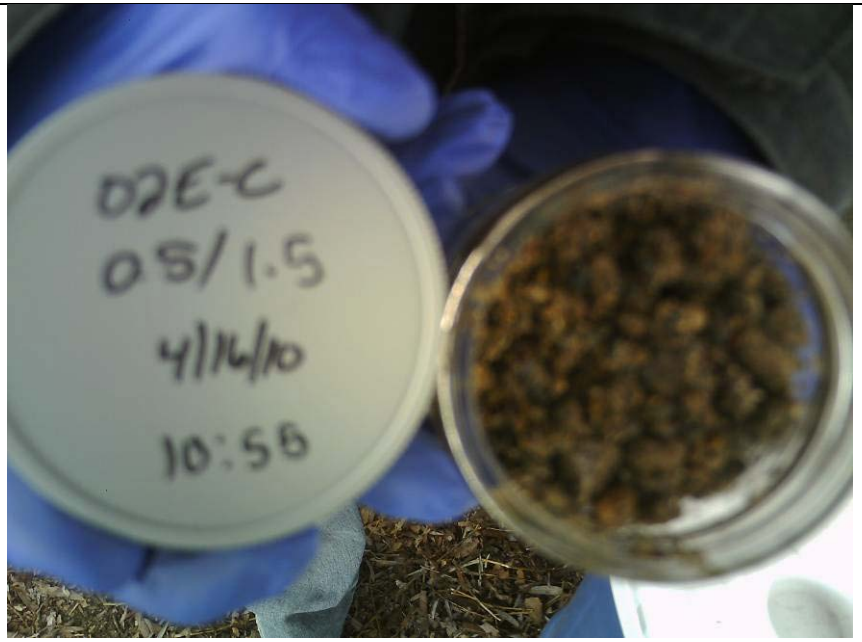
Sample: SD-51N-B-0.0/0.5

Sample: SD-52N-B-0.0/1.0

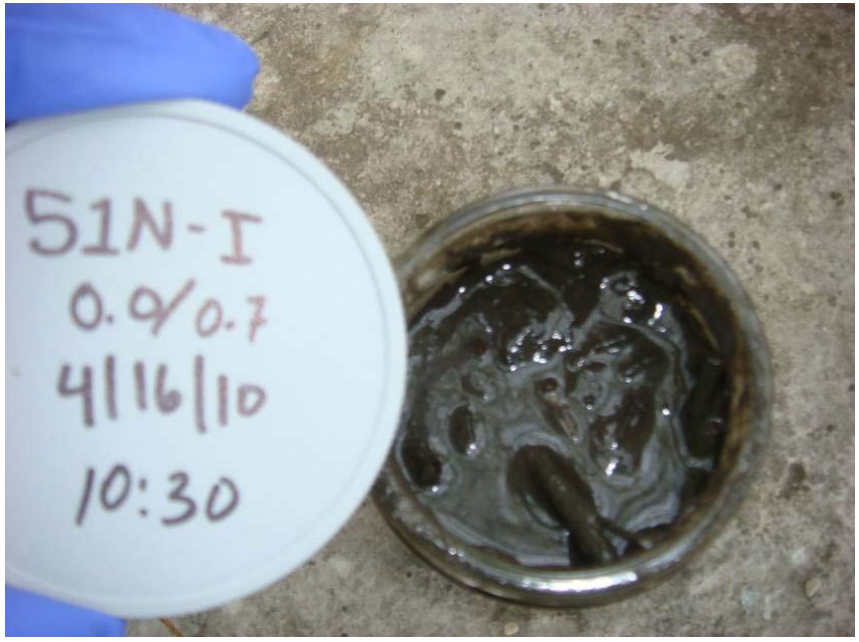
Sample: SD-53N-I-0.0/0.8



Sample: SD-02E-C-0.0/0.5



Sample: SD-02E-C-0.5/1.5



Sample: SD-51N-I-0.0/0.7

Sample: SD-58S-G-0.0/0.8

Sample: SD-55N-J-0.0/0.5

Sample: SD-55N-J-0.5/1.6

Sample: SD-56S-A-0.0/0.5

Sample: SD-56S-A-0.5/1.3

SAMPLE COLLECTION DATE: 04/16/10

Sample: SD-54N-I-0.0/0.9

Sample: SD-56S-K-0.0/0.5

Sample: SD-58S-B--0.0/0.5

Sample: SD-58S-B-0.5/1.5

SAMPLE COLLECTION DATE: 04/16/10

Sample: SD-58S-B-1.5/2.3

Appendix E
PCB Congener Results

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on November 2, 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: GLNPO/ CH2MHill
Email address: jones.brenda@epa.gov, goehl.sara@epa.gov, Adrienne.Korpela@ch2m.com, Huck.Raddemann@CH2M.com
Level 3 Data Validation

We have reviewed the data for the following case:

Site Name: Lincoln Park Sediment (WI)

Project Number: 40412 SDG Number: E4SH2-Congeners

Number and Type of Samples: 9 soils (PCB Congeners)

Sample Numbers: E4SH2, E4SN4, E4SN7, E4SP6, E4SQ0, E4SQ2 – E4SQ5

Laboratory: Cape Fear Analytical, LLC (CFA) Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Site Name: Lincoln Park Sediment (WI) SDG Number: E4SH2-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) soil samples identified in the following table were collected between April 14, 2010 and April 16, 2010. All samples were received by Microbac Laboratories (AXYS Anal Serv.) located in Baltimore, MD on April 17 and 20, 2010 for PCB congeners analysis. The samples were then shipped to Cape Fear Analytical located in Wilmington, NC. The samples were received by Cape Fear Analytical at the proper shipping temperature range of 2 - 6°C. Two (2) samples E4SN7 and E4SP6 were broken upon receipt. The remaining (7) samples; E4SH2, E4SN4, E4SQ0 and E4SQ2 – E4SQ5 were received in good condition.

The samples were analyzed for the list of 209 PCB Congeners. The samples were analyzed according to CBC01.2, December 2009, [SOW for Analysis of Chlorinated Biphenyl (CB) Congeners] and qualified according to the National Functional Guidelines for Chlorinated Biphenyl Congeners, April 2009 and the Approach for Review of PCB Congener Data for GLNPO Legacy Act Projects, June 2009.

Sample No.	Station Location	Col. Date	Col. Time	Ext. date	Anal. date
E4SH2	LP2-SD04E-A0.0/1.0	4/14/2010	10:50	9/1/10	10/3/10
E4SN4	LP2-SD49N-A0.5/1.3	4/15/2010	15:35	8/25/10	9/10/10
E4SN7	LP2-SD50N-J0.0/0.8	4/15/2010	9:40	8/25/10	9/10/10
E4SP6	LP2-SD55N-J0.0/0.5	4/16/2010	12:10	8/25/10	10/6/10
E4SQ0	LP2-SD56S-A0.5/1.3	4/16/2010	12:30	8/25/10	9/10/10
E4SQ2	LP2-SD56S-K0.0/0.5	4/16/2010	13:00	8/25/10	9/10/10
E4SQ3	LP2-SD58S-B0.0/0.5	4/16/2010	12:10	8/25/10	9/10/10
E4SQ4	LP2-SD58S-B0.5/1.5	4/16/2010	12:15	8/25/10	9/10/10
E4SQ5	LP2-SD58S-B1.5/2.3	4/16/2010	12:20	8/25/10	9/10/10

The LCS/LCSD pairs were identified as LCS13332/LCSD13332 (extracted 08-25-10) and LCS13752/LCSD13752 (extracted 09-01-10).

The Method Blanks were identified as MB13332 (extracted 08-25-10) and MB13752 (extracted 09-01-10).

No samples were identified as field duplicate.

The samples were extracted on 08-25-2010 and 09-01-2010 and promptly analyzed in less than 1 year; therefore all results meet holding time criteria.

Site Name: Lincoln Park Sediment (WI) SDG Number: E4SH2-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

1. HOLDING TIME

No problems were found.

2. SYSTEM PERFORMANCE CHECK AND INSTRUMENT STABILITY

PFK and a molecular leak were used to tune the instrument to meet the minimum resolution power of 10,000 (10% valley) at the following m/z(s).

m/z	m/z	m/z	m/z
180.988	204.988	218.985	230.985
242.985	254.985	280.982	292.982
304.982	318.979	330.979	354.979
366.979	380.976	392.976	404.976
416.976	430.972	442.972	454.972
466.972	480.969	492.969	504.969
516.969			

Static resolving power checks were performed at the beginning and end of each 12-hour shift in the analytical sequence.

CS3/WDM standards (analyzed 9/9/10 @ 21:50 and 10/3/10 @ 0:19) were not reported on the associated 5B-Form V CB-2 (Instrument Performed Check-CB Congener Chromatographic Resolution Summary). However, raw data and Form 5A-Form V CB-1 (Instrument Performed Check-CB Congener WDM Summary) for these standards were submitted with the data package.

No problems were found.

3. CALIBRATION

Wrong Ion Abundance Ratio QC limit for PCB-16 was listed on all form 6E-Form VI CB-5. It was listed in-correctly as 1.33 – 1.79. The corrected IAR limit for PCB-16 is 0.88 – 1.2 according to table 8 (Theoretical Ion Abundance Ratios and QC limits) in SOW CBC01.2. The Ion Ratio for PCB-16 in all 209 Daily CCVs were within the QC limit; therefore, no qualification is required.

The values reported in “Conc. Found” column for 7B,D-Form VII CB-2,4 were actually the %Ds not the concentration found for the PCB congeners in the CCVs. All %Ds for CCVs were within the QC limits of +/-30%.

4. BLANKS

The Method Blanks were identified as MB13332 (extracted 08-25-10) and MB13752 (extracted 09-01-10).

MB13752 contains PB-52 at 2.57 pg/g, PCB-95 at 3.11 pg/g, PCB-118 at 2.16 pg/g, total Tetra PCBs at 2.57 pg/g and total Penta PCBs at 5.27 pg/g. However, no qualification is required for the associated sample (E4SH2) because the sample results were greater than 10X the blank results.

5. IDENTIFICATION CRITERIA

Ion Abundance Ratio was not reported on the laboratory sample summary form. Raw data were used to evaluate this criterion. All Ion Abundance Ratios for the reported PCB congeners were within the QC limits according to the raw data. Therefore, no qualification is required.

6. TOXIC CB CONGENERS

The list of Toxic CB Congeners consists of PCB-77, PCB-81, PCB-105, PCB-114, PCB-118, PCB123, PCB-126, PCB-156/157, PCB-167, PCB-169 and PCB-189.

Sample:	TEFs (*)	MB13332	MB13752	E4SH2	E4SN4	E4SN7	E4SP6
PCB-77	0.0001	0	0	43.2	2300	7270	337000
PCB-81	0.0003	0	0	0	0	290	11600
PCB-105	0.00003	0	0	140	4830	24900	668000
PCB-114	0.00003	0	0	8.02	297	1620	45800
PCB-118	0.00003	0	0	338	10200	48700	1100000
PCB-123	0.00003	0	0	7.74	293	739	23000
PCB-126	0.1	0	0	0	125	0	1230
PCB-156/157	0.00003	0	0	63.6	1220	5780	72600
PCB-167	0.00003	0	0	25.2	449	1610	20600
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	0	0	10.8	140	175	2170
Total Conc.		0	0	636.56	19854	91084	2282000
Cal. TEQ		0	0	0.0221	13.25	3.32	218.1
Lab rep. TEQ		0	0	0.0221	13.3	3.32	218

Site Name: Lincoln Park Sediment (WI) SDG Number: E4SH2-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

Sample:	TEFs (*)	E4SQ0	E4SQ2	E4SQ3	E4SQ4	E4SQ5
PCB-77	0.0001	19000	3310	5270	8240	1040
PCB-81	0.0003	381	93.3	130	140	0
PCB-105	0.00003	46400	4800	10900	22900	8890
PCB-114	0.00003	2080	304	536	1120	467
PCB-118	0.00003	92700	8260	22600	50900	20400
PCB-123	0.00003	2840	224	675	1190	302
PCB-126	0.1	208	0	45.1	113	0
PCB-156/157	0.00003	8450	493	2360	5580	2860
PCB-167	0.00003	2800	138	860	1880	830
PCB-169	0.03	0	0	0	0	0
PCB-189	0.00003	378	0	181	292	108
Total Conc.		175237	17622.3	43557.1	92355	34897
Cal. TEQ		27.48	0.786	6.219	14.68	1.12
Lab rep. TEQ		27.5	0.786	6.22	14.7	1.12

(*) Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds, Society of Toxicology, July 7, 2006

7. CB TOTAL HOMOLOGUE

	MB13332	MB13752	E4SH2	E4SN4	E4SN7	E4SP6
Ttl MoCB	0	0	4	97.1	590	6970
Ttl DiCB	0	0	168	11400	37600	1570000
Ttl TrCB	0	0	1090	77500	353000	16300000
Ttl TeCB	0	2.57	2430	152000	548000	24400000
Ttl PeCB	0	5.27	2940	89300	327000	8530000
Ttl HxCB	0	0	4770	54500	119000	1580000
Ttl HpCB	0	0	3100	32200	23100	378000
Ttl OcCB	0	0	1070	9590	4400	85000
Ttl NoCB	0	0	1810	1050	676	12500
DeCB	0	0	1470	470	191	1470
Cal.Ttl PCBs	0	7.84	18852	428107	1413557	52863940
Lab reported		7.84	18900	428000	1410000	52800000

	E4SQ0	E4SQ2	E4SQ3	E4SQ4	E4SQ5
Ttl MoCB	195	1280	127	212	0
Ttl DiCB	36700	70000	22200	25000	4560
Ttl TrCB	330000	306000	123000	175000	37700
Ttl TeCB	1360000	274000	353000	620000	102000
Ttl PeCB	745000	71000	207000	400000	133000
Ttl HxCB	278000	12600	85500	161000	69900
Ttl HpCB	72600	3050	40100	58200	16900
Ttl OcCB	19700	686	11200	15800	4390
Ttl NoCB	2700	80.6	1270	2030	1170
DeCB	878	29.4	372	711	896
Cal.Ttl PCBs	2845773	738726	843769	1457953	370516
Lab reported	2850000	739000	844000	1460000	371000

8. LAB CONTROL SAMPLE (QUALITY CONTROL SUMMARY SPIKE RECOVER REPORT)

The LCS/LCSD pairs were identified as LCS13332/LCSD13332 (extracted 08-25-10) and LCS13752/LCSD13752 (extracted 09-01-10).

The recoveries and percent RPDs for the spiked PCB congeners were within the QC limit; therefore, no action is required.

9. LABELED COMPOUND RECOVERIES (SURROGATE RECOVERY REPORT)

According to the laboratory narrative, No labeled compound percent recoveries were reported for samples E4SQ0 (DF=20), E4SQ2 (DF=10), E4SQ3 (DF=10), E4SQ4 (DF=20), E4SQ5 (DF=20), E4SN4 (DF=20), E4SN7 (DF=20) and E4SP6 (DF=100) because these samples were analyzed at dilution and surrogate were diluted out.

The labeled compound percent recoveries were only reported for the method blanks, LCS/LCSD and sample E4SH2. The recoveries for these samples were within the QC limits; therefore, no qualification is required.

10. FIELD QC SAMPLES

No samples were identified as field blanks or field duplicates.

11. LAB QC SAMPLES

No PE (Performance Evaluation Sample) was provided to the laboratory for analysis. No laboratory duplicate samples were analyzed. However the Laboratory Control Samples were analyzed in duplicate for precision evaluation and the RPDs were within the QC limit; therefore, no qualification is required.

12. TARGET COMPOUND IDENTIFICATION

The non-detected congeners were reported at the adjusted CRQLs as identified in SOW CBC01.2 (12/09) Exhibit C – Section 1 [Pages C-3 thru C-7]. The adjusted CRQLs were reported as the Practical Quantitation Limits (PQL) on the "Certificate of Analysis – Sample Summary" form.

No problems were found.

13. ADDITIONAL INFORMATION

No Exes file is available for this SDG.

The following samples have one or more congeners whose concentration exceeded the laboratory's upper calibration limit and no further dilution was performed. The detected congeners are qualified "J".

E4SP6
PCB-15, PCB-16, PCB-17, PCB-18, PCB-20, PCB-22, PCB-25, PCB-31, PCB-32, PCB-37, PCB-40, PCB-42, PCB-44, PCB-49, PCB-52, PCB-56, PCB-61, PCB-64, PCB-66, PCB-95, PCB-118

E4SQ0
PCB-52, PCB-66

The samples were analyzed accordingly to the SOW CBC01.2. However, non-standard Forms were used in the data package. The following Forms were used to evaluate the sample results:

- "Certificate of Analysis – Sample Summary" form is equivalent to 1A-Form I CB-1, 1B-Form I CB-2, 2A-Form II CB-1

- Quality Control Summary – Spike Recovery Report is equivalent to forms 3A-Form III CB-1, and 3B-Form III CB-2.

- Surrogate Recovery Report is equivalent to 2A - Form II CB-1 [Toxics/LOC CB Congener (Labeled) Compound Recovery]. This forms were used for the method blanks LCS/LCSD and sample E4SH2 only. This form was not used for samples

E4SQ0, E4SQ2, E4SQ3, E4SQ4, E4SQ5, E4SN4, E4SN7 and E4SP6 because these samples were analyzed at dilution and surrogate were diluted out.

- Laboratory forms "6A,C-Form VI CB-1,3" is equivalent to 6A-Form VI CB-1, 6C-Form VI CB-3 and 6F-Form VI CB-6 of SOW CBC01.2.

- Laboratory forms "6B,D-Form VI CB-2,4" is equivalent to 6B-Form VI CB-2, 6D-Form VI CB-4 and 6G-Form VI CB-7 of SOW CBC01.2.

- Laboratory forms "7A,C-Form VII CB-1,3" is equivalent to 7A-Form VII CB-1, 7C-Form VII CB-3 and 7F-Form VII CB-5 of SOW CBC01.2.

- Laboratory forms "7B,D-Form VII CB-2,4" is equivalent to 7B-Form VII CB-2, 7D-Form VII CB-4 and 7G-Form VII CB-6 of SOW CBC01.2.

Site Name: Lincoln Park Sediment (WI) SDG Number: E4SH2-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

Data Qualifier Definitions

U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

J The analyte was positively identified and the associated numerical value is the approximated concentration of the analyte in the sample [due either to the quality of the data generated because certain Quality Control (QC) criteria were not met, or the concentration of the analyte was below the adjusted CRQL].

UJ The analyte was not detected at a level greater than or equal to the adjusted CRQL or the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

EML Estimated Minimum Level of Quantitation – level at which the congener can be determined with laboratory contamination present.

EMDL Estimated Method Detection Limit – level at which the congener can be determined with no interferences present.

Sample:	TEFs (*)	MB13332	MB13752	E4SH2	E4SN4	E4SN7	E4SP6
PCB-77	0.0001	0	0	43.2	2300	7270	337000
PCB-81	0.0003	0	0	0	0	290	11600
PCB-105	0.00003	0	0	140	4830	24900	668000
PCB-114	0.00003	0	0	8.02	297	1620	45800
PCB-118	0.00003	0	0	338	10200	48700	1100000
PCB-123	0.00003	0	0	7.74	293	739	23000
PCB-126	0.1	0	0	0	125	0	1230
PCB-156/157	0.00003	0	0	63.6	1220	5780	72600
PCB-167	0.00003	0	0	25.2	449	1610	20600
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	0	0	10.8	140	175	2170
Toltal		0	0	636.56	19854	91084	2282000
Cal. Total TEQ		0	0	0.0221	13.25	3.32	218.1
Lab rep. TEQ		0	0	0.0221	13.3	3.32	218

Sample:	TEFs (*)	E4SQ0	E4SQ2	E4SQ3	E4SQ4	E4SQ5	
PCB-77	0.0001	19000	3310	5270	8240	1040	
PCB-81	0.0003	381	93.3	130	140	0	
PCB-105	0.00003	46400	4800	10900	22900	8890	
PCB-114	0.00003	2080	304	536	1120	467	
PCB-118	0.00003	92700	8260	22600	50900	20400	
PCB-123	0.00003	2840	224	675	1190	302	
PCB-126	0.1	208	0	45.1	113	0	
PCB-156/157	0.00003	8450	493	2360	5580	2860	
PCB-167	0.00003	2800	138	860	1880	830	
PCB-169	0.03	0	0	0	0	0	
PCB-189	0.00003	378	0	181	292	108	
Toltal		175237	17622.3	43557.1	92355	34897	0
Cal. Total TEQ		27.48	0.786	6.219	14.68	1.12	0
Lab rep. TEQ		27.5	0.786	6.22	14.7	1.12	

(*) Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds, Society of Toxicology, July 7, 2006

	MB13332	MB13752	E4SH2	E4SN4	E4SN7	E4SP6
Ttl MoCB			4	97.1	590	6970
Ttl DiCB			168	11400	37600	1570000
Ttl TrCB			1090	77500	353000	16300000
Ttl TeCB		2.57	2430	152000	548000	24400000
Ttl PeCB		5.27	2940	89300	327000	8530000
Ttl HxCB			4770	54500	119000	1580000
Ttl HpCB			3100	32200	23100	378000
Ttl OcCB			1070	9590	4400	85000
Ttl NoCB			1810	1050	676	12500
DeCB			1470	470	191	1470
Cal.Ttl PCBs	0	7.84	18852	428107	1413557	52863940
Lab reported		7.84	18900	428000	1410000	52800000

	E4SQ0	E4SQ2	E4SQ3	E4SQ4	E4SQ5	
Ttl MoCB	195	1280	127	212	0	
Ttl DiCB	36700	70000	22200	25000	4560	
Ttl TrCB	330000	306000	123000	175000	37700	
Ttl TeCB	1360000	274000	353000	620000	102000	
Ttl PeCB	745000	71000	207000	400000	133000	
Ttl HxCB	278000	12600	85500	161000	69900	
Ttl HpCB	72600	3050	40100	58200	16900	
Ttl OcCB	19700	686	11200	15800	4390	
Ttl NoCB	2700	80.6	1270	2030	1170	
DeCB	878	29.4	372	711	896	
Cal.Ttl PCBs	2845773	738726	843769	1457953	370516	0
Lab reported	2850000	739000	844000	1460000	371000	

Sample No.	Station Location	Collection Date	Col. Time	Rec. Microbac	Rec. Cape lab	Extraction date	Analysis date
E4SH2	LP2-SD04E-A0.0/1.0	4/14/2010	10:50	4/17/2010	8/7/2010	9/1/2010	10/3/2010
E4SN4	LP2-SD49N-A0.5/1.3	4/15/2010	15:35	4/20/2010	8/7/2010	8/25/2010	9/10/2010
E4SN7	LP2-SD50N-J0.0/0.8	4/15/2010	9:40	4/20/2010	8/7/2010	8/25/2010	9/10/2010
E4SP6	LP2-SD55N-J0.0/0.5	4/16/2010	12:10	4/20/2010	8/7/2010 *	8/25/2010	10/6/2010
E4SQ0	LP2-SD56S-A0.5/1.3	4/16/2010	12:30	4/20/2010	8/7/2010	8/25/2010	9/10/2010
E4SQ2	LP2-SD56S-K0.0/0.5	4/16/2010	13:00	4/20/2010	8/7/2010	8/25/2010	9/10/2010
E4SQ3	LP2-SD58S-B0.0/0.5	4/16/2010	12:10	4/20/2010	8/7/2010	8/25/2010	9/10/2010
E4SQ4	LP2-SD58S-B0.5/1.5	4/16/2010	12:15	4/20/2010	8/7/2010	8/25/2010	9/10/2010
E4SQ5	LP2-SD58S-B1.5/2.3	4/16/2010	12:20	4/20/2010	8/7/2010	8/25/2010	9/10/2010

* Samples were broken upon receipt at Cape Fear

SDG Number	E4SH2
Lab Sample ID	1556009
Client ID	E4SH2
Date Collected	14-Apr-10
Date Received	7-Aug-10
Matrix	SOIL
% moisture	0.201 %
theoretical aliquot	10 g
actual aliquot	11.02 g
Prep Date	1-Sep-10
Run Date	3-Oct-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1		U	2	1.14	2.27				
PCB-2		U	2	1.14	2.27				
PCB-3	4		2	1.14	2.27	Mono PCBs	4		
PCB-4	36.1		2	1.14	2.27				
PCB-5		U	2	1.14	2.27				
PCB-6	11.7		2	1.14	2.27				
PCB-7		U	2	1.14	2.27				
PCB-8	32.5		2	1.14	2.27				
PCB-9		U	2	1.14	2.27				
PCB-10	2.97		2	1.14	2.27				
PCB11		U	100	1.14	113.57				
PCB-12/13	10.2		4	1.14	4.54				
PCB-14		U	2	1.14	2.27				
PCB-15	74.1		10	1.14	11.36	Di PCBs	167.57		
PCB-16	42.7		2	1.14	2.27				
PCB-17	81		2	1.14	2.27				
PCB-18/30	122		4	1.14	4.54				
PCB-19	37.5		2	1.14	2.27				
PCB-20/28	271		20	1.14	22.71				
PCB-21/33	61.6		20	1.14	22.71				
PCB-22	52.3	U	10	1.14	11.36				
PCB-23		U	2	1.14	2.27				
PCB-24		U	2	1.14	2.27				
PCB-25	29.2		2	1.14	2.27				
PCB-26/29	45.3		4	1.14	4.54				
PCB-27	24.2		2	1.14	2.27				
PCB-31	168		10	1.14	11.36				
PCB-32	40.6		2	1.14	2.27				
PCB-34		U	2	1.14	2.27				
PCB-35	3.72		2	1.14	2.27				
PCB-36		U	2	1.14	2.27				
PCB-37	110		10	1.14	11.36				
PCB-38		U	2	1.14	2.27				
PCB-39		U	2	1.14	2.27	Tri OCBs	1089.12		
PCB-40/71	126		2	1.14	2.27				
PCB-41		U	100	1.14	113.57				
PCB-42	81		2	1.14	2.27				
PCB-43	19.7		2	1.14	2.27				
PCB-44/47/65	331		6	1.14	6.81				
PCB-45/51	56.5		40	1.14	45.43				
PCB-46	18.1		2	1.14	2.27				
PCB-48	41.1		2	1.14	2.27				
PCB-49/69	257		4	1.14	4.54				
PCB-50/53	55.8		4	1.14	4.54				
PCB-52	409		2	1.14	2.27				
PCB-54	3.74		2	1.14	2.27				
PCB-55		U	2	1.14	2.27				
PCB-56	121		2	1.14	2.27				
PCB-57		U	2	1.14	2.27				
PCB-58		U	2	1.14	2.27				
PCB-59/32/75	31		6	1.14	6.81				
PCB-60	39.8		2	1.14	2.27				
PCB-61/70/74/76	361		8	1.14	9.09				
PCB-63	12.5		2	1.14	2.27				
PCB-64	126		2	1.14	2.27				
PCB-66	274		10	1.14	11.36				
PCB-67	7.53		2	1.14	2.27				

SDG Number	E4SH2								
Lab Sample ID	1556009								
Client ID	E4SH2								
Date Collected	14-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.201	%							
theoretical aliquot	10	g							
actual aliquot	11.02	g							
Prep Date	1-Sep-10								
Run Date	3-Oct-10								
Dilution	1								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	4.66		2	1.14	2.27				
PCB-72	5.42		2	1.14	2.27				
PCB-73		U	2	1.14	2.27				
PCB-77	43.2		2	1.14	2.27			0.0001	0.00432
PCB-78		U	2	1.14	2.27				
PCB-79	5.71		2	1.14	2.27				
PCB-80	3.49		2	1.14	2.27				
PCB-81		U	2	1.14	2.27	Tetra PCBs	2350.65	0.0003	0
PCB-82	42.4		2	1.14	2.27				
PCB-83	22.3		2	1.14	2.27				
PCB-84	86.6		2	1.14	2.27				
PCB-85/116/117	65.7		6	1.14	6.81				
PCB-86/87/97/109/119/125	246		12	1.14	13.63				
PCB-88/91	70.8		4	1.14	4.54				
PCB-89	4.48		2	1.14	2.27				
PCB-90/101/113	539		6	1.14	6.81				
PCB-92	183		2	1.14	2.27				
PCB-93/100	13.4		4	1.14	4.54				
PCB-94	20.1		2	1.14	2.27				
PCB-95	318		2	1.14	2.27				
PCB-96	3.62		2	1.14	2.27				
PCB-98/102	56.8		4	1.14	4.54				
PCB-99	240		2	1.14	2.27				
PCB-103	21.3		2	1.14	2.27				
PCB-104		U	2	1.14	2.27				
PCB-105	140		2	1.14	2.27			0.00003	0.0042
PCB-106		U	2	1.14	2.27				
PCB-107	31.1		2	1.14	2.27				
PCB-108/124	10.1		4	1.14	4.54				
PCB-110/115	458		4	1.14	4.54				
PCB-111		U	2	1.14	2.27				
PCB-112		U	2	1.14	2.27				
PCB-114	8.02		2	1.14	2.27			0.00003	0.0002406
PCB-118	338		2	1.14	2.27			0.00003	0.01014
PCB-120	5.75		2	1.14	2.27				
PCB-121		U	2	1.14	2.27				
PCB-122	3.55		2	1.14	2.27				
PCB-123	7.74		2	1.14	2.27			0.00003	0.0002322
PCB-126		U	2	1.14	2.27			0.1	0
PCB-127		U	2	1.14	2.27	Penta PCBs	2935.76		
PCB-128/166	61.2		4	1.14	4.54				
PCB-129/138/163	875		6	1.14	6.81				
PCB-130	48.7		2	1.14	2.27				
PCB-131	4.23		2	1.14	2.27				
PCB-132	223		2	1.14	2.27				
PCB-133	53.4		2	1.14	2.27				
PCB-134	38.9		2	1.14	2.27				
PCB-135/151	538		4	1.14	4.54				
PCB-136	6.66		2	1.14	2.27				
PCB-137	12.1		2	1.14	2.27				
PCB-139/140	17.5		4	1.14	4.54				
PCB-141	140		2	1.14	2.27				
PCB-142		U	2	1.14	2.27				
PCB-143		U	2	1.14	2.27				
PCB-144	32.8		2	1.14	2.27				
PCB-145	115		2	1.14	2.27				
PCB-146	301		2	1.14	2.27				

SDG Number	E4SH2								
Lab Sample ID	1556009								
Client ID	E4SH2								
Date Collected	14-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.201	%							
theoretical aliquot	10	g							
actual aliquot	11.02	g							
Prep Date	1-Sep-10								
Run Date	3-Oct-10								
Dilution	1								
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	1000		4	1.14	4.54					
PCB-148	17.6		2	1.14	2.27					
PCB-150		U	2	1.14	2.27					
PCB-152		U	2	1.14	2.27					
PCB-153/168	978		4	1.14	4.54					
PCB-154	74.1		2	1.14	2.27					
PCB-155		U	2	1.14	2.27					
PCB-156/157	63.6		4	1.14	4.54				0.00003	0.001908
PCB-158	57.1		2	1.14	2.27					
PCB-159	11.4		2	1.14	2.27					
PCB-160		U	2	1.14	2.27					
PCB-161		U	2	1.14	2.27					
PCB-162	10.5		2	1.14	2.27					
PCB-164	56.4		2	1.14	2.27					
PCB-165	6.81		2	1.14	2.27					
PCB-167	25.2		2	1.14	2.27				0.00003	0.000756
PCB-169		U	2	1.14	2.27	Hexa PCBs		4768.2	0.03	0
PCB-170	266		2	1.14	2.27					
PCB-171/173	84.2		4	1.14	4.54					
PCB-172	57.1		2	1.14	2.27					
PCB-174	373		2	1.14	2.27					
PCB-175	11.4		2	1.14	2.27					
PCB-176	46		2	1.14	2.27					
PCB-177	262		2	1.14	2.27					
PCB-178	145		2	1.14	2.27					
PCB-179	223		2	1.14	2.27					
PCB-180/193	710		4	1.14	4.54					
PCB-181		U	2	1.14	2.27					
PCB-182	2.4		2	1.14	2.27					
PCB-183/185	206		4	1.14	4.54					
PCB-184		U	2	1.14	2.27					
PCB-186		U	2	1.14	2.27					
PCB-187	630		2	1.14	2.27					
PCB-188	2.48		2	1.14	2.27					
PCB-189	10.8		2	1.14	2.27				0.00003	0.000324
PCB-190	63.1		2	1.14	2.27					
PCB-191	9.44		2	1.14	2.27					
PCB-192		U	2	1.14	2.27	Hepta PCBs		3101.92		
PCB-194	179		2	1.14	2.27					
PCB-195	81.4		2	1.14	2.27					
PCB-196	102		2	1.14	2.27					
PCB-197/200	36.8		4	1.14	4.54					
PCB-198/199	369		4	1.14	4.54					
PCB-201	31.2		2	1.14	2.27					
PCB-202	99.3		2	1.14	2.27					
PCB-203	157		2	1.14	2.27					
PCB-204		U	2	1.14	2.27					
PCB-205	11.8		2	1.14	2.27	Octa PCBss		1067.5		
PCB-206	1200		2	1.14	2.27					
PCB-207	58.3		2	1.14	2.27					
PCB-208	560		2	1.14	2.27	Nona PCBs		1818.3		
PCB-209	1470		2	1.14	2.27	Deca PCBs		1470		
Total Mono PCBs	4		2	1.14	2.27					
Total Di PCBs	168		2	1.14	2.27					
Total Tri PCBs	1090		2	1.14	2.27					
Total Tetra PCBs	2430		2	1.14	2.27					
Total Penta PCBs	2940		2	1.14	2.27					

SDG Number	E4SH2							
Lab Sample ID	1556009							
Client ID	E4SH2							
Date Collected	14-Apr-10							
Date Received	7-Aug-10							
Matrix	SOIL							
% moisture	0.201	%						
theoretical aliquot	10	g						
actual aliquot	11.02	g						
Prep Date	1-Sep-10							
Run Date	3-Oct-10							
Dilution	1							
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	4770		2	1.14	2.27				
Total Hepta PCBs	3100		2	1.14	2.27				
Total Octa PCBs	1070		2	1.14	2.27				
Total Nona PCBs	1810		2	1.14	2.27				
Total Deca PCBs	1470		2	1.14	2.27				
Total PCB Congeners	18900		2	1.14	2.27		18773.02		
Total PCB WHO2005 ND=0	0.0221								0.0221208

SDG Number	E4SH2
Lab Sample ID	1556009
Client ID	E4SN4
Date Collected	14-Apr-10
Date Received	7-Aug-10
Matrix	SOIL
% moisture	0.444 %
theoretical aliquot	10 g
actual aliquot	10.14 g
Prep Date	25-Aug-10
Run Date	10-Sep-10
Dilution	20

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1		U	2	1.77	70.95				
PCB-2		U	2	1.77	70.95				
PCB-3	97.1		2	1.77	70.95	Mono PCBs	97.1		
PCB-4	1430		2	1.77	70.95				
PCB-5		U	2	1.77	70.95				
PCB-6	1210		2	1.77	70.95				
PCB-7	76		2	1.77	70.95				
PCB-8	2210		2	1.77	70.95				
PCB-9	132		2	1.77	70.95				
PCB-10	86.4		2	1.77	70.95				
PCB11		U	100	1.77	3547.46				
PCB-12/13	503		4	1.77	141.90				
PCB-14		U	2	1.77	70.95				
PCB-15	5800		10	1.77	354.75	Di PCBs	11447.4		
PCB-16	3580		2	1.77	70.95				
PCB-17	5150		2	1.77	70.95				
PCB-18/30	9200		4	1.77	141.90				
PCB-19	2560		2	1.77	70.95				
PCB-20/28	18300		20	1.77	709.49				
PCB-21/33	4150		20	1.77	709.49				
PCB-22	3960		10	1.77	354.75				
PCB-23		U	2	1.77	70.95				
PCB-24		U	2	1.77	70.95				
PCB-25	2300		2	1.77	70.95				
PCB-26/29	3790		4	1.77	141.90				
PCB-27	1620		2	1.77	70.95				
PCB-31	11800		10	1.77	354.75				
PCB-32	3990		2	1.77	70.95				
PCB-34	110		2	1.77	70.95				
PCB-35	181		2	1.77	70.95				
PCB-36		U	2	1.77	70.95				
PCB-37	6760		10	1.77	354.75				
PCB-38		U	2	1.77	70.95				
PCB-39		U	2	1.77	70.95	Tri OCBs	77451		
PCB-40/71	9540		2	1.77	70.95				
PCB-41			100	1.77	3547.46				
PCB-42	6390		2	1.77	70.95				
PCB-43	1290		2	1.77	70.95				
PCB-44/47/65	22800		6	1.77	212.85				
PCB-45/51	5580		40	1.77	1418.98				
PCB-46	2130		2	1.77	70.95				
PCB-48	2590		2	1.77	70.95				
PCB-49/69	14100		4	1.77	141.90				
PCB-50/53	4620		4	1.77	141.90				
PCB-52	25500		2	1.77	70.95				
PCB-54	104		2	1.77	70.95				
PCB-55		U	2	1.77	70.95				
PCB-56	6860		2	1.77	70.95				
PCB-57		U	2	1.77	70.95				
PCB-58		U	2	1.77	70.95				
PCB-59/32/75	2110		6	1.77	212.85				
PCB-60	2080		2	1.77	70.95				
PCB-61/70/74/76	18900		8	1.77	283.80				
PCB-63	502		2	1.77	70.95				
PCB-64	7330		2	1.77	70.95				
PCB-66	16500		10	1.77	354.75				
PCB-67	356		2	1.77	70.95				

SDG Number	E4SH2									
Lab Sample ID	1556009									
Client ID	E4SN4									
Date Collected	14-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.444	%								
theoretical aliquot	10	g								
actual aliquot	10.14	g								
Prep Date	25-Aug-10									
Run Date	10-Sep-10									
Dilution	20									

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	115		2	1.77	70.95				
PCB-72	169		2	1.77	70.95				
PCB-73		U	2	1.77	70.95				
PCB-77	2300		2	1.77	70.95			0.0001	0.23
PCB-78		U	2	1.77	70.95				
PCB-79	207		2	1.77	70.95				
PCB-80		U	2	1.77	70.95				
PCB-81		U	2	1.77	70.95	Tetra PCBs	152073	0.0003	0
PCB-82	2230		2	1.77	70.95				
PCB-83	951		2	1.77	70.95				
PCB-84	4440		2	1.77	70.95				
PCB-85/116/117	2620		6	1.77	212.85				
PCB-86/87/97/109/119/125	9200		12	1.77	425.69				
PCB-88/91	2800		4	1.77	141.90				
PCB-89	381		2	1.77	70.95				
PCB-90/101/113	12300		6	1.77	212.85				
PCB-92	3350		2	1.77	70.95				
PCB-93/100	292		4	1.77	141.90				
PCB-94	295		2	1.77	70.95				
PCB-95	9860		2	1.77	70.95				
PCB-96	234		2	1.77	70.95				
PCB-98/102	1220		4	1.77	141.90				
PCB-99	7250		2	1.77	70.95				
PCB-103	258		2	1.77	70.95				
PCB-104		U	2	1.77	70.95				
PCB-105	4830		2	1.77	70.95			0.00003	0.1449
PCB-106		U	2	1.77	70.95				
PCB-107	809		2	1.77	70.95				
PCB-108/124	329		4	1.77	141.90				
PCB-110/115	14600		4	1.77	141.90				
PCB-111		U	2	1.77	70.95				
PCB-112		U	2	1.77	70.95				
PCB-114	297		2	1.77	70.95			0.00003	0.00891
PCB-118	10200		2	1.77	70.95			0.00003	0.306
PCB-120		U	2	1.77	70.95				
PCB-121		U	2	1.77	70.95				
PCB-122	199		2	1.77	70.95				
PCB-123	293		2	1.77	70.95			0.00003	0.00879
PCB-126	125		2	1.77	70.95			0.1	12.5
PCB-127		U	2	1.77	70.95	Penta PCBs	89363		
PCB-128/166	1310		4	1.77	141.90				
PCB-129/138/163	11200		6	1.77	212.85				
PCB-130	686		2	1.77	70.95				
PCB-131	125		2	1.77	70.95				
PCB-132	3240		2	1.77	70.95				
PCB-133	470		2	1.77	70.95				
PCB-134	701		2	1.77	70.95				
PCB-135/151	5270		4	1.77	141.90				
PCB-136	1460		2	1.77	70.95				
PCB-137	299		2	1.77	70.95				
PCB-139/140	245		4	1.77	141.90				
PCB-141	1770		2	1.77	70.95				
PCB-142		U	2	1.77	70.95				
PCB-143		U	2	1.77	70.95				
PCB-144	407		2	1.77	70.95				
PCB-145		U	2	1.77	70.95				
PCB-146	3030		2	1.77	70.95				

SDG Number	E4SH2									
Lab Sample ID	1556009									
Client ID	E4SN4									
Date Collected	14-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.444	%								
theoretical aliquot	10	g								
actual aliquot	10.14	g								
Prep Date	25-Aug-10									
Run Date	10-Sep-10									
Dilution	20									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	9940		4	1.77	141.90					
PCB-148	150		2	1.77	70.95					
PCB-150		U	2	1.77	70.95					
PCB-152		U	2	1.77	70.95					
PCB-153/168	10000		4	1.77	141.90					
PCB-154	649		2	1.77	70.95					
PCB-155		U	2	1.77	70.95					
PCB-156/157	1220		4	1.77	141.90				0.00003	0.0366
PCB-158	885		2	1.77	70.95					
PCB-159	145		2	1.77	70.95					
PCB-160		U	2	1.77	70.95					
PCB-161	141		2	1.77	70.95					
PCB-162		U	2	1.77	70.95					
PCB-164	736		2	1.77	70.95					
PCB-165		U	2	1.77	70.95					
PCB-167	449		2	1.77	70.95				0.00003	0.01347
PCB-169		U	2	1.77	70.95	Hexa PCBs		54528	0.03	0
PCB-170	3190		2	1.77	70.95					
PCB-171/173	944		4	1.77	141.90					
PCB-172	642		2	1.77	70.95					
PCB-174	3730		2	1.77	70.95					
PCB-175	136		2	1.77	70.95					
PCB-176	487		2	1.77	70.95					
PCB-177	2600		2	1.77	70.95					
PCB-178	1340		2	1.77	70.95					
PCB-179	2040		2	1.77	70.95					
PCB-180/193	8040		4	1.77	141.90					
PCB-181		U	2	1.77	70.95					
PCB-182		U	2	1.77	70.95					
PCB-183/185	2170		4	1.77	141.90					
PCB-184		U	2	1.77	70.95					
PCB-186		U	2	1.77	70.95					
PCB-187	5970		2	1.77	70.95					
PCB-188		U	2	1.77	70.95					
PCB-189	140		2	1.77	70.95				0.00003	0.0042
PCB-190	693		2	1.77	70.95					
PCB-191	116		2	1.77	70.95					
PCB-192		U	2	1.77	70.95	Hepta PCBs		32238		
PCB-194	2220		2	1.77	70.95					
PCB-195	869		2	1.77	70.95					
PCB-196	1040		2	1.77	70.95					
PCB-197/200	366		4	1.77	141.90					
PCB-198/199	2650		4	1.77	141.90					
PCB-201	300		2	1.77	70.95					
PCB-202	589		2	1.77	70.95					
PCB-203	1430		2	1.77	70.95					
PCB-204		U	2	1.77	70.95					
PCB-205	143		2	1.77	70.95	Octa PCBss		9607		
PCB-206	767		2	1.77	70.95					
PCB-207	99.9		2	1.77	70.95					
PCB-208	187		2	1.77	70.95	Nona PCBs		1053.9		
PCB-209	470		2	1.77	70.95	Deca PCBs		470		
Total Mono PCBs	97.1		2	1.77	70.95					
Total Di PCBs	11400		2	1.77	70.95					
Total Tri PCBs	77500		2	1.77	70.95					
Total Tetra PCBs	152000		2	1.77	70.95					
Total Penta PCBs	89300		2	1.77	70.95					

SDG Number	E4SH2	
Lab Sample ID	1556009	
Client ID	E4SN4	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
% moisture	0.444	%
theoretical aliquot	10	g
actual aliquot	10.14	g
Prep Date	25-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	54500		2	1.77	70.95			
Total Hepta PCBs	32200		2	1.77	70.95			
Total Octa PCBs	9590		2	1.77	70.95			
Total Nona PCBs	1050		2	1.77	70.95			
Total Deca PCBs	470		2	1.77	70.95			
Total PCB Congeners	428000		2	1.77	70.95	428328.4		
Total PCB WHO2005 ND=0	13.3							13.25287

SDG Number	E4SH2								
Lab Sample ID	1556002								
Client ID	E4SN4								
Date Collected	15-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.291	%							
theoretical aliquot	10	g							
actual aliquot	10.49	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1	295		2	1.34	53.78				
PCB-2		U	2	1.34	53.78				
PCB-3	295		2	1.34	53.78	Mono PCBs	590		
PCB-4	5220		2	1.34	53.78				
PCB-5		U	2	1.34	53.78				
PCB-6	4610		2	1.34	53.78				
PCB-7	350		2	1.34	53.78				
PCB-8	16300		2	1.34	53.78				
PCB-9	720		2	1.34	53.78				
PCB-10	281		2	1.34	53.78				
PCB11		U	100	1.34	2689.11				
PCB-12/13	905		4	1.34	107.56				
PCB-14		U	2	1.34	53.78				
PCB-15	9260		10	1.34	268.91	Di PCBs	37646		
PCB-16	18100		2	1.34	53.78				
PCB-17	24600		2	1.34	53.78				
PCB-18/30	48000		4	1.34	107.56				
PCB-19	5710		2	1.34	53.78				
PCB-20/28	69600		20	1.34	537.82				
PCB-21/33	38100		20	1.34	537.82				
PCB-22	24800		10	1.34	268.91				
PCB-23		U	2	1.34	53.78				
PCB-24		U	2	1.34	53.78				
PCB-25	5490		2	1.34	53.78				
PCB-26/29	11800		4	1.34	107.56				
PCB-27	4220		2	1.34	53.78				
PCB-31	62300		10	1.34	268.91				
PCB-32	14000		2	1.34	53.78				
PCB-34	462		2	1.34	53.78				
PCB-35	630		2	1.34	53.78				
PCB-36		U	2	1.34	53.78				
PCB-37	25200		10	1.34	268.91				
PCB-38		U	2	1.34	53.78				
PCB-39		U	2	1.34	53.78	Tri OCBs	353012		
PCB-40/71	28400		2	1.34	53.78				
PCB-41	6090		100	1.34	2689.11				
PCB-42	16800		2	1.34	53.78				
PCB-43	4040		2	1.34	53.78				
PCB-44/47/65	66100		6	1.34	161.35				
PCB-45/51	13500		40	1.34	1075.64				
PCB-46	4990		2	1.34	53.78				
PCB-48	14500		2	1.34	53.78				
PCB-49/69	38500		4	1.34	107.56				
PCB-50/53	10100		4	1.34	107.56				
PCB-52	81000		2	1.34	53.78				
PCB-54	194		2	1.34	53.78				
PCB-55		U	2	1.34	53.78				
PCB-56	31400		2	1.34	53.78				
PCB-57	256		2	1.34	53.78				
PCB-58	176		2	1.34	53.78				
PCB-59/32/75	5780		6	1.34	161.35				
PCB-60	15200		2	1.34	53.78				
PCB-61/70/74/76	106000		8	1.34	215.13				
PCB-63	2500		2	1.34	53.78				
PCB-64	29200		2	1.34	53.78				
PCB-66	61900		10	1.34	268.91				
PCB-67	1710		2	1.34	53.78				

SDG Number	E4SH2									
Lab Sample ID	1556002									
Client ID	E4SN4									
Date Collected	15-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.291	%								
theoretical aliquot	10	g								
actual aliquot	10.49	g								
Prep Date	25-Aug-10									
Run Date	10-Sep-10									
Dilution	20									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	151		2	1.34	53.78					
PCB-72	313		2	1.34	53.78					
PCB-73		U	2	1.34	53.78					
PCB-77	7270		2	1.34	53.78				0.0001	0.727
PCB-78	222		2	1.34	53.78					
PCB-79	898		2	1.34	53.78					
PCB-80	200		2	1.34	53.78					
PCB-81	290		2	1.34	53.78		Tetra PCBs	555430	0.0003	0.087
PCB-82	7750		2	1.34	53.78					
PCB-83	2770		2	1.34	53.78					
PCB-84	15700		2	1.34	53.78					
PCB-85/116/117	8310		6	1.34	161.35					
PCB-86/87/97/109/119/125	35800		12	1.34	322.69					
PCB-88/91	7460		4	1.34	107.56					
PCB-89	812		2	1.34	53.78					
PCB-90/101/113	43800		6	1.34	161.35					
PCB-92	8000		2	1.34	53.78					
PCB-93/100		U	4	1.34	107.56					
PCB-94	322		2	1.34	53.78					
PCB-95	36500		2	1.34	53.78					
PCB-96	599		2	1.34	53.78					
PCB-98/102	2370		4	1.34	107.56					
PCB-99	21800		2	1.34	53.78					
PCB-103	271		2	1.34	53.78					
PCB-104		U	2	1.34	53.78					
PCB-105	24900		2	1.34	53.78				0.00003	0.747
PCB-106		U	2	1.34	53.78					
PCB-107	3390		2	1.34	53.78					
PCB-108/124	1640		4	1.34	107.56					
PCB-110/115	53500		4	1.34	107.56					
PCB-111		U	2	1.34	53.78					
PCB-112		U	2	1.34	53.78					
PCB-114	1620		2	1.34	53.78				0.00003	0.0486
PCB-118	48700		2	1.34	53.78				0.00003	1.461
PCB-120		U	2	1.34	53.78					
PCB-121		U	2	1.34	53.78					
PCB-122	525		2	1.34	53.78					
PCB-123	739		2	1.34	53.78				0.00003	0.02217
PCB-126		U	2	1.34	53.78				0.1	0
PCB-127	68.9		2	1.34	53.78		Penta PCBs	327346.9		
PCB-128/166	5120		4	1.34	107.56					
PCB-129/138/163	29600		6	1.34	161.35					
PCB-130	1910		2	1.34	53.78					
PCB-131	546		2	1.34	53.78					
PCB-132	10100		2	1.34	53.78					
PCB-133	290		2	1.34	53.78					
PCB-134	2210		2	1.34	53.78					
PCB-135/151	6700		4	1.34	107.56					
PCB-136	3260		2	1.34	53.78					
PCB-137	1570		2	1.34	53.78					
PCB-139/140	571		4	1.34	107.56					
PCB-141	4650		2	1.34	53.78					
PCB-142		U	2	1.34	53.78					
PCB-143		U	2	1.34	53.78					
PCB-144	1040		2	1.34	53.78					
PCB-145		U	2	1.34	53.78					
PCB-146	3360		2	1.34	53.78					

SDG Number	E4SH2								
Lab Sample ID	1556002								
Client ID	E4SN4								
Date Collected	15-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.291	%							
theoretical aliquot	10	g							
actual aliquot	10.49	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	17600		4	1.34	107.56					
PCB-148		U	2	1.34	53.78					
PCB-150		U	2	1.34	53.78					
PCB-152		U	2	1.34	53.78					
PCB-153/168	17900		4	1.34	107.56					
PCB-154	185		2	1.34	53.78					
PCB-155		U	2	1.34	53.78					
PCB-156/157	5780		4	1.34	107.56				0.00003	0.1734
PCB-158	3200		2	1.34	53.78					
PCB-159	104		2	1.34	53.78					
PCB-160		U	2	1.34	53.78					
PCB-161		U	2	1.34	53.78					
PCB-162	161		2	1.34	53.78					
PCB-164	1830		2	1.34	53.78					
PCB-165		U	2	1.34	53.78					
PCB-167	1610		2	1.34	53.78				0.00003	0.0483
PCB-169		U	2	1.34	53.78	Hexa PCBs		119297	0.03	0
PCB-170	3460		2	1.34	53.78					
PCB-171/173	1050		4	1.34	107.56					
PCB-172	538		2	1.34	53.78					
PCB-174	2830		2	1.34	53.78					
PCB-175	120		2	1.34	53.78					
PCB-176	375		2	1.34	53.78					
PCB-177	1620		2	1.34	53.78					
PCB-178	502		2	1.34	53.78					
PCB-179	1040		2	1.34	53.78					
PCB-180/193	6140		4	1.34	107.56					
PCB-181	58		2	1.34	53.78					
PCB-182		U	2	1.34	53.78					
PCB-183/185	1800		4	1.34	107.56					
PCB-184		U	2	1.34	53.78					
PCB-186		U	2	1.34	53.78					
PCB-187	2630		2	1.34	53.78					
PCB-188		U	2	1.34	53.78					
PCB-189	175		2	1.34	53.78				0.00003	0.00525
PCB-190	645		2	1.34	53.78					
PCB-191	123		2	1.34	53.78					
PCB-192		U	2	1.34	53.78	Hepta PCBs		23106		
PCB-194	1160		2	1.34	53.78					
PCB-195	404		2	1.34	53.78					
PCB-196	527		2	1.34	53.78					
PCB-197/200	161		4	1.34	107.56					
PCB-198/199	1110		4	1.34	107.56					
PCB-201	140		2	1.34	53.78					
PCB-202	221		2	1.34	53.78					
PCB-203	673		2	1.34	53.78					
PCB-204		U	2	1.34	53.78					
PCB-205		U	2	1.34	53.78	Octa PCBss		4396		
PCB-206	497		2	1.34	53.78					
PCB-207	54.6		2	1.34	53.78					
PCB-208	125		2	1.34	53.78	Nona PCBs		676.6		
PCB-209	191		2	1.34	53.78	Deca PCBs		191		
Total Mono PCBs	590		2	1.34	53.78					
Total Di PCBs	37600		2	1.34	53.78					
Total Tri PCBs	353000		2	1.34	53.78					
Total Tetra PCBs	548000		2	1.34	53.78					
Total Penta PCBs	327000		2	1.34	53.78					

SDG Number	E4SH2	
Lab Sample ID	1556002	
Client ID	E4SN4	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
% moisture	0.291	%
theoretical aliquot	10	g
actual aliquot	10.49	g
Prep Date	25-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	119000		2	1.34	53.78			
Total Hepta PCBs	23100		2	1.34	53.78			
Total Octa PCBs	4400		2	1.34	53.78			
Total Nona PCBs	676		2	1.34	53.78			
Total Deca PCBs	191		2	1.34	53.78			
Total PCB Congeners	1410000		2	1.34	53.78	1421691.5		
Total PCB WHO2005 ND=0	3.32							3.31972

SDG Number	E4SH2								
Lab Sample ID	1556003								
Client ID	E4SP6								
Date Collected	14-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.417	%							
theoretical aliquot	10	g							
actual aliquot	10	g							
Prep Date	25-Aug-10								
Run Date	6-Oct-10								
Dilution	100								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1	1350		2	1.72	343.05				
PCB-2	448		2	1.72	343.05				
PCB-3	5170		2	1.72	343.05	Mono PCBs	6968		
PCB-4	254000		2	1.72	343.05				
PCB-5		U	2	1.72	343.05				
PCB-6	240000		2	1.72	343.05				
PCB-7	2620		2	1.72	343.05				
PCB-8	85300		2	1.72	343.05				
PCB-9	3190		2	1.72	343.05				
PCB-10	21900		2	1.72	343.05				
PCB11		U	100	1.72	#######				
PCB-12/13	70700		4	1.72	686.11				
PCB-14		U	2	1.72	343.05				
PCB-15	892000	J	10	1.72	1715.27	Di PCBs	1569710		
PCB-16	1240000	J	2	1.72	343.05				
PCB-17	1490000	J	2	1.72	343.05				
PCB-18/30	2200000	J	4	1.72	686.11				
PCB-19	471000		2	1.72	343.05				
PCB-20/28	2700000	J	20	1.72	3430.53				
PCB-21/33	546000		20	1.72	3430.53				
PCB-22	757000	J	10	1.72	1715.27				
PCB-23		U	2	1.72	343.05				
PCB-24		U	2	1.72	343.05				
PCB-25	729000	J	2	1.72	343.05				
PCB-26/29	1360000		4	1.72	686.11				
PCB-27	290000		2	1.72	343.05				
PCB-31	2240000	J	10	1.72	1715.27				
PCB-32	800000	J	2	1.72	343.05				
PCB-34	32500		2	1.72	343.05				
PCB-35	43600		2	1.72	343.05				
PCB-36		U	2	1.72	343.05				
PCB-37	1380000	J	10	1.72	1715.27				
PCB-38		U	2	1.72	343.05				
PCB-39		U	2	1.72	343.05	Tri OCBs	16279100		
PCB-40/71	1540000	J	2	1.72	343.05				
PCB-41	455000		100	1.72	#######				
PCB-42	1080000	J	2	1.72	343.05				
PCB-43	209000		2	1.72	343.05				
PCB-44/47/65	3280000	J	6	1.72	1029.16				
PCB-45/51	771000		40	1.72	6861.06				
PCB-46	283000		2	1.72	343.05				
PCB-48	671000		2	1.72	343.05				
PCB-49/69	2080000	J	4	1.72	686.11				
PCB-50/53	540000		4	1.72	686.11				
PCB-52	3010000	J	2	1.72	343.05				
PCB-54	13300		2	1.72	343.05				
PCB-55		U	2	1.72	343.05				
PCB-56	1240000	J	2	1.72	343.05				
PCB-57	25000		2	1.72	343.05				
PCB-58	8790		2	1.72	343.05				
PCB-59/32/75	344000		6	1.72	1029.16				
PCB-60	525000		2	1.72	343.05				
PCB-61/70/74/76	3770000	J	8	1.72	1372.21				
PCB-63	10800		2	1.72	343.05				
PCB-64	1390000	J	2	1.72	343.05				
PCB-66	2510000	J	10	1.72	1715.27				
PCB-67	120000		2	1.72	343.05				

SDG Number	E4SH2									
Lab Sample ID	1556003									
Client ID	E4SP6									
Date Collected	14-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.417	%								
theoretical aliquot	10	g								
actual aliquot	10	g								
Prep Date	25-Aug-10									
Run Date	6-Oct-10									
Dilution	100									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	9850		2	1.72	343.05					
PCB-72	20100		2	1.72	343.05					
PCB-73		U	2	1.72	343.05					
PCB-77	337000		2	1.72	343.05				0.0001	33.7
PCB-78	8450		2	1.72	343.05					
PCB-79	24100		2	1.72	343.05					
PCB-80		U	2	1.72	343.05					
PCB-81	11600		2	1.72	343.05		Tetra PCBs	24286990	0.0003	3.48
PCB-82	274000		2	1.72	343.05					
PCB-83	114000		2	1.72	343.05					
PCB-84	454000		2	1.72	343.05					
PCB-85/116/117	338000		6	1.72	1029.16					
PCB-86/87/97/109/119/125	963000		12	1.72	2058.32					
PCB-88/91	265000		4	1.72	686.11					
PCB-89	50900		2	1.72	343.05					
PCB-90/101/113	965000		6	1.72	1029.16					
PCB-92	192000		2	1.72	343.05					
PCB-93/100	29600		4	1.72	686.11					
PCB-94	13700		2	1.72	343.05					
PCB-95	858000	J	2	1.72	343.05					
PCB-96	26100		2	1.72	343.05					
PCB-98/102	88300		4	1.72	686.11					
PCB-99	571000		2	1.72	343.05					
PCB-103	9080		2	1.72	343.05					
PCB-104		U	2	1.72	343.05					
PCB-105	668000		2	1.72	343.05				0.00003	20.04
PCB-106		U	2	1.72	343.05					
PCB-107	77800		2	1.72	343.05					
PCB-108/124	38300		4	1.72	686.11					
PCB-110/115	1340000		4	1.72	686.11					
PCB-111		U	2	1.72	343.05					
PCB-112		U	2	1.72	343.05					
PCB-114	45800		2	1.72	343.05				0.00003	1.374
PCB-118	1100000	J	2	1.72	343.05				0.00003	33
PCB-120	1570		2	1.72	343.05					
PCB-121		U	2	1.72	343.05					
PCB-122	18500		2	1.72	343.05					
PCB-123	23000		2	1.72	343.05				0.00003	0.69
PCB-126	1230		2	1.72	343.05				0.1	123
PCB-127	657		2	1.72	343.05		Penta PCBs	8526537		
PCB-128/166	70400		4	1.72	686.11					
PCB-129/138/163	386000		6	1.72	1029.16					
PCB-130	28200		2	1.72	343.05					
PCB-131	6890		2	1.72	343.05					
PCB-132	142000		2	1.72	343.05					
PCB-133	4370		2	1.72	343.05					
PCB-134	24500		2	1.72	343.05					
PCB-135/151	92100		4	1.72	686.11					
PCB-136	41600		2	1.72	343.05					
PCB-137	28300		2	1.72	343.05					
PCB-139/140	8400		4	1.72	686.11					
PCB-141	60800		2	1.72	343.05					
PCB-142		U	2	1.72	343.05					
PCB-143		U	2	1.72	343.05					
PCB-144	14600		2	1.72	343.05					
PCB-145		U	2	1.72	343.05					
PCB-146	42100		2	1.72	343.05					

SDG Number	E4SH2								
Lab Sample ID	1556003								
Client ID	E4SP6								
Date Collected	14-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.417	%							
theoretical aliquot	10	g							
actual aliquot	10	g							
Prep Date	25-Aug-10								
Run Date	6-Oct-10								
Dilution	100								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	234000		4	1.72	686.11				
PCB-148		U	2	1.72	343.05				
PCB-150	344		2	1.72	343.05				
PCB-152	603		2	1.72	343.05				
PCB-153/168	235000		4	1.72	686.11				
PCB-154	2130		2	1.72	343.05				
PCB-155		U	2	1.72	343.05				
PCB-156/157	72600		4	1.72	686.11			0.00003	2.178
PCB-158	43500		2	1.72	343.05				
PCB-159	1450		2	1.72	343.05				
PCB-160		U	2	1.72	343.05				
PCB-161		U	2	1.72	343.05				
PCB-162	2150		2	1.72	343.05				
PCB-164	20600		2	1.72	343.05				
PCB-165		U	2	1.72	343.05				
PCB-167	20600		2	1.72	343.05			0.00003	0.618
PCB-169		U	2	1.72	343.05	Hexa PCBs	1583237	0.03	0
PCB-170	50200		2	1.72	343.05				
PCB-171/173	15500		4	1.72	686.11				
PCB-172	7960		2	1.72	343.05				
PCB-174	49000		2	1.72	343.05				
PCB-175	1880		2	1.72	343.05				
PCB-176	5730		2	1.72	343.05				
PCB-177	27000		2	1.72	343.05				
PCB-178	8820		2	1.72	343.05				
PCB-179	17600		2	1.72	343.05				
PCB-180/193	102000		4	1.72	686.11				
PCB-181	629		2	1.72	343.05				
PCB-182		U	2	1.72	343.05				
PCB-183/185	29300		4	1.72	686.11				
PCB-184		U	2	1.72	343.05				
PCB-186		U	2	1.72	343.05				
PCB-187	48600		2	1.72	343.05				
PCB-188		U	2	1.72	343.05				
PCB-189	2170		2	1.72	343.05			0.00003	0.0651
PCB-190	10000		2	1.72	343.05				
PCB-191	1770		2	1.72	343.05				
PCB-192		U	2	1.72	343.05	Hepta PCBs	378159		
PCB-194	18600		2	1.72	343.05				
PCB-195	7630		2	1.72	343.05				
PCB-196	10100		2	1.72	343.05				
PCB-197/200	3260		4	1.72	686.11				
PCB-198/199	23400		4	1.72	686.11				
PCB-201	2530		2	1.72	343.05				
PCB-202	4850		2	1.72	343.05				
PCB-203	13500		2	1.72	343.05				
PCB-204		U	2	1.72	343.05				
PCB-205	1140		2	1.72	343.05	Octa PCBss	85010		
PCB-206	9060		2	1.72	343.05				
PCB-207	897		2	1.72	343.05				
PCB-208	2500		2	1.72	343.05	Nona PCBs	12457		
PCB-209	1470		2	1.72	343.05	Deca PCBs	1470		
Total Mono PCBs	6970		2	1.72	343.05				
Total Di PCBs	1570000		2	1.72	343.05				
Total Tri PCBs	16300000		2	1.72	343.05				
Total Tetra PCBs	24400000		2	1.72	343.05				
Total Penta PCBs	8530000		2	1.72	343.05				

SDG Number	E4SH2							
Lab Sample ID	1556003							
Client ID	E4SP6							
Date Collected	14-Apr-10							
Date Received	7-Aug-10							
Matrix	SOIL							
% moisture	0.417	%						
theoretical aliquot	10	g						
actual aliquot	10	g						
Prep Date	25-Aug-10							
Run Date	6-Oct-10							
Dilution	100							

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	1580000		2	1.72	343.05			
Total Hepta PCBs	378000		2	1.72	343.05			
Total Octa PCBs	85000		2	1.72	343.05			
Total Nona PCBs	12500		2	1.72	343.05			
Total Deca PCBs	1470		2	1.72	343.05			
Total PCB Congeners	52800000		2	1.72	343.05	52729638		
Total PCB WHO2005 ND=0	218							218.1451

SDG Number	E4SH2								
Lab Sample ID	1556004								
Client ID	E4SQ0								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.379	%							
theoretical aliquot	10	g							
actual aliquot	10.05	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1	79.6		2	1.60	64.09				
PCB-2		U	2	1.60	64.09				
PCB-3	115		2	1.60	64.09	Mono PCBs	194.6		
PCB-4	3120		2	1.60	64.09				
PCB-5		U	2	1.60	64.09				
PCB-6	1470		2	1.60	64.09				
PCB-7	131		2	1.60	64.09				
PCB-8	4230		2	1.60	64.09				
PCB-9	247		2	1.60	64.09				
PCB-10	200		2	1.60	64.09				
PCB11		U	100	1.60	3204.59				
PCB-12/13	764		4	1.60	128.18				
PCB-14		U	2	1.60	64.09				
PCB-15	26500		10	1.60	320.46	Di PCBs	36662		
PCB-16	22100		2	1.60	64.09				
PCB-17	23300		2	1.60	64.09				
PCB-18/30	50000		4	1.60	128.18				
PCB-19	21700		2	1.60	64.09				
PCB-20/28	64200		20	1.60	640.92				
PCB-21/33	14600		20	1.60	640.92				
PCB-22	9600		10	1.60	320.46				
PCB-23		U	2	1.60	64.09				
PCB-24		U	2	1.60	64.09				
PCB-25	5440		2	1.60	64.09				
PCB-26/29	16900		4	1.60	128.18				
PCB-27	10400		2	1.60	64.09				
PCB-31	42500		10	1.60	320.46				
PCB-32	16400		2	1.60	64.09				
PCB-34	240		2	1.60	64.09				
PCB-35	1100		2	1.60	64.09				
PCB-36		U	2	1.60	64.09				
PCB-37	31800		10	1.60	320.46				
PCB-38		U	2	1.60	64.09				
PCB-39		U	2	1.60	64.09	Tri OCBs	330280		
PCB-40/71	88000		2	1.60	64.09				
PCB-41	16400		100	1.60	3204.59				
PCB-42	55000		2	1.60	64.09				
PCB-43	12500		2	1.60	64.09				
PCB-44/47/65	205000		6	1.60	192.28				
PCB-45/51	49500		40	1.60	1281.84				
PCB-46	17200		2	1.60	64.09				
PCB-48	29700		2	1.60	64.09				
PCB-49/69	119000		4	1.60	128.18				
PCB-50/53	34700		4	1.60	128.18				
PCB-52	232000	J	2	1.60	64.09				
PCB-54	724		2	1.60	64.09				
PCB-55		U	2	1.60	64.09				
PCB-56	57400		2	1.60	64.09				
PCB-57		U	2	1.60	64.09				
PCB-58		U	2	1.60	64.09				
PCB-59/32/75	18100		6	1.60	192.28				
PCB-60	11700		2	1.60	64.09				
PCB-61/70/74/76	185000		8	1.60	256.37				
PCB-63	1800		2	1.60	64.09				
PCB-64	43500		2	1.60	64.09				
PCB-66	159000	J	10	1.60	320.46				
PCB-67	2190		2	1.60	64.09				

SDG Number	E4SH2
Lab Sample ID	1556004
Client ID	E4SQ0
Date Collected	16-Apr-10
Date Received	7-Aug-10
Matrix	SOIL
% moisture	0.379 %
theoretical aliquot	10 g
actual aliquot	10.05 g
Prep Date	25-Aug-10
Run Date	10-Sep-10
Dilution	20

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	463		2	1.60	64.09				
PCB-72	938		2	1.60	64.09				
PCB-73		U	2	1.60	64.09				
PCB-77	19000		2	1.60	64.09			0.0001	1.9
PCB-78	595		2	1.60	64.09				
PCB-79	2110		2	1.60	64.09				
PCB-80	387		2	1.60	64.09				
PCB-81	381		2	1.60	64.09	Tetra PCBs	1362288	0.0003	0.1143
PCB-82	21900		2	1.60	64.09				
PCB-83	7430		2	1.60	64.09				
PCB-84	40800		2	1.60	64.09				
PCB-85/116/117	24100		6	1.60	192.28				
PCB-86/87/97/109/119/125	85900		12	1.60	384.55				
PCB-88/91	20900		4	1.60	128.18				
PCB-89	3220		2	1.60	64.09				
PCB-90/101/113	97300		6	1.60	192.28				
PCB-92	18400		2	1.60	64.09				
PCB-93/100		U	4	1.60	128.18				
PCB-94	1090		2	1.60	64.09				
PCB-95	85300		2	1.60	64.09				
PCB-96	2070		2	1.60	64.09				
PCB-98/102	7480		4	1.60	128.18				
PCB-99	55300		2	1.60	64.09				
PCB-103	856		2	1.60	64.09				
PCB-104		U	2	1.60	64.09				
PCB-105	46400		2	1.60	64.09			0.00003	1.392
PCB-106		U	2	1.60	64.09				
PCB-107	6160		2	1.60	64.09				
PCB-108/124	3640		4	1.60	128.18				
PCB-110/115	117000		4	1.60	128.18				
PCB-111		U	2	1.60	64.09				
PCB-112		U	2	1.60	64.09				
PCB-114	2080		2	1.60	64.09			0.00003	0.0624
PCB-118	92700		2	1.60	64.09			0.00003	2.781
PCB-120	134		2	1.60	64.09				
PCB-121		U	2	1.60	64.09				
PCB-122	1550		2	1.60	64.09				
PCB-123	2840		2	1.60	64.09			0.00003	0.0852
PCB-126	208		2	1.60	64.09			0.1	20.8
PCB-127		U	2	1.60	64.09	Penta PCBs	744758		
PCB-128/166	8740		4	1.60	128.18				
PCB-129/138/163	53000		6	1.60	192.28				
PCB-130	3400		2	1.60	64.09				
PCB-131	997		2	1.60	64.09				
PCB-132	18300		2	1.60	64.09				
PCB-133	719		2	1.60	64.09				
PCB-134	4070		2	1.60	64.09				
PCB-135/151	15300		4	1.60	128.18				
PCB-136	6500		2	1.60	64.09				
PCB-137	2960		2	1.60	64.09				
PCB-139/140	1070		4	1.60	128.18				
PCB-141	8910		2	1.60	64.09				
PCB-142		U	2	1.60	64.09				
PCB-143		U	2	1.60	64.09				
PCB-144	2060		2	1.60	64.09				
PCB-145		U	2	1.60	64.09				
PCB-146	7350		2	1.60	64.09				

SDG Number	E4SH2								
Lab Sample ID	1556004								
Client ID	E4SQ0								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.379	%							
theoretical aliquot	10	g							
actual aliquot	10.05	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	36100		4	1.60	128.18				
PCB-148	97.9		2	1.60	64.09				
PCB-150	73.9		2	1.60	64.09				
PCB-152	69.4		2	1.60	64.09				
PCB-153/168	36800		4	1.60	128.18				
PCB-154	595		2	1.60	64.09				
PCB-155		U	2	1.60	64.09				
PCB-156/157	8450		4	1.60	128.18			0.00003	0.2535
PCB-158	5420		2	1.60	64.09				
PCB-159	329		2	1.60	64.09				
PCB-160	44400		2	1.60	64.09				
PCB-161	5460		2	1.60	64.09				
PCB-162	361		2	1.60	64.09				
PCB-164	3150		2	1.60	64.09				
PCB-165		U	2	1.60	64.09				
PCB-167	2800		2	1.60	64.09			0.00003	0.084
PCB-169		U	2	1.60	64.09	Hexa PCBs	277482.2	0.03	0
PCB-170	8690		2	1.60	64.09				
PCB-171/173	2640		4	1.60	128.18				
PCB-172	1530		2	1.60	64.09				
PCB-174	9080		2	1.60	64.09				
PCB-175	337		2	1.60	64.09				
PCB-176	1190		2	1.60	64.09				
PCB-177	5260		2	1.60	64.09				
PCB-178	1980		2	1.60	64.09				
PCB-179	3970		2	1.60	64.09				
PCB-180/193	19500		4	1.60	128.18				
PCB-181	84.2		2	1.60	64.09				
PCB-182		U	2	1.60	64.09				
PCB-183/185	5680		4	1.60	128.18				
PCB-184		U	2	1.60	64.09				
PCB-186		U	2	1.60	64.09				
PCB-187	10300		2	1.60	64.09				
PCB-188		U	2	1.60	64.09				
PCB-189	378		2	1.60	64.09			0.00003	0.01134
PCB-190	1750		2	1.60	64.09				
PCB-191	328		2	1.60	64.09				
PCB-192		U	2	1.60	64.09	Hepta PCBs	72697.2		
PCB-194	4580		2	1.60	64.09				
PCB-195	1740		2	1.60	64.09				
PCB-196	2330		2	1.60	64.09				
PCB-197/200	770		4	1.60	128.18				
PCB-198/199	5230		4	1.60	128.18				
PCB-201	620		2	1.60	64.09				
PCB-202	1110		2	1.60	64.09				
PCB-203	3030		2	1.60	64.09				
PCB-204		U	2	1.60	64.09				
PCB-205	253		2	1.60	64.09	Octa PCBss	19663		
PCB-206	1930		2	1.60	64.09				
PCB-207	240		2	1.60	64.09				
PCB-208	531		2	1.60	64.09	Nona PCBs	2701		
PCB-209	878		2	1.60	64.09	Deca PCBs	878		
Total Mono PCBs	195		2	1.60	64.09				
Total Di PCBs	36700		2	1.60	64.09				
Total Tri PCBs	330000		2	1.60	64.09				
Total Tetra PCBs	1360000		2	1.60	64.09				
Total Penta PCBs	745000		2	1.60	64.09				

SDG Number	E4SH2		
Lab Sample ID	1556004		
Client ID	E4SQ0		
Date Collected	16-Apr-10		
Date Received	7-Aug-10		
Matrix	SOIL		
% moisture	0.379	%	
theoretical aliquot	10	g	
actual aliquot	10.05	g	
Prep Date	25-Aug-10		
Run Date	10-Sep-10		
Dilution	20		

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	278000		2	1.60	64.09			
Total Hepta PCBs	72600		2	1.60	64.09			
Total Octa PCBs	19700		2	1.60	64.09			
Total Nona PCBs	2700		2	1.60	64.09			
Total Deca PCBs	878		2	1.60	64.09			
Total PCB Congeners	2850000		2	1.60	64.09	2847604		
Total PCB WHO2005 ND=0	27.5							27.48374

SDG Number	E4SH2								
Lab Sample ID	1556005								
Client ID	E4SQ2								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.257	%							
theoretical aliquot	10	g							
actual aliquot	10.34	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	10								

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1	768		2	1.30	26.03				
PCB-2	76.9		2	1.30	26.03				
PCB-3	431		2	1.30	26.03	Mono PCBs	1275.9		
PCB-4	12500		2	1.30	26.03				
PCB-5		U	2	1.30	26.03				
PCB-6	10700		2	1.30	26.03				
PCB-7	783		2	1.30	26.03				
PCB-8	21400		2	1.30	26.03				
PCB-9	1460		2	1.30	26.03				
PCB-10	691		2	1.30	26.03				
PCB11		U	100	1.30	1301.64				
PCB-12/13	3090		4	1.30	52.07				
PCB-14		U	2	1.30	26.03				
PCB-15	19400		10	1.30	130.16	Di PCBs	70024		
PCB-16	18100		2	1.30	26.03				
PCB-17	24300		2	1.30	26.03				
PCB-18/30	43600		4	1.30	52.07				
PCB-19	7200		2	1.30	26.03				
PCB-20/28	62900		20	1.30	260.33				
PCB-21/33	18300		20	1.30	260.33				
PCB-22	18300		10	1.30	130.16				
PCB-23	58.7		2	1.30	26.03				
PCB-24		U	2	1.30	26.03				
PCB-25	10100		2	1.30	26.03				
PCB-26/29	17100		4	1.30	52.07				
PCB-27	4650		2	1.30	26.03				
PCB-31	47700		10	1.30	130.16				
PCB-32	14700		2	1.30	26.03				
PCB-34	414		2	1.30	26.03				
PCB-35	654		2	1.30	26.03				
PCB-36		U	2	1.30	26.03				
PCB-37	18300		10	1.30	130.16				
PCB-38		U	2	1.30	26.03				
PCB-39		U	2	1.30	26.03	Tri OCBs	306376.7		
PCB-40/71	18500		2	1.30	26.03				
PCB-41	2220		100	1.30	1301.64				
PCB-42	11400		2	1.30	26.03				
PCB-43	2540		2	1.30	26.03				
PCB-44/47/65	40700		6	1.30	78.10				
PCB-45/51	9010		40	1.30	520.66				
PCB-46	3820		2	1.30	26.03				
PCB-48	5770		2	1.30	26.03				
PCB-49/69	25000		4	1.30	52.07				
PCB-50/53	7610		4	1.30	52.07				
PCB-52	41200		2	1.30	26.03				
PCB-54	147		2	1.30	26.03				
PCB-55		U	2	1.30	26.03				
PCB-56	12600		2	1.30	26.03				
PCB-57	192		2	1.30	26.03				
PCB-58	87.1		2	1.30	26.03				
PCB-59/32/75	3440		6	1.30	78.10				
PCB-60	4950		2	1.30	26.03				
PCB-61/70/74/76	36700		8	1.30	104.13				
PCB-63	1130		2	1.30	26.03				
PCB-64	15400		2	1.30	26.03				
PCB-66	26300		10	1.30	130.16				
PCB-67	769		2	1.30	26.03				

SDG Number	E4SH2									
Lab Sample ID	1556005									
Client ID	E4SQ2									
Date Collected	16-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.257	%								
theoretical aliquot	10	g								
actual aliquot	10.34	g								
Prep Date	25-Aug-10									
Run Date	10-Sep-10									
Dilution	10									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	135		2	1.30	26.03					
PCB-72	231		2	1.30	26.03					
PCB-73		U	2	1.30	26.03					
PCB-77	3310		2	1.30	26.03				0.0001	0.331
PCB-78	61.1		2	1.30	26.03					
PCB-79	184		2	1.30	26.03					
PCB-80	33.9		2	1.30	26.03					
PCB-81	93.3		2	1.30	26.03		Tetra PCBs	273533.4	0.0003	0.02799
PCB-82	2080		2	1.30	26.03					
PCB-83	711		2	1.30	26.03					
PCB-84	4390		2	1.30	26.03					
PCB-85/116/117	2330		6	1.30	78.10					
PCB-86/87/97/109/119/125	7670		12	1.30	156.20					
PCB-88/91	2480		4	1.30	52.07					
PCB-89	378		2	1.30	26.03					
PCB-90/101/113	7890		6	1.30	78.10					
PCB-92	1840		2	1.30	26.03					
PCB-93/100	218		4	1.30	52.07					
PCB-94	156		2	1.30	26.03					
PCB-95	8080		2	1.30	26.03					
PCB-96	269		2	1.30	26.03					
PCB-98/102	840		4	1.30	52.07					
PCB-99	5080		2	1.30	26.03					
PCB-103	111		2	1.30	26.03					
PCB-104		U	2	1.30	26.03					
PCB-105	4800		2	1.30	26.03				0.00003	0.144
PCB-106		U	2	1.30	26.03					
PCB-107	637		2	1.30	26.03					
PCB-108/124	270		4	1.30	52.07					
PCB-110/115	11900		4	1.30	52.07					
PCB-111		U	2	1.30	26.03					
PCB-112		U	2	1.30	26.03					
PCB-114	304		2	1.30	26.03				0.00003	0.00912
PCB-118	8260		2	1.30	26.03				0.00003	0.2478
PCB-120		U	2	1.30	26.03					
PCB-121		U	2	1.30	26.03					
PCB-122	130		2	1.30	26.03					
PCB-123	224		2	1.30	26.03				0.00003	0.00672
PCB-126		U	2	1.30	26.03				0.1	0
PCB-127		U	2	1.30	26.03		Penta PCBs	71048		
PCB-128/166	505		4	1.30	52.07					
PCB-129/138/163	2940		6	1.30	78.10					
PCB-130	198		2	1.30	26.03					
PCB-131	55.4		2	1.30	26.03					
PCB-132	1060		2	1.30	26.03					
PCB-133	48.1		2	1.30	26.03					
PCB-134	257		2	1.30	26.03					
PCB-135/151	884		4	1.30	52.07					
PCB-136	382		2	1.30	26.03					
PCB-137	173		2	1.30	26.03					
PCB-139/140	63.8		4	1.30	52.07					
PCB-141	431		2	1.30	26.03					
PCB-142		U	2	1.30	26.03					
PCB-143		U	2	1.30	26.03					
PCB-144	119		2	1.30	26.03					
PCB-145		U	2	1.30	26.03					
PCB-146	411		2	1.30	26.03					

SDG Number	E4SH2								
Lab Sample ID	1556005								
Client ID	E4SQ2								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.257	%							
theoretical aliquot	10	g							
actual aliquot	10.34	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	10								
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	2050		4	1.30	52.07					
PCB-148		U	2	1.30	26.03					
PCB-150		U	2	1.30	26.03					
PCB-152		U	2	1.30	26.03					
PCB-153/168	1810		4	1.30	52.07					
PCB-154	51.3		2	1.30	26.03					
PCB-155		U	2	1.30	26.03					
PCB-156/157	493		4	1.30	52.07				0.00003	0.01479
PCB-158	309		2	1.30	26.03					
PCB-159		U	2	1.30	26.03					
PCB-160		U	2	1.30	26.03					
PCB-161		U	2	1.30	26.03					
PCB-162		U	2	1.30	26.03					
PCB-164	173		2	1.30	26.03					
PCB-165		U	2	1.30	26.03					
PCB-167	138		2	1.30	26.03				0.00003	0.00414
PCB-169		U	2	1.30	26.03	Hexa PCBs		12551.6	0.03	0
PCB-170	375		2	1.30	26.03					
PCB-171/173	114		4	1.30	52.07					
PCB-172	67.9		2	1.30	26.03					
PCB-174	366		2	1.30	26.03					
PCB-175		U	2	1.30	26.03					
PCB-176	47.6		2	1.30	26.03					
PCB-177	227		2	1.30	26.03					
PCB-178	99.4		2	1.30	26.03					
PCB-179	171		2	1.30	26.03					
PCB-180/193	794		4	1.30	52.07					
PCB-181		U	2	1.30	26.03					
PCB-182		U	2	1.30	26.03					
PCB-183/185	228		4	1.30	52.07					
PCB-184		U	2	1.30	26.03					
PCB-186		U	2	1.30	26.03					
PCB-187	482		2	1.30	26.03					
PCB-188		U	2	1.30	26.03					
PCB-189		U	2	1.30	26.03				0.00003	0
PCB-190	82.6		2	1.30	26.03					
PCB-191		U	2	1.30	26.03					
PCB-192		U	2	1.30	26.03	Hepta PCBs		3054.5		
PCB-194	183		2	1.30	26.03					
PCB-195	63.2		2	1.30	26.03					
PCB-196	79.2		2	1.30	26.03					
PCB-197/200		U	4	1.30	52.07					
PCB-198/199	202		4	1.30	52.07					
PCB-201		U	2	1.30	26.03					
PCB-202	44.3		2	1.30	26.03					
PCB-203	115		2	1.30	26.03					
PCB-204		U	2	1.30	26.03					
PCB-205		U	2	1.30	26.03	Octa PCBss		686.7		
PCB-206	80.6		2	1.30	26.03					
PCB-207		U	2	1.30	26.03					
PCB-208		U	2	1.30	26.03	Nona PCBs		80.6		
PCB-209	29.4		2	1.30	26.03	Deca PCBs		29.4		
Total Mono PCBs	1280		2	1.30	26.03					
Total Di PCBs	70000		2	1.30	26.03					
Total Tri PCBs	306000		2	1.30	26.03					
Total Tetra PCBs	274000		2	1.30	26.03					
Total Penta PCBs	71000		2	1.30	26.03					

SDG Number	E4SH2	
Lab Sample ID	1556005	
Client ID	E4SQ2	
Date Collected	16-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
% moisture	0.257	%
theoretical aliquot	10	g
actual aliquot	10.34	g
Prep Date	25-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	12600		2	1.30	26.03			
Total Hepta PCBs	3050		2	1.30	26.03			
Total Octa PCBs	686		2	1.30	26.03			
Total Nona PCBs	80.6		2	1.30	26.03			
Total Deca PCBs	29.4		2	1.30	26.03			
Total PCB Congeners	739000		2	1.30	26.03	738660.8		
Total PCB WHO2005 ND=0	0.786							0.78556

SDG Number	E4SH2								
Lab Sample ID	1556006								
Client ID	E4SQ3								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.455	%							
theoretical aliquot	10	g							
actual aliquot	10.6	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	10								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1	55.4		2	1.73	34.62				
PCB-2		U	2	1.73	34.62				
PCB-3	71.3		2	1.73	34.62	Mono PCBs	126.7		
PCB-4	2300		2	1.73	34.62				
PCB-5	3850		2	1.73	34.62				
PCB-6	1350		2	1.73	34.62				
PCB-7	97.4		2	1.73	34.62				
PCB-8	2860		2	1.73	34.62				
PCB-9	193		2	1.73	34.62				
PCB-10	135		2	1.73	34.62				
PCB11		U	100	1.73	1731.00				
PCB-12/13	689		4	1.73	69.24				
PCB-14		U	2	1.73	34.62				
PCB-15	10700		10	1.73	173.10	Di PCBs	22174.4		
PCB-16	6220		2	1.73	34.62				
PCB-17	7390		2	1.73	34.62				
PCB-18/30	15000		4	1.73	69.24				
PCB-19	7110		2	1.73	34.62				
PCB-20/28	26100		20	1.73	346.20				
PCB-21/33	6960		20	1.73	346.20				
PCB-22	5860		10	1.73	173.10				
PCB-23		U	2	1.73	34.62				
PCB-24		U	2	1.73	34.62				
PCB-25	2790		2	1.73	34.62				
PCB-26/29	5480		4	1.73	69.24				
PCB-27	3240		2	1.73	34.62				
PCB-31	18000		10	1.73	173.10				
PCB-32	6440		2	1.73	34.62				
PCB-34	110		2	1.73	34.62				
PCB-35	400		2	1.73	34.62				
PCB-36		U	2	1.73	34.62				
PCB-37	12300		10	1.73	173.10				
PCB-38		U	2	1.73	34.62				
PCB-39		U	2	1.73	34.62	Tri OCBs	123400		
PCB-40/71	24500		2	1.73	34.62				
PCB-41	2370		100	1.73	1731.00				
PCB-42	16100		2	1.73	34.62				
PCB-43	2840		2	1.73	34.62				
PCB-44/47/65	57900		6	1.73	103.86				
PCB-45/51	16100		40	1.73	692.40				
PCB-46	5670		2	1.73	34.62				
PCB-48	5100		2	1.73	34.62				
PCB-49/69	32000		4	1.73	69.24				
PCB-50/53	11500		4	1.73	69.24				
PCB-52	60100		2	1.73	34.62				
PCB-54	244		2	1.73	34.62				
PCB-55		U	2	1.73	34.62				
PCB-56	13500		2	1.73	34.62				
PCB-57	82.9		2	1.73	34.62				
PCB-58		U	2	1.73	34.62				
PCB-59/32/75	5540		6	1.73	103.86				
PCB-60	4210		2	1.73	34.62				
PCB-61/70/74/76	37700		8	1.73	138.48				
PCB-63	690		2	1.73	34.62				
PCB-64	14100		2	1.73	34.62				
PCB-66	35200		10	1.73	173.10				
PCB-67	666		2	1.73	34.62				

SDG Number	E4SH2									
Lab Sample ID	1556006									
Client ID	E4SQ3									
Date Collected	16-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.455	%								
theoretical aliquot	10	g								
actual aliquot	10.6	g								
Prep Date	25-Aug-10									
Run Date	10-Sep-10									
Dilution	10									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	207		2	1.73	34.62					
PCB-72	339		2	1.73	34.62					
PCB-73		U	2	1.73	34.62					
PCB-77	5270		2	1.73	34.62				0.0001	0.527
PCB-78	182		2	1.73	34.62					
PCB-79	577		2	1.73	34.62					
PCB-80	134		2	1.73	34.62					
PCB-81	130		2	1.73	34.62		Tetra PCBs	352951.9	0.0003	0.039
PCB-82	5950		2	1.73	34.62					
PCB-83	2100		2	1.73	34.62					
PCB-84	11300		2	1.73	34.62					
PCB-85/116/117	6970		6	1.73	103.86					
PCB-86/87/97/109/119/125	23400		12	1.73	207.72					
PCB-88/91	6420		4	1.73	69.24					
PCB-89	1080		2	1.73	34.62					
PCB-90/101/113	27300		6	1.73	103.86					
PCB-92	6070		2	1.73	34.62					
PCB-93/100	579		4	1.73	69.24					
PCB-94	431		2	1.73	34.62					
PCB-95	23800		2	1.73	34.62					
PCB-96	624		2	1.73	34.62					
PCB-98/102	2480		4	1.73	69.24					
PCB-99	16300		2	1.73	34.62					
PCB-103	391		2	1.73	34.62					
PCB-104		U	2	1.73	34.62					
PCB-105	10900		2	1.73	34.62				0.00003	0.327
PCB-106		U	2	1.73	34.62					
PCB-107	1630		2	1.73	34.62					
PCB-108/124	859		4	1.73	69.24					
PCB-110/115	33600		4	1.73	69.24					
PCB-111		U	2	1.73	34.62					
PCB-112		U	2	1.73	34.62					
PCB-114	536		2	1.73	34.62				0.00003	0.01608
PCB-118	22600		2	1.73	34.62				0.00003	0.678
PCB-120	81.5		2	1.73	34.62					
PCB-121		U	2	1.73	34.62					
PCB-122	433		2	1.73	34.62					
PCB-123	675		2	1.73	34.62				0.00003	0.02025
PCB-126	45.1		2	1.73	34.62				0.1	4.51
PCB-127		U	2	1.73	34.62		Penta PCBs	206554.6		
PCB-128/166	2740		4	1.73	69.24					
PCB-129/138/163	18500		6	1.73	103.86					
PCB-130	1170		2	1.73	34.62					
PCB-131	269		2	1.73	34.62					
PCB-132	5990		2	1.73	34.62					
PCB-133	475		2	1.73	34.62					
PCB-134	1380		2	1.73	34.62					
PCB-135/151	7010		4	1.73	69.24					
PCB-136	2370		2	1.73	34.62					
PCB-137	743		2	1.73	34.62					
PCB-139/140	392		4	1.73	69.24					
PCB-141	3250		2	1.73	34.62					
PCB-142		U	2	1.73	34.62					
PCB-143		U	2	1.73	34.62					
PCB-144	746		2	1.73	34.62					
PCB-145		U	2	1.73	34.62					
PCB-146	3780		2	1.73	34.62					

SDG Number	E4SH2								
Lab Sample ID	1556006								
Client ID	E4SQ3								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.455	%							
theoretical aliquot	10	g							
actual aliquot	10.6	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	10								
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	14700		4	1.73	69.24					
PCB-148	126		2	1.73	34.62					
PCB-150	59.1		2	1.73	34.62					
PCB-152		U	2	1.73	34.62					
PCB-153/168	14700		4	1.73	69.24					
PCB-154	583		2	1.73	34.62					
PCB-155		U	2	1.73	34.62					
PCB-156/157	2360		4	1.73	69.24				0.00003	0.0708
PCB-158	1720		2	1.73	34.62					
PCB-159	185		2	1.73	34.62					
PCB-160		U	2	1.73	34.62					
PCB-161		U	2	1.73	34.62					
PCB-162	178		2	1.73	34.62					
PCB-164	1190		2	1.73	34.62					
PCB-165	36.5		2	1.73	34.62					
PCB-167	860		2	1.73	34.62				0.00003	0.0258
PCB-169		U	2	1.73	34.62	Hexa PCBs		85512.6	0.03	0
PCB-170	4240		2	1.73	34.62					
PCB-171/173	1280		4	1.73	69.24					
PCB-172	808		2	1.73	34.62					
PCB-174	4830		2	1.73	34.62					
PCB-175	185		2	1.73	34.62					
PCB-176	638		2	1.73	34.62					
PCB-177	3130		2	1.73	34.62					
PCB-178	1390		2	1.73	34.62					
PCB-179	2420		2	1.73	34.62					
PCB-180/193	10200		4	1.73	69.24					
PCB-181		U	2	1.73	34.62					
PCB-182		U	2	1.73	34.62					
PCB-183/185	2920		4	1.73	69.24					
PCB-184		U	2	1.73	34.62					
PCB-186		U	2	1.73	34.62					
PCB-187	6790		2	1.73	34.62					
PCB-188		U	2	1.73	34.62					
PCB-189	181		2	1.73	34.62				0.00003	0.00543
PCB-190	912		2	1.73	34.62					
PCB-191	158		2	1.73	34.62					
PCB-192		U	2	1.73	34.62	Hepta PCBs		40082		
PCB-194	2630		2	1.73	34.62					
PCB-195	1030		2	1.73	34.62					
PCB-196	1280		2	1.73	34.62					
PCB-197/200	429		4	1.73	69.24					
PCB-198/199	3010		4	1.73	69.24					
PCB-201	356		2	1.73	34.62					
PCB-202	660		2	1.73	34.62					
PCB-203	1660		2	1.73	34.62					
PCB-204		U	2	1.73	34.62					
PCB-205	148		2	1.73	34.62	Octa PCBss		11203		
PCB-206	913		2	1.73	34.62					
PCB-207	124		2	1.73	34.62					
PCB-208	235		2	1.73	34.62	Nona PCBs		1272		
PCB-209	372		2	1.73	34.62	Deca PCBs		372		
Total Mono PCBs	127		2	1.73	34.62					
Total Di PCBs	22200		2	1.73	34.62					
Total Tri PCBs	123000		2	1.73	34.62					
Total Tetra PCBs	353000		2	1.73	34.62					
Total Penta PCBs	207000		2	1.73	34.62					

SDG Number	E4SH2	
Lab Sample ID	1556006	
Client ID	E4SQ3	
Date Collected	16-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
% moisture	0.455	%
theoretical aliquot	10	g
actual aliquot	10.6	g
Prep Date	25-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	85500		2	1.73	34.62			
Total Hepta PCBs	40100		2	1.73	34.62			
Total Octa PCBs	11200		2	1.73	34.62			
Total Nona PCBs	1270		2	1.73	34.62			
Total Deca PCBs	372		2	1.73	34.62			
Total PCB Congeners	844000		2	1.73	34.62	843649.2		
Total PCB WHO2005 ND=0	6.22							6.21936

SDG Number	E4SH2								
Lab Sample ID	1556007								
Client ID	E4SQ4								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.395	%							
theoretical aliquot	10	g							
actual aliquot	10.86	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1	96.4		2	1.52	60.88				
PCB-2		U	2	1.52	60.88				
PCB-3	116		2	1.52	60.88	Mono PCBs	212.4		
PCB-4	2900		2	1.52	60.88				
PCB-5		U	2	1.52	60.88				
PCB-6	1950		2	1.52	60.88				
PCB-7	158		2	1.52	60.88				
PCB-8	4200		2	1.52	60.88				
PCB-9	288		2	1.52	60.88				
PCB-10	141		2	1.52	60.88				
PCB11		U	100	1.52	3044.00				
PCB-12/13	759		4	1.52	121.76				
PCB-14		U	2	1.52	60.88				
PCB-15	14600		10	1.52	304.40	Di PCBs	24996		
PCB-16	9110		2	1.52	60.88				
PCB-17	10500		2	1.52	60.88				
PCB-18/30	22400		4	1.52	121.76				
PCB-19	10300		2	1.52	60.88				
PCB-20/28	36100		20	1.52	608.80				
PCB-21/33	10100		20	1.52	608.80				
PCB-22	7520		10	1.52	304.40				
PCB-23		U	2	1.52	60.88				
PCB-24		U	2	1.52	60.88				
PCB-25	3310		2	1.52	60.88				
PCB-26/29	8230		4	1.52	121.76				
PCB-27	4940		2	1.52	60.88				
PCB-31	25500		10	1.52	304.40				
PCB-32	9730		2	1.52	60.88				
PCB-34	138		2	1.52	60.88				
PCB-35	530		2	1.52	60.88				
PCB-36		U	2	1.52	60.88				
PCB-37	16400		10	1.52	304.40				
PCB-38		U	2	1.52	60.88				
PCB-39		U	2	1.52	60.88	Tri OCBs	174808		
PCB-40/71	39300		2	1.52	60.88				
PCB-41	5250		100	1.52	3044.00				
PCB-42	25000		2	1.52	60.88				
PCB-43	5840		2	1.52	60.88				
PCB-44/47/65	94100		6	1.52	182.64				
PCB-45/51	23300		40	1.52	1217.60				
PCB-46	7860		2	1.52	60.88				
PCB-48	11100		2	1.52	60.88				
PCB-49/69	54700		4	1.52	121.76				
PCB-50/53	15900		4	1.52	121.76				
PCB-52	109000		2	1.52	60.88				
PCB-54	342		2	1.52	60.88				
PCB-55		U	2	1.52	60.88				
PCB-56	22000		2	1.52	60.88				
PCB-57	139		2	1.52	60.88				
PCB-58	228		2	1.52	60.88				
PCB-59/32/75	8270		6	1.52	182.64				
PCB-60	6940		2	1.52	60.88				
PCB-61/70/74/76	87300		8	1.52	243.52				
PCB-63	1030		2	1.52	60.88				
PCB-64	24300		2	1.52	60.88				
PCB-66	67100		10	1.52	304.40				
PCB-67	983		2	1.52	60.88				

SDG Number	E4SH2
Lab Sample ID	1556007
Client ID	E4SQ4
Date Collected	16-Apr-10
Date Received	7-Aug-10
Matrix	SOIL
% moisture	0.395 %
theoretical aliquot	10 g
actual aliquot	10.86 g
Prep Date	25-Aug-10
Run Date	10-Sep-10
Dilution	20

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-68	246		2	1.52	60.88				
PCB-72	500		2	1.52	60.88				
PCB-73		U	2	1.52	60.88				
PCB-77	8240		2	1.52	60.88			0.0001	0.824
PCB-78	320		2	1.52	60.88				
PCB-79	1140		2	1.52	60.88				
PCB-80	232		2	1.52	60.88				
PCB-81	140		2	1.52	60.88	Tetra PCBs	620800	0.0003	0.042
PCB-82	10400		2	1.52	60.88				
PCB-83	3840		2	1.52	60.88				
PCB-84	20800		2	1.52	60.88				
PCB-85/116/117	11800		6	1.52	182.64				
PCB-86/87/97/109/119/125	45200		12	1.52	365.28				
PCB-88/91	10600		4	1.52	121.76				
PCB-89	1520		2	1.52	60.88				
PCB-90/101/113	55300		6	1.52	182.64				
PCB-92	10600		2	1.52	60.88				
PCB-93/100	663		4	1.52	121.76				
PCB-94	549		2	1.52	60.88				
PCB-95	46500		2	1.52	60.88				
PCB-96	948		2	1.52	60.88				
PCB-98/102	3730		4	1.52	121.76				
PCB-99	29400		2	1.52	60.88				
PCB-103	512		2	1.52	60.88				
PCB-104		U	2	1.52	60.88				
PCB-105	22900		2	1.52	60.88			0.00003	0.687
PCB-106		U	2	1.52	60.88				
PCB-107	3300		2	1.52	60.88				
PCB-108/124	2010		4	1.52	121.76				
PCB-110/115	64700		4	1.52	121.76				
PCB-111		U	2	1.52	60.88				
PCB-112		U	2	1.52	60.88				
PCB-114	1120		2	1.52	60.88			0.00003	0.0336
PCB-118	50900		2	1.52	60.88			0.00003	1.527
PCB-120	92.6		2	1.52	60.88				
PCB-121		U	2	1.52	60.88				
PCB-122	717		2	1.52	60.88				
PCB-123	1190		2	1.52	60.88			0.00003	0.0357
PCB-126	113		2	1.52	60.88			0.1	11.3
PCB-127	70		2	1.52	60.88	Penta PCBs	399474.6		
PCB-128/166	5750		4	1.52	121.76				
PCB-129/138/163	37100		6	1.52	182.64				
PCB-130	2260		2	1.52	60.88				
PCB-131	611		2	1.52	60.88				
PCB-132	12400		2	1.52	60.88				
PCB-133	564		2	1.52	60.88				
PCB-134	2790		2	1.52	60.88				
PCB-135/151	11600		4	1.52	121.76				
PCB-136	4620		2	1.52	60.88				
PCB-137	1700		2	1.52	60.88				
PCB-139/140	734		4	1.52	121.76				
PCB-141	6210		2	1.52	60.88				
PCB-142		U	2	1.52	60.88				
PCB-143		U	2	1.52	60.88				
PCB-144	1420		2	1.52	60.88				
PCB-145		U	2	1.52	60.88				
PCB-146	5670		2	1.52	60.88				

SDG Number	E4SH2	
Lab Sample ID	1556007	
Client ID	E4SQ4	
Date Collected	16-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
% moisture	0.395	%
theoretical aliquot	10	g
actual aliquot	10.86	g
Prep Date	25-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	25800		4	1.52	121.76				
PCB-148	101		2	1.52	60.88				
PCB-150		U	2	1.52	60.88				
PCB-152		U	2	1.52	60.88				
PCB-153/168	26800		4	1.52	121.76				
PCB-154	553		2	1.52	60.88				
PCB-155		U	2	1.52	60.88				
PCB-156/157	5580		4	1.52	121.76			0.00003	0.1674
PCB-158	3660		2	1.52	60.88				
PCB-159	266		2	1.52	60.88				
PCB-160		U	2	1.52	60.88				
PCB-161		U	2	1.52	60.88				
PCB-162	275		2	1.52	60.88				
PCB-164	2330		2	1.52	60.88				
PCB-165		U	2	1.52	60.88				
PCB-167	1880		2	1.52	60.88			0.00003	0.0564
PCB-169		U	2	1.52	60.88	Hexa PCBs	160674	0.03	0
PCB-170	6620		2	1.52	60.88				
PCB-171/173	2060		4	1.52	121.76				
PCB-172	1220		2	1.52	60.88				
PCB-174	7230		2	1.52	60.88				
PCB-175	268		2	1.52	60.88				
PCB-176	961		2	1.52	60.88				
PCB-177	4270		2	1.52	60.88				
PCB-178	1710		2	1.52	60.88				
PCB-179	3330		2	1.52	60.88				
PCB-180/193	15400		4	1.52	121.76				
PCB-181		U	2	1.52	60.88				
PCB-182		U	2	1.52	60.88				
PCB-183/185	4520		4	1.52	121.76				
PCB-184		U	2	1.52	60.88				
PCB-186		U	2	1.52	60.88				
PCB-187	8760		2	1.52	60.88				
PCB-188		U	2	1.52	60.88				
PCB-189	292		2	1.52	60.88			0.00003	0.00876
PCB-190	1370		2	1.52	60.88				
PCB-191	249		2	1.52	60.88				
PCB-192		U	2	1.52	60.88	Hepta PCBs	58260		
PCB-194	3700		2	1.52	60.88				
PCB-195	1410		2	1.52	60.88				
PCB-196	1860		2	1.52	60.88				
PCB-197/200	626		4	1.52	121.76				
PCB-198/199	4160		4	1.52	121.76				
PCB-201	503		2	1.52	60.88				
PCB-202	898		2	1.52	60.88				
PCB-203	2420		2	1.52	60.88				
PCB-204		U	2	1.52	60.88				
PCB-205	223		2	1.52	60.88	Octa PCBss	15800		
PCB-206	1460		2	1.52	60.88				
PCB-207	185		2	1.52	60.88				
PCB-208	385		2	1.52	60.88	Nona PCBs	2030		
PCB-209	711		2	1.52	60.88	Deca PCBs	711		
Total Mono PCBs	212		2	1.52	60.88				
Total Di PCBs	25000		2	1.52	60.88				
Total Tri PCBs	175000		2	1.52	60.88				
Total Tetra PCBs	620000		2	1.52	60.88				
Total Penta PCBs	400000		2	1.52	60.88				

SDG Number	E4SH2								
Lab Sample ID	1556007								
Client ID	E4SQ4								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.395	%							
theoretical aliquot	10	g							
actual aliquot	10.86	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	161000		2	1.52	60.88				
Total Hepta PCBs	58200		2	1.52	60.88				
Total Octa PCBs	15800		2	1.52	60.88				
Total Nona PCBs	2030		2	1.52	60.88				
Total Deca PCBs	711		2	1.52	60.88				
Total PCB Congeners	1460000		2	1.52	60.88		1457766		
Total PCB WHO2005 ND=0	14.7								14.68186

SDG Number	E4SH2								
Lab Sample ID	1556008								
Client ID	E4SQ5								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.362	%							
theoretical aliquot	10	g							
actual aliquot	10.72	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1		U	2	1.46	58.49				
PCB-2		U	2	1.46	58.49				
PCB-3		U	2	1.46	58.49	Mono PCBs	0		
PCB-4	558		2	1.46	58.49				
PCB-5	1540		2	1.46	58.49				
PCB-6	195		2	1.46	58.49				
PCB-7		U	2	1.46	58.49				
PCB-8	1080		2	1.46	58.49				
PCB-9		U	2	1.46	58.49				
PCB-10		U	2	1.46	58.49				
PCB11		U	100	1.46	2924.25				
PCB-12/13		U	4	1.46	116.97				
PCB-14		U	2	1.46	58.49				
PCB-15	1190		10	1.46	292.43	Di PCBs	4563		
PCB-16	2020		2	1.46	58.49				
PCB-17	2440		2	1.46	58.49				
PCB-18/30	5580		4	1.46	116.97				
PCB-19	790		2	1.46	58.49				
PCB-20/28	7740		20	1.46	584.85				
PCB-21/33	3630		20	1.46	584.85				
PCB-22	2260		10	1.46	292.43				
PCB-23		U	2	1.46	58.49				
PCB-24		U	2	1.46	58.49				
PCB-25	446		2	1.46	58.49				
PCB-26/29	1090		4	1.46	116.97				
PCB-27	519		2	1.46	58.49				
PCB-31	6650		10	1.46	292.43				
PCB-32	1680		2	1.46	58.49				
PCB-34		U	2	1.46	58.49				
PCB-35	67	U	2	1.46	58.49				
PCB-36		U	2	1.46	58.49				
PCB-37	2790		10	1.46	292.43				
PCB-38		U	2	1.46	58.49				
PCB-39		U	2	1.46	58.49	Tri OCBs	37702		
PCB-40/71	4560		2	1.46	58.49				
PCB-41		U	100	1.46	2924.25				
PCB-42	2640		2	1.46	58.49				
PCB-43	689		2	1.46	58.49				
PCB-44/47/65	12800		6	1.46	175.46				
PCB-45/51	2230		40	1.46	1169.70				
PCB-46	792		2	1.46	58.49				
PCB-48	2150		2	1.46	58.49				
PCB-49/69	7260		4	1.46	116.97				
PCB-50/53	1700		4	1.46	116.97				
PCB-52	20100		2	1.46	58.49				
PCB-54		U	2	1.46	58.49				
PCB-55		U	2	1.46	58.49				
PCB-56	4790		2	1.46	58.49				
PCB-57		U	2	1.46	58.49				
PCB-58		U	2	1.46	58.49				
PCB-59/32/75	944		6	1.46	175.46				
PCB-60	2240		2	1.46	58.49				
PCB-61/70/74/76	21000		8	1.46	233.94				
PCB-63	343		2	1.46	58.49				
PCB-64	5120		2	1.46	58.49				
PCB-66	10500		10	1.46	292.43				
PCB-67	232		2	1.46	58.49				

SDG Number	E4SH2									
Lab Sample ID	1556008									
Client ID	E4SQ5									
Date Collected	16-Apr-10									
Date Received	7-Aug-10									
Matrix	SOIL									
% moisture	0.362	%								
theoretical aliquot	10	g								
actual aliquot	10.72	g								
Prep Date	25-Aug-10									
Run Date	10-Sep-10									
Dilution	20									

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-68		U	2	1.46	58.49				
PCB-72	83.7		2	1.46	58.49				
PCB-73		U	2	1.46	58.49				
PCB-77	1040		2	1.46	58.49			0.0001	0.104
PCB-78	69.6		2	1.46	58.49				
PCB-79	315		2	1.46	58.49				
PCB-80	68.3		2	1.46	58.49				
PCB-81		U	2	1.46	58.49	Tetra PCBs	101666.6	0.0003	0
PCB-82	2540		2	1.46	58.49				
PCB-83	1080		2	1.46	58.49				
PCB-84	5800		2	1.46	58.49				
PCB-85/116/117	2930		6	1.46	175.46				
PCB-86/87/97/109/119/125	14300		12	1.46	350.91				
PCB-88/91	2650		4	1.46	116.97				
PCB-89	202		2	1.46	58.49				
PCB-90/101/113	19700		6	1.46	175.46				
PCB-92	3510		2	1.46	58.49				
PCB-93/100		U	4	1.46	116.97				
PCB-94	86		2	1.46	58.49				
PCB-95	15800		2	1.46	58.49				
PCB-96	142		2	1.46	58.49				
PCB-98/102	625		4	1.46	116.97				
PCB-99	8550		2	1.46	58.49				
PCB-103	96.6		2	1.46	58.49				
PCB-104		U	2	1.46	58.49				
PCB-105	8890		2	1.46	58.49			0.00003	0.2667
PCB-106		U	2	1.46	58.49				
PCB-107	1220		2	1.46	58.49				
PCB-108/124	672		4	1.46	116.97				
PCB-110/115	23200		4	1.46	116.97				
PCB-111		U	2	1.46	58.49				
PCB-112		U	2	1.46	58.49				
PCB-114	467		2	1.46	58.49			0.00003	0.01401
PCB-118	20400		2	1.46	58.49			0.00003	0.612
PCB-120		U	2	1.46	58.49				
PCB-121		U	2	1.46	58.49				
PCB-122	172		2	1.46	58.49				
PCB-123	302		2	1.46	58.49			0.00003	0.00906
PCB-126		U	2	1.46	58.49			0.1	0
PCB-127		U	2	1.46	58.49	Penta PCBs	133334.6		
PCB-128/166	2900		4	1.46	116.97				
PCB-129/138/163	17600		6	1.46	175.46				
PCB-130	1070		2	1.46	58.49				
PCB-131	299		2	1.46	58.49				
PCB-132	5710		2	1.46	58.49				
PCB-133	193		2	1.46	58.49				
PCB-134	1190		2	1.46	58.49				
PCB-135/151	4120		4	1.46	116.97				
PCB-136	1870		2	1.46	58.49				
PCB-137	892		2	1.46	58.49				
PCB-139/140	322		4	1.46	116.97				
PCB-141	2460		2	1.46	58.49				
PCB-142		U	2	1.46	58.49				
PCB-143		U	2	1.46	58.49				
PCB-144	590		2	1.46	58.49				
PCB-145		U	2	1.46	58.49				
PCB-146	2000		2	1.46	58.49				

SDG Number	E4SH2								
Lab Sample ID	1556008								
Client ID	E4SQ5								
Date Collected	16-Apr-10								
Date Received	7-Aug-10								
Matrix	SOIL								
% moisture	0.362	%							
theoretical aliquot	10	g							
actual aliquot	10.72	g							
Prep Date	25-Aug-10								
Run Date	10-Sep-10								
Dilution	20								
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149	10700		4	1.46	116.97					
PCB-148		U	2	1.46	58.49					
PCB-150		U	2	1.46	58.49					
PCB-152		U	2	1.46	58.49					
PCB-153/168	11200		4	1.46	116.97					
PCB-154	125		2	1.46	58.49					
PCB-155		U	2	1.46	58.49					
PCB-156/157	2860		4	1.46	116.97				0.00003	0.0858
PCB-158	1770		2	1.46	58.49					
PCB-159	86.6		2	1.46	58.49					
PCB-160		U	2	1.46	58.49					
PCB-161		U	2	1.46	58.49					
PCB-162	103		2	1.46	58.49					
PCB-164	1040		2	1.46	58.49					
PCB-165		U	2	1.46	58.49					
PCB-167	830		2	1.46	58.49				0.00003	0.0249
PCB-169		U	2	1.46	58.49	Hexa PCBs		69930.6	0.03	0
PCB-170	2130		2	1.46	58.49					
PCB-171/173	674		4	1.46	116.97					
PCB-172	360		2	1.46	58.49					
PCB-174	2030		2	1.46	58.49					
PCB-175	89.8		2	1.46	58.49					
PCB-176	273		2	1.46	58.49					
PCB-177	1190		2	1.46	58.49					
PCB-178	429		2	1.46	58.49					
PCB-179	866		2	1.46	58.49					
PCB-180/193	4560		4	1.46	116.97					
PCB-181		U	2	1.46	58.49					
PCB-182		U	2	1.46	58.49					
PCB-183/185	1440		4	1.46	116.97					
PCB-184		U	2	1.46	58.49					
PCB-186		U	2	1.46	58.49					
PCB-187	2300		2	1.46	58.49					
PCB-188		U	2	1.46	58.49					
PCB-189	108		2	1.46	58.49				0.00003	0.00324
PCB-190	391		2	1.46	58.49					
PCB-191	75.7		2	1.46	58.49					
PCB-192		U	2	1.46	58.49	Hepta PCBs		16916.5		
PCB-194	950		2	1.46	58.49					
PCB-195	337		2	1.46	58.49					
PCB-196	508		2	1.46	58.49					
PCB-197/200	178		4	1.46	116.97					
PCB-198/199	1210		4	1.46	116.97					
PCB-201	143		2	1.46	58.49					
PCB-202	285		2	1.46	58.49					
PCB-203	716		2	1.46	58.49					
PCB-204		U	2	1.46	58.49					
PCB-205	67.1		2	1.46	58.49	Octa PCBss		4394.1		
PCB-206	796		2	1.46	58.49					
PCB-207	99		2	1.46	58.49					
PCB-208	278		2	1.46	58.49	Nona PCBs		1173		
PCB-209	896		2	1.46	58.49	Deca PCBs		896		
Total Mono PCBs		U	2	1.46	58.49					
Total Di PCBs	4560		2	1.46	58.49					
Total Tri PCBs	37700		2	1.46	58.49					
Total Tetra PCBs	102000		2	1.46	58.49					
Total Penta PCBs	133000		2	1.46	58.49					

SDG Number	E4SH2	
Lab Sample ID	1556008	
Client ID	E4SQ5	
Date Collected	16-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
% moisture	0.362	%
theoretical aliquot	10	g
actual aliquot	10.72	g
Prep Date	25-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs	69900		2	1.46	58.49			
Total Hepta PCBs	16900		2	1.46	58.49			
Total Octa PCBs	4390		2	1.46	58.49			
Total Nona PCBs	1170		2	1.46	58.49			
Total Deca PCBs	896		2	1.46	58.49			
Total PCB Congeners	371000		2	1.46	58.49	370576.4		
Total PCB WHO2005 ND=0	1.12							1.11971

SDG Number	E4SH2
Lab Sample ID	12001672
Client ID	MB for batch 13332
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	25-Aug-10
Run Date	7-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
PCB-1		U	2	1.00	2.00			
PCB-2		U	2	1.00	2.00			
PCB-3		U	2	1.00	2.00	Mono PCBs	0	
PCB-4		U	2	1.00	2.00			
PCB-5		U	2	1.00	2.00			
PCB-6		U	2	1.00	2.00			
PCB-7		U	2	1.00	2.00			
PCB-8		U	2	1.00	2.00			
PCB-9		U	2	1.00	2.00			
PCB-10		U	2	1.00	2.00			
PCB11		U	100	1.00	100.00			
PCB-12/13		U	4	1.00	4.00			
PCB-14		U	2	1.00	2.00			
PCB-15		U	10	1.00	10.00	Di PCBs	0	
PCB-16		U	2	1.00	2.00			
PCB-17		U	2	1.00	2.00			
PCB-18/30		U	4	1.00	4.00			
PCB-19		U	2	1.00	2.00			
PCB-20/28		U	20	1.00	20.00			
PCB-21/33		U	20	1.00	20.00			
PCB-22		U	10	1.00	10.00			
PCB-23		U	2	1.00	2.00			
PCB-24		U	2	1.00	2.00			
PCB-25		U	2	1.00	2.00			
PCB-26/29		U	4	1.00	4.00			
PCB-27		U	2	1.00	2.00			
PCB-31		U	10	1.00	10.00			
PCB-32		U	2	1.00	2.00			
PCB-34		U	2	1.00	2.00			
PCB-35		U	2	1.00	2.00			
PCB-36		U	2	1.00	2.00			
PCB-37		U	10	1.00	10.00			
PCB-38		U	2	1.00	2.00			
PCB-39		U	2	1.00	2.00	Tri OCBs	0	
PCB-40/71		U	2	1.00	2.00			
PCB-41		U	100	1.00	100.00			
PCB-42		U	2	1.00	2.00			
PCB-43		U	2	1.00	2.00			
PCB-44/47/65		U	6	1.00	6.00			
PCB-45/51		U	40	1.00	40.00			
PCB-46		U	2	1.00	2.00			
PCB-48		U	2	1.00	2.00			
PCB-49/69		U	4	1.00	4.00			
PCB-50/53		U	4	1.00	4.00			
PCB-52		U	2	1.00	2.00			
PCB-54		U	2	1.00	2.00			
PCB-55		U	2	1.00	2.00			
PCB-56		U	2	1.00	2.00			
PCB-57		U	2	1.00	2.00			
PCB-58		U	2	1.00	2.00			
PCB-59/32/75		U	6	1.00	6.00			
PCB-60		U	2	1.00	2.00			
PCB-61/70/74/76		U	8	1.00	8.00			
PCB-63		U	2	1.00	2.00			
PCB-64		U	2	1.00	2.00			
PCB-66		U	10	1.00	10.00			
PCB-67		U	2	1.00	2.00			

SDG Number	E4SH2
Lab Sample ID	12001672
Client ID	MB for batch 13332
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	25-Aug-10
Run Date	7-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-68		U	2	1.00	2.00				
PCB-72		U	2	1.00	2.00				
PCB-73		U	2	1.00	2.00				
PCB-77		U	2	1.00	2.00			0.0001	0
PCB-78		U	2	1.00	2.00				
PCB-79		U	2	1.00	2.00				
PCB-80		U	2	1.00	2.00				
PCB-81		U	2	1.00	2.00	Tetra PCBs	0	0.0003	0
PCB-82		U	2	1.00	2.00				
PCB-83		U	2	1.00	2.00				
PCB-84		U	2	1.00	2.00				
PCB-85/116/117		U	6	1.00	6.00				
PCB-86/87/97/109/119/125		U	12	1.00	12.00				
PCB-88/91		U	4	1.00	4.00				
PCB-89		U	2	1.00	2.00				
PCB-90/101/113		U	6	1.00	6.00				
PCB-92		U	2	1.00	2.00				
PCB-93/100		U	4	1.00	4.00				
PCB-94		U	2	1.00	2.00				
PCB-95		U	2	1.00	2.00				
PCB-96		U	2	1.00	2.00				
PCB-98/102		U	4	1.00	4.00				
PCB-99		U	2	1.00	2.00				
PCB-103		U	2	1.00	2.00				
PCB-104		U	2	1.00	2.00				
PCB-105		U	2	1.00	2.00			0.00003	0
PCB-106		U	2	1.00	2.00				
PCB-107		U	2	1.00	2.00				
PCB-108/124		U	4	1.00	4.00				
PCB-110/115		U	4	1.00	4.00				
PCB-111		U	2	1.00	2.00				
PCB-112		U	2	1.00	2.00				
PCB-114		U	2	1.00	2.00			0.00003	0
PCB-118		U	2	1.00	2.00			0.00003	0
PCB-120		U	2	1.00	2.00				
PCB-121		U	2	1.00	2.00				
PCB-122		U	2	1.00	2.00				
PCB-123		U	2	1.00	2.00			0.00003	0
PCB-126		U	2	1.00	2.00			0.1	0
PCB-127		U	2	1.00	2.00	Penta PCBs	0		
PCB-128/166		U	4	1.00	4.00				
PCB-129/138/163		U	6	1.00	6.00				
PCB-130		U	2	1.00	2.00				
PCB-131		U	2	1.00	2.00				
PCB-132		U	2	1.00	2.00				
PCB-133		U	2	1.00	2.00				
PCB-134		U	2	1.00	2.00				
PCB-135/151		U	4	1.00	4.00				
PCB-136		U	2	1.00	2.00				
PCB-137		U	2	1.00	2.00				
PCB-139/140		U	4	1.00	4.00				
PCB-141		U	2	1.00	2.00				
PCB-142		U	2	1.00	2.00				
PCB-143		U	2	1.00	2.00				
PCB-144		U	2	1.00	2.00				
PCB-145		U	2	1.00	2.00				
PCB-146		U	2	1.00	2.00				

SDG Number	E4SH2
Lab Sample ID	12001672
Client ID	MB for batch 13332
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	25-Aug-10
Run Date	7-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149		U	4	1.00	4.00				
PCB-148		U	2	1.00	2.00				
PCB-150		U	2	1.00	2.00				
PCB-152		U	2	1.00	2.00				
PCB-153/168		U	4	1.00	4.00				
PCB-154		U	2	1.00	2.00				
PCB-155		U	2	1.00	2.00				
PCB-156/157		U	4	1.00	4.00			0.00003	0
PCB-158		U	2	1.00	2.00				
PCB-159		U	2	1.00	2.00				
PCB-160		U	2	1.00	2.00				
PCB-161		U	2	1.00	2.00				
PCB-162		U	2	1.00	2.00				
PCB-164		U	2	1.00	2.00				
PCB-165		U	2	1.00	2.00				
PCB-167		U	2	1.00	2.00			0.00003	0
PCB-169		U	2	1.00	2.00	Hexa PCBs	0	0.03	0
PCB-170		U	2	1.00	2.00				
PCB-171/173		U	4	1.00	4.00				
PCB-172		U	2	1.00	2.00				
PCB-174		U	2	1.00	2.00				
PCB-175		U	2	1.00	2.00				
PCB-176		U	2	1.00	2.00				
PCB-177		U	2	1.00	2.00				
PCB-178		U	2	1.00	2.00				
PCB-179		U	2	1.00	2.00				
PCB-180/193		U	4	1.00	4.00				
PCB-181		U	2	1.00	2.00				
PCB-182		U	2	1.00	2.00				
PCB-183/185		U	4	1.00	4.00				
PCB-184		U	2	1.00	2.00				
PCB-186		U	2	1.00	2.00				
PCB-187		U	2	1.00	2.00				
PCB-188		U	2	1.00	2.00				
PCB-189		U	2	1.00	2.00			0.00003	0
PCB-190		U	2	1.00	2.00				
PCB-191		U	2	1.00	2.00				
PCB-192		U	2	1.00	2.00	Hepta PCBs	0		
PCB-194		U	2	1.00	2.00				
PCB-195		U	2	1.00	2.00				
PCB-196		U	2	1.00	2.00				
PCB-197/200		U	4	1.00	4.00				
PCB-198/199		U	4	1.00	4.00				
PCB-201		U	2	1.00	2.00				
PCB-202		U	2	1.00	2.00				
PCB-203		U	2	1.00	2.00				
PCB-204		U	2	1.00	2.00				
PCB-205		U	2	1.00	2.00	Octa PCBss	0		
PCB-206		U	2	1.00	2.00				
PCB-207		U	2	1.00	2.00				
PCB-208		U	2	1.00	2.00	Nona PCBs	0		
PCB-209		U	2	1.00	2.00	Deca PCBs	0		
Total Mono PCBs		U	2	1.00	2.00				
Total Di PCBs		U	2	1.00	2.00				
Total Tri PCBs		U	2	1.00	2.00				
Total Tetra PCBs		U	2	1.00	2.00				
Total Penta PCBs		U	2	1.00	2.00				

SDG Number	E4SH2	
Lab Sample ID	12001672	
Client ID	MB for batch 13332	
Date Collected		
Date Received		
Matrix	SOIL	
% moisture	0	%
theoretical aliquot	10	g
actual aliquot	10	g
Prep Date	25-Aug-10	
Run Date	7-Sep-10	
Dilution	1	

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs		U	2	1.00	2.00			
Total Hepta PCBs		U	2	1.00	2.00			
Total Octa PCBs		U	2	1.00	2.00			
Total Nona PCBs		U	2	1.00	2.00			
Total Deca PCBs		U	2	1.00	2.00			
Total PCB Congeners		U	2	1.00	2.00		0	
Total PCB WHO2005 ND=0	0							0

SDG Number	E4SH2
Lab Sample ID	12001706
Client ID	MB for batch 13752
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	1-Sep-10
Run Date	13-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1		U	2	1.00	2.00				
PCB-2		U	2	1.00	2.00				
PCB-3		U	2	1.00	2.00	Mono PCBs		0	
PCB-4		U	2	1.00	2.00				
PCB-5		U	2	1.00	2.00				
PCB-6		U	2	1.00	2.00				
PCB-7		U	2	1.00	2.00				
PCB-8		U	2	1.00	2.00				
PCB-9		U	2	1.00	2.00				
PCB-10		U	2	1.00	2.00				
PCB11		U	100	1.00	100.00				
PCB-12/13		U	4	1.00	4.00				
PCB-14		U	2	1.00	2.00				
PCB-15		U	10	1.00	10.00	Di PCBs		0	
PCB-16		U	2	1.00	2.00				
PCB-17		U	2	1.00	2.00				
PCB-18/30		U	4	1.00	4.00				
PCB-19		U	2	1.00	2.00				
PCB-20/28		U	20	1.00	20.00				
PCB-21/33		U	20	1.00	20.00				
PCB-22		U	10	1.00	10.00				
PCB-23		U	2	1.00	2.00				
PCB-24		U	2	1.00	2.00				
PCB-25		U	2	1.00	2.00				
PCB-26/29		U	4	1.00	4.00				
PCB-27		U	2	1.00	2.00				
PCB-31		U	10	1.00	10.00				
PCB-32		U	2	1.00	2.00				
PCB-34		U	2	1.00	2.00				
PCB-35		U	2	1.00	2.00				
PCB-36		U	2	1.00	2.00				
PCB-37		U	10	1.00	10.00				
PCB-38		U	2	1.00	2.00				
PCB-39		U	2	1.00	2.00	Tri OCBs		0	
PCB-40/71		U	2	1.00	2.00				
PCB-41		U	100	1.00	100.00				
PCB-42		U	2	1.00	2.00				
PCB-43		U	2	1.00	2.00				
PCB-44/47/65		U	6	1.00	6.00				
PCB-45/51		U	40	1.00	40.00				
PCB-46		U	2	1.00	2.00				
PCB-48		U	2	1.00	2.00				
PCB-49/69		U	4	1.00	4.00				
PCB-50/53		U	4	1.00	4.00				
PCB-52	2.57		2	1.00	2.00				
PCB-54		U	2	1.00	2.00				
PCB-55		U	2	1.00	2.00				
PCB-56		U	2	1.00	2.00				
PCB-57		U	2	1.00	2.00				
PCB-58		U	2	1.00	2.00				
PCB-59/32/75		U	6	1.00	6.00				
PCB-60		U	2	1.00	2.00				
PCB-61/70/74/76		U	8	1.00	8.00				
PCB-63		U	2	1.00	2.00				
PCB-64		U	2	1.00	2.00				
PCB-66		U	10	1.00	10.00				
PCB-67		U	2	1.00	2.00				

SDG Number	E4SH2
Lab Sample ID	12001706
Client ID	MB for batch 13752
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	1-Sep-10
Run Date	13-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners		Multiplier	WHO2005 TEQ
PCB-68		U	2	1.00	2.00				
PCB-72		U	2	1.00	2.00				
PCB-73		U	2	1.00	2.00				
PCB-77		U	2	1.00	2.00			0.0001	0
PCB-78		U	2	1.00	2.00				
PCB-79		U	2	1.00	2.00				
PCB-80		U	2	1.00	2.00				
PCB-81		U	2	1.00	2.00	Tetra PCBs	2.57	0.0003	0
PCB-82		U	2	1.00	2.00				
PCB-83		U	2	1.00	2.00				
PCB-84		U	2	1.00	2.00				
PCB-85/116/117		U	6	1.00	6.00				
PCB-86/87/97/109/119/125		U	12	1.00	12.00				
PCB-88/91		U	4	1.00	4.00				
PCB-89		U	2	1.00	2.00				
PCB-90/101/113		U	6	1.00	6.00				
PCB-92		U	2	1.00	2.00				
PCB-93/100		U	4	1.00	4.00				
PCB-94		U	2	1.00	2.00				
PCB-95	3.11		2	1.00	2.00				
PCB-96		U	2	1.00	2.00				
PCB-98/102		U	4	1.00	4.00				
PCB-99		U	2	1.00	2.00				
PCB-103		U	2	1.00	2.00				
PCB-104		U	2	1.00	2.00				
PCB-105		U	2	1.00	2.00			0.00003	0
PCB-106		U	2	1.00	2.00				
PCB-107		U	2	1.00	2.00				
PCB-108/124		U	4	1.00	4.00				
PCB-110/115		U	4	1.00	4.00				
PCB-111		U	2	1.00	2.00				
PCB-112		U	2	1.00	2.00				
PCB-114		U	2	1.00	2.00			0.00003	0
PCB-118	2.16		2	1.00	2.00			0.00003	0.0000648
PCB-120		U	2	1.00	2.00				
PCB-121		U	2	1.00	2.00				
PCB-122		U	2	1.00	2.00				
PCB-123		U	2	1.00	2.00			0.00003	0
PCB-126		U	2	1.00	2.00			0.1	0
PCB-127		U	2	1.00	2.00	Penta PCBs	5.27		
PCB-128/166		U	4	1.00	4.00				
PCB-129/138/163		U	6	1.00	6.00				
PCB-130		U	2	1.00	2.00				
PCB-131		U	2	1.00	2.00				
PCB-132		U	2	1.00	2.00				
PCB-133		U	2	1.00	2.00				
PCB-134		U	2	1.00	2.00				
PCB-135/151		U	4	1.00	4.00				
PCB-136		U	2	1.00	2.00				
PCB-137		U	2	1.00	2.00				
PCB-139/140		U	4	1.00	4.00				
PCB-141		U	2	1.00	2.00				
PCB-142		U	2	1.00	2.00				
PCB-143		U	2	1.00	2.00				
PCB-144		U	2	1.00	2.00				
PCB-145		U	2	1.00	2.00				
PCB-146		U	2	1.00	2.00				

SDG Number	E4SH2
Lab Sample ID	12001706
Client ID	MB for batch 13752
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	1-Sep-10
Run Date	13-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149		U	4	1.00	4.00				
PCB-148		U	2	1.00	2.00				
PCB-150		U	2	1.00	2.00				
PCB-152		U	2	1.00	2.00				
PCB-153/168		U	4	1.00	4.00				
PCB-154		U	2	1.00	2.00				
PCB-155		U	2	1.00	2.00				
PCB-156/157		U	4	1.00	4.00			0.00003	0
PCB-158		U	2	1.00	2.00				
PCB-159		U	2	1.00	2.00				
PCB-160		U	2	1.00	2.00				
PCB-161		U	2	1.00	2.00				
PCB-162		U	2	1.00	2.00				
PCB-164		U	2	1.00	2.00				
PCB-165		U	2	1.00	2.00				
PCB-167		U	2	1.00	2.00			0.00003	0
PCB-169		U	2	1.00	2.00	Hexa PCBs	0	0.03	0
PCB-170		U	2	1.00	2.00				
PCB-171/173		U	4	1.00	4.00				
PCB-172		U	2	1.00	2.00				
PCB-174		U	2	1.00	2.00				
PCB-175		U	2	1.00	2.00				
PCB-176		U	2	1.00	2.00				
PCB-177		U	2	1.00	2.00				
PCB-178		U	2	1.00	2.00				
PCB-179		U	2	1.00	2.00				
PCB-180/193		U	4	1.00	4.00				
PCB-181		U	2	1.00	2.00				
PCB-182		U	2	1.00	2.00				
PCB-183/185		U	4	1.00	4.00				
PCB-184		U	2	1.00	2.00				
PCB-186		U	2	1.00	2.00				
PCB-187		U	2	1.00	2.00				
PCB-188		U	2	1.00	2.00				
PCB-189		U	2	1.00	2.00			0.00003	0
PCB-190		U	2	1.00	2.00				
PCB-191		U	2	1.00	2.00				
PCB-192		U	2	1.00	2.00	Hepta PCBs	0		
PCB-194		U	2	1.00	2.00				
PCB-195		U	2	1.00	2.00				
PCB-196		U	2	1.00	2.00				
PCB-197/200		U	4	1.00	4.00				
PCB-198/199		U	4	1.00	4.00				
PCB-201		U	2	1.00	2.00				
PCB-202		U	2	1.00	2.00				
PCB-203		U	2	1.00	2.00				
PCB-204		U	2	1.00	2.00				
PCB-205		U	2	1.00	2.00	Octa PCBss	0		
PCB-206		U	2	1.00	2.00				
PCB-207		U	2	1.00	2.00				
PCB-208		U	2	1.00	2.00	Nona PCBs	0		
PCB-209		U	2	1.00	2.00	Deca PCBs	0		
Total Mono PCBs		U	2	1.00	2.00				
Total Di PCBs		U	2	1.00	2.00				
Total Tri PCBs		U	2	1.00	2.00				
Total Tetra PCBs	2.57		2	1.00	2.00				
Total Penta PCBs	5.27		2	1.00	2.00				

SDG Number	E4SH2
Lab Sample ID	12001706
Client ID	MB for batch 13752
Date Collected	
Date Received	
Matrix	SOIL
% moisture	0 %
theoretical aliquot	10 g
actual aliquot	10 g
Prep Date	1-Sep-10
Run Date	13-Sep-10
Dilution	1

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs		U	2	1.00	2.00			
Total Hepta PCBs		U	2	1.00	2.00			
Total Octa PCBs		U	2	1.00	2.00			
Total Nona PCBs		U	2	1.00	2.00			
Total Deca PCBs		U	2	1.00	2.00			
Total PCB Congeners	7.84		2	1.00	2.00	7.84		
Total PCB WHO2005 ND=0	0.000065							0.0000648

SDG Number									
Lab Sample ID									
Client ID									
Date Collected									
Date Received									
Matrix	SOIL								
% moisture	0	%							
theoretical aliquot	10	g							
actual aliquot	10	g							
Prep Date									
Run Date									
Dilution	1								
Congener	Result	Flag	RL pg/g		PQL pg/g		Total Congeners	Multiplier	WHO2005 TEQ
PCB-1		U	2	1.00	2.00				
PCB-2		U	2	1.00	2.00				
PCB-3		U	2	1.00	2.00	Mono PCBs		0	
PCB-4		U	2	1.00	2.00				
PCB-5		U	2	1.00	2.00				
PCB-6		U	2	1.00	2.00				
PCB-7		U	2	1.00	2.00				
PCB-8		U	2	1.00	2.00				
PCB-9		U	2	1.00	2.00				
PCB-10		U	2	1.00	2.00				
PCB11		U	100	1.00	100.00				
PCB-12/13		U	4	1.00	4.00				
PCB-14		U	2	1.00	2.00				
PCB-15		U	10	1.00	10.00	Di PCBs		0	
PCB-16		U	2	1.00	2.00				
PCB-17		U	2	1.00	2.00				
PCB-18/30		U	4	1.00	4.00				
PCB-19		U	2	1.00	2.00				
PCB-20/28		U	20	1.00	20.00				
PCB-21/33		U	20	1.00	20.00				
PCB-22		U	10	1.00	10.00				
PCB-23		U	2	1.00	2.00				
PCB-24		U	2	1.00	2.00				
PCB-25		U	2	1.00	2.00				
PCB-26/29		U	4	1.00	4.00				
PCB-27		U	2	1.00	2.00				
PCB-31		U	10	1.00	10.00				
PCB-32		U	2	1.00	2.00				
PCB-34		U	2	1.00	2.00				
PCB-35		U	2	1.00	2.00				
PCB-36		U	2	1.00	2.00				
PCB-37		U	10	1.00	10.00				
PCB-38		U	2	1.00	2.00				
PCB-39		U	2	1.00	2.00	Tri OCBs		0	
PCB-40/71		U	2	1.00	2.00				
PCB-41		U	100	1.00	100.00				
PCB-42		U	2	1.00	2.00				
PCB-43		U	2	1.00	2.00				
PCB-44/47/65		U	6	1.00	6.00				
PCB-45/51		U	40	1.00	40.00				
PCB-46		U	2	1.00	2.00				
PCB-48		U	2	1.00	2.00				
PCB-49/69		U	4	1.00	4.00				
PCB-50/53		U	4	1.00	4.00				
PCB-52		U	2	1.00	2.00				
PCB-54		U	2	1.00	2.00				
PCB-55		U	2	1.00	2.00				
PCB-56		U	2	1.00	2.00				
PCB-57		U	2	1.00	2.00				
PCB-58		U	2	1.00	2.00				
PCB-59/32/75		U	6	1.00	6.00				
PCB-60		U	2	1.00	2.00				
PCB-61/70/74/76		U	8	1.00	8.00				
PCB-63		U	2	1.00	2.00				
PCB-64		U	2	1.00	2.00				
PCB-66		U	10	1.00	10.00				
PCB-67		U	2	1.00	2.00				

SDG Number										
Lab Sample ID										
Client ID										
Date Collected										
Date Received										
Matrix	SOIL									
% moisture	0	%								
theoretical aliquot	10	g								
actual aliquot	10	g								
Prep Date										
Run Date										
Dilution	1									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-68		U	2	1.00	2.00					
PCB-72		U	2	1.00	2.00					
PCB-73		U	2	1.00	2.00					
PCB-77		U	2	1.00	2.00				0.0001	0
PCB-78		U	2	1.00	2.00					
PCB-79		U	2	1.00	2.00					
PCB-80		U	2	1.00	2.00					
PCB-81		U	2	1.00	2.00		Tetra PCBs	0	0.0003	0
PCB-82		U	2	1.00	2.00					
PCB-83		U	2	1.00	2.00					
PCB-84		U	2	1.00	2.00					
PCB-85/116/117		U	6	1.00	6.00					
PCB-86/87/97/109/119/125		U	12	1.00	12.00					
PCB-88/91		U	4	1.00	4.00					
PCB-89		U	2	1.00	2.00					
PCB-90/101/113		U	6	1.00	6.00					
PCB-92		U	2	1.00	2.00					
PCB-93/100		U	4	1.00	4.00					
PCB-94		U	2	1.00	2.00					
PCB-95		U	2	1.00	2.00					
PCB-96		U	2	1.00	2.00					
PCB-98/102		U	4	1.00	4.00					
PCB-99		U	2	1.00	2.00					
PCB-103		U	2	1.00	2.00					
PCB-104		U	2	1.00	2.00					
PCB-105		U	2	1.00	2.00				0.00003	0
PCB-106		U	2	1.00	2.00					
PCB-107		U	2	1.00	2.00					
PCB-108/124		U	4	1.00	4.00					
PCB-110/115		U	4	1.00	4.00					
PCB-111		U	2	1.00	2.00					
PCB-112		U	2	1.00	2.00					
PCB-114		U	2	1.00	2.00				0.00003	0
PCB-118		U	2	1.00	2.00				0.00003	0
PCB-120		U	2	1.00	2.00					
PCB-121		U	2	1.00	2.00					
PCB-122		U	2	1.00	2.00					
PCB-123		U	2	1.00	2.00				0.00003	0
PCB-126		U	2	1.00	2.00				0.1	0
PCB-127		U	2	1.00	2.00		Penta PCBs	0		
PCB-128/166		U	4	1.00	4.00					
PCB-129/138/163		U	6	1.00	6.00					
PCB-130		U	2	1.00	2.00					
PCB-131		U	2	1.00	2.00					
PCB-132		U	2	1.00	2.00					
PCB-133		U	2	1.00	2.00					
PCB-134		U	2	1.00	2.00					
PCB-135/151		U	4	1.00	4.00					
PCB-136		U	2	1.00	2.00					
PCB-137		U	2	1.00	2.00					
PCB-139/140		U	4	1.00	4.00					
PCB-141		U	2	1.00	2.00					
PCB-142		U	2	1.00	2.00					
PCB-143		U	2	1.00	2.00					
PCB-144		U	2	1.00	2.00					
PCB-145		U	2	1.00	2.00					
PCB-146		U	2	1.00	2.00					

SDG Number										
Lab Sample ID										
Client ID										
Date Collected										
Date Received										
Matrix	SOIL									
% moisture	0	%								
theoretical aliquot	10	g								
actual aliquot	10	g								
Prep Date										
Run Date										
Dilution	1									
Congener	Result	Flag	RL pg/g		PQL pg/g			Total Congeners	Multiplier	WHO2005 TEQ
PCB-147/149		U	4	1.00	4.00					
PCB-148		U	2	1.00	2.00					
PCB-150		U	2	1.00	2.00					
PCB-152		U	2	1.00	2.00					
PCB-153/168		U	4	1.00	4.00					
PCB-154		U	2	1.00	2.00					
PCB-155		U	2	1.00	2.00					
PCB-156/157		U	4	1.00	4.00				0.00003	0
PCB-158		U	2	1.00	2.00					
PCB-159		U	2	1.00	2.00					
PCB-160		U	2	1.00	2.00					
PCB-161		U	2	1.00	2.00					
PCB-162		U	2	1.00	2.00					
PCB-164		U	2	1.00	2.00					
PCB-165		U	2	1.00	2.00					
PCB-167		U	2	1.00	2.00				0.00003	0
PCB-169		U	2	1.00	2.00	Hexa PCBs		0	0.03	0
PCB-170		U	2	1.00	2.00					
PCB-171/173		U	4	1.00	4.00					
PCB-172		U	2	1.00	2.00					
PCB-174		U	2	1.00	2.00					
PCB-175		U	2	1.00	2.00					
PCB-176		U	2	1.00	2.00					
PCB-177		U	2	1.00	2.00					
PCB-178		U	2	1.00	2.00					
PCB-179		U	2	1.00	2.00					
PCB-180/193		U	4	1.00	4.00					
PCB-181		U	2	1.00	2.00					
PCB-182		U	2	1.00	2.00					
PCB-183/185		U	4	1.00	4.00					
PCB-184		U	2	1.00	2.00					
PCB-186		U	2	1.00	2.00					
PCB-187		U	2	1.00	2.00					
PCB-188		U	2	1.00	2.00					
PCB-189		U	2	1.00	2.00				0.00003	0
PCB-190		U	2	1.00	2.00					
PCB-191		U	2	1.00	2.00					
PCB-192		U	2	1.00	2.00	Hepta PCBs		0		
PCB-194		U	2	1.00	2.00					
PCB-195		U	2	1.00	2.00					
PCB-196		U	2	1.00	2.00					
PCB-197/200		U	4	1.00	4.00					
PCB-198/199		U	4	1.00	4.00					
PCB-201		U	2	1.00	2.00					
PCB-202		U	2	1.00	2.00					
PCB-203		U	2	1.00	2.00					
PCB-204		U	2	1.00	2.00					
PCB-205		U	2	1.00	2.00	Octa PCBss		0		
PCB-206		U	2	1.00	2.00					
PCB-207		U	2	1.00	2.00					
PCB-208		U	2	1.00	2.00	Nona PCBs		0		
PCB-209		U	2	1.00	2.00	Deca PCBs		0		
Total Mono PCBs		U	2	1.00	2.00					
Total Di PCBs		U	2	1.00	2.00					
Total Tri PCBs		U	2	1.00	2.00					
Total Tetra PCBs		U	2	1.00	2.00					
Total Penta PCBs		U	2	1.00	2.00					

SDG Number			
Lab Sample ID			
Client ID			
Date Collected			
Date Received			
Matrix	SOIL		
% moisture	0	%	
theoretical aliquot	10	g	
actual aliquot	10	g	
Prep Date			
Run Date			
Dilution	1		

Congener	Result	Flag	RL pg/g		PQL pg/g	Total Congeners	Multiplier	WHO2005 TEQ
Total Hexa PCBs		U	2	1.00	2.00			
Total Hepta PCBs		U	2	1.00	2.00			
Total Octa PCBs		U	2	1.00	2.00			
Total Nona PCBs		U	2	1.00	2.00			
Total Deca PCBs		U	2	1.00	2.00			
Total PCB Congeners		U	2	1.00	2.00		0	
Total PCB WHO2005 ND=0								0

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on November 3, 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: GLNPO/ CH2MHill
Email address: jones.brenda@epa.gov, goehl.sara@epa.gov, Adrienne.Korpela@ch2m.com, Huck.Raddemann@ch2m.com
Level 3 Data Validation

We have reviewed the data for the following case:

Site Name: Lincoln Park Sediment (WI)

Project Number: 40412 SDG Number: E4RX9-Congeners

Number and Type of Samples: 20 soils (PCB Congeners)

Sample Numbers: E4RX9, E4S07, E4S17, E4S88, E4S99, E4SA0, E4SA8, E4SC0, E4SF5, E4SH3, E4SH6, E4SJ1, E4SJ9, E4SL1, E4SL7, E4SM6, E4SM7, E4SM8, E4SM9, E4SN0

Laboratory: Cape Fear Analytical, LLC (CFA) Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Site Name: Lincoln Park Sediment (WI) SDG Number: E4RX9-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) soil samples identified in the following table were collected between February 24, 2010 and April 15, 2010. All samples were received by Microbac Laboratories (AXYS Anal Serv.) located in Baltimore, MD between March 1, 2010 and April 20, 2010 for PCB congeners analysis. The samples were then shipped to Cape Fear Analytical located in Wilmington, NC. The samples were received by Cape Fear Analytical at the proper shipping temperature range of 2 - 6°C. Two (2) samples; E4SA0 and E4SL1 were broken upon receipt. The remaining (18) samples were received in good condition.

The samples were analyzed for the list of 209 PCB Congeners. The samples were analyzed according to CBC01.2, December 2009, [SOW for Analysis of Chlorinated Biphenyl (CB) Congeners] and qualified according to the National Functional Guidelines for Chlorinated Biphenyl Congeners, April 2009 and the Approach for Review of PCB Congener Data for GLNPO Legacy Act Projects, June 2009.

Sample No.	Lab ID	Station Location	Collection Date	Collection Time	Extraction date	Analysis date
E4RX9	1555003	LP2-SD34N-D1.5/2.5	2/24/2010	14:10	8/24/2010	9/6/2010
E4S07	1555001	LP2-SD18E-E0.5/1.5	2/26/2010	11:05	8/24/2010	9/6/2010
E4S17	1555002	LP2-SD27W-A0.5/1.5	3/1/2010	15:20	8/24/2010	9/6/2010
E4S88	1555007	LP2-SD30W-B0.5/1.5	3/3/2010	11:05	8/24/2010	9/10/2010
E4S99	1555005	LP2-SD15E-I0.5/1.5	3/3/2010	13:35	8/24/2010	10/7/2010
E4SA0	1555006	LP2-SD15E-I1.5/2.5	3/3/2010	13:40	8/24/2010	10/7/2010
E4SA8	1555004	LP2-SD13E-A0.5/1.7	3/3/2010	15:20	8/24/2010	9/10/2010
E4SC0	1555008	LP2-SD35W-A0.5/1.5	3/4/2010	13:55	8/24/2010	9/13/2010
E4SF5	1555009	LP2-SD44N-A0.0/0.5	3/5/2010	8:00	8/24/2010	10/7/2010
E4SH3	1555010	LP2-SD04E-A0.0/1.0R	4/14/2010	10:55	8/24/2010	9/10/2010
E4SH6	1555011	LP2-SD12S-B0.5/1.5	4/14/2010	13:35	8/24/2010	10/6/2010
E4SJ1	1555012	LP2-SD17W-L0.5/1.5	4/14/2010	14:50	8/24/2010	10/6/2010
E4SJ9	1555013	LP2-SD36S-B0.0/0.5	4/14/2010	16:10	8/24/2010	10/8/2010
E4SL1	1555015	LP2-SD38W-B0.5/1.9	4/15/2010	11:10	8/24/2010	9/14/2010
E4SL7	1555014	LP2-SD42E-A0.0/0.4	4/15/2010	11:40	8/24/2010	9/13/2010
E4SM6	1555016	LP2-SD43N-A0.5/1.7	4/15/2010	14:05	8/24/2010	10/6/2010
E4SM7	1555017	LP2-SD43N-A0.5/1.7R	4/15/2010	14:10	8/24/2010	10/6/2010
E4SM8	1555018	LP2-SD46NA0.0/0.5	4/15/2010	14:30	8/24/2010	10/6/2010
E4SM9	1555019	LP2-SD46N-A0.5/1.8	4/15/2010	14:35	8/24/2010	10/7/2010
E4SN0	1555020	LP2-SD47S-I0.0/0.5	4/15/2010	14:43	8/24/2010	10/7/2010

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The LCS and LCSD were extracted on 08-24-10 and identified as LCS13252 and LCSD13252.

The Method Blank was extracted 08-24-10 and identified as MB13252.

Sample E4S07 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

Sample E4SM7 was identified as field duplicate of sample E4SM6. Sample E4SH3 was identified as field duplicate sample but its duplicate sample is not included in this SDG.

The samples were extracted on 08-24-2010 and promptly analyzed in less than 1 year; therefore, all results meet holding time criteria.

Site Name: Lincoln Park Sediment (WI) SDG Number: E4RX9-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

1. HOLDING TIME

No problems were found.

2. SYSTEM PERFORMANCE CHECK AND INSTRUMENT STABILITY

PFK and a molecular leak were used to tune the instrument to meet the minimum resolution power of 10,000 (10% valley) at the following m/z(s).

m/z	m/z	m/z	m/z
180.988	204.988	218.985	230.985
242.985	254.985	280.982	292.982
304.982	318.979	330.979	354.979
366.979	380.976	392.976	404.976
416.976	430.972	442.972	454.972
466.972	480.969	492.969	504.969
516.969			

Static resolving power checks were performed at the beginning and end of each 12-hour shift in the analytical sequence.

CS3/WDM standards (analyzed 9/6/10 @ 05:45 and 09/10/10 @ 08:59) were not reported on the associated 5B-Form V CB-2 (Instrument Performed Check-CB Congener Chromatographic Resolution Summary). However, raw data and Form 5A-Form V CB-1 (Instrument Performed Check-CB Congener WDM Summary) for these standards were submitted with the data package.

No problems were found.

3. CALIBRATION

The wrong Ion Abundance Ratio QC limit for PCB-16 was listed on all form 6E-Form VI CB-5. It was listed in-correctly as 1.33 – 1.79. The correct IAR limit for PCB-16 is 0.88 – 1.2 according to table 8 (Theoretical Ion Abundance Ratios and QC limits) in SOW CBC01.2. The Ion Ratio for PCB-16 in all 209 Daily CCVs were within the QC limit; therefore, no qualification is required.

The values reported in “Conc. Found” column for 7B,D-Form VII CB-2,4 were actually the %Ds not the concentration found for the PCB congeners in the CCVs. All %Ds for CCVs were within the QC limits (+/-30% for toxic congeners and +/-50% for surrogates and cleanup standards).

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The RRT (1.001) of PCB-1 for closing CS3 standard (analyzed 9/6/10 @ 5:45) was outside the QC limit of 1.005 – 1.02. However, none of the samples in this SDG was analyzed in this analytical sequence.

4. BLANKS

The Method Blank was extracted 08-24-10 and identified as MB13252.

MB13252 contains PB-52 at 2.35 pg/g. No qualification is required for the associated samples because the sample results were non-detected or greater than 10X the blank result.

5. IDENTIFICATION CRITERIA

The Ion Abundance Ratios were not reported on the laboratory sample summary forms. Raw data were used to evaluate this criterion. All Ion Abundance Ratios for the reported PCB congeners were within the QC limits according to the raw data; therefore, no qualification is required.

6. TOXIC CB CONGENERS

The list of Toxic CB Congeners consists of PCB-77, PCB-81, PCB-105, PCB-114, PCB-118, PCB123, PCB-126, PCB-156/157, PCB-167, PCB-169 and PCB-189.

Sample:	TEFs (*)	MB-13252	E4RX9	E4S07	E4S17	E4S88	E4S99
PCB-77	0.0001	0	359	581	632	1280	7760
PCB-81	0.0003	0	0	0	0	40.7	0
PCB-105	0.00003	0	2280	1610	1570	5140	12600
PCB-114	0.00003	0	117	102	92.1	274	957
PCB-118	0.00003	0	5110	3470	3550	11700	25400
PCB-123	0.00003	0	80.8	92.4	82.3	180	567
PCB-126	0.1	0	48.5	45	124	0	0
PCB-156/157	0.00003	0	680	593	1030	1990	2060
PCB-167	0.00003	0	220	231	608	738	643
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	0	28.2	106	248	242	0
Total		0	8923.5	6830.4	7936.4	21584.7	49987
Cal. Total TEQ		0	5.14	4.74	12.7	0.75	2.04
Lab rep. TEQ		0	5.14	4.74	12.7	0.75	2.04

Site Name: Lincoln Park Sediment (WI) SDG Number: E4RX9-Congeners
Case Number: 40412 Lab: Cape Fear Analytical

Sample:	TEFs (*)	E4SA0	E4SA8	E4SC0	E4SF5	E4SH3	E4SH6
PCB-77	0.0001	28500	267	617	114000	37.2	8460
PCB-81	0.0003	458	0	0	3670	0	143
PCB-105	0.00003	40400	804	1160	246000	135	14200
PCB-114	0.00003	3090	48.2	59.6	14300	0	1080
PCB-118	0.00003	129000	1920	2370	416000	334	28900
PCB-123	0.00003	1620	0	63.2	9910	0	509
PCB-126	0.1	241	0	0	2650	0	0
PCB-156/157	0.00003	9410	195	239	25400	64.5	2550
PCB-167	0.00003	2780	63.5	101	7170	26.3	728
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	528	0	0	721	0	119
Total		216027	3297.7	4609.8	839821	597	56689
Cal. Total TEQ		32.7	0.118	0.18	299.1	0.021	2.33
Lab rep. TEQ		32.7	0.118	0.18	300	0.0205	2.33

Sample:	TEFs (*)	E4SJ1	E4SJ9	E4SL1	E4SL7	E4SM6	E4SM7
PCB-77	0.0001	12300	4340	316	1440	3000	15900
PCB-81	0.0003	170	113	0	41.1	57.8	279
PCB-105	0.00003	27600	6500	4160	2750	9140	47400
PCB-114	0.00003	1800	358	228	169	424	2180
PCB-118	0.00003	64600	11900	9870	5270	16700	85800
PCB-123	0.00003	1110	297	166	136	422	2180
PCB-126	0.1	0	0	73.7	0	0	0
PCB-156/157	0.00003	3310	730	1410	449	938	4500
PCB-167	0.00003	884	244	416	140	285	1310
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	115	0	64.4	0	0	165
Total		111889	24482	16704.1	10395.1	30966.8	159714
Cal. Total TEQ		4.3	1.07	7.9	0.424	1.15	5.98
Lab rep. TEQ		4.27	1.07	7.89	0.424	1.15	5.99

Sample:	TEFs (*)	E4SM8	E4SM9	E4SN0
PCB-77	0.0001	31600	46800	25700
PCB-81	0.0003	951	1300	802
PCB-105	0.00003	55700	106000	45500
PCB-114	0.00003	3280	5690	2880
PCB-118	0.00003	97100	264000	76300
PCB-123	0.00003	2440	5860	1990
PCB-126	0.1	172	0	479
PCB-156/157	0.00003	5940	21600	4620
PCB-167	0.00003	1830	6470	1330
PCB-169	0.03	0	0	0
PCB-189	0.00003	258	855	0
Total		199271	458575	159601
Cal. Total TEQ		25.64	17.4	54.7
Lab rep. TEQ		25.7	17.4	54.7

(*) Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds, Society of Toxicology, July 7, 2006

7. CB TOTAL HOMOLOGUE

	MB-13252	E4RX9	E4S07	E4S17	E4S88	E4S99
Ttl MoCB		0	50.9	0	62.5	17243
Ttl DiCB		485	4468	1393	3903	387340
Ttl TrCB		6632	25287	9118	34762	1054435
Ttl TeCB	2.35	28778	40384	35197	88678	775071
Ttl PeCB		36145	29454	60577	92995	209827
Ttl HxCB		21660	43652	103815	114830	67183
Ttl HpCB		6290	34186	78714	72052	31619
Ttl OcCB		1655	8318	18474	17534	7877
Ttl NoCB		375	756	1588	1414	668
DeCB		135	151	236	354	514
Cal.Ttl PCBs	2.35	102157	186706	309112	426585	2551777
Lab reported	2.35	102000	187000	309000	426000	2550000

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	E4SA0	E4SA8	E4SC0	E4SF5	E4SH3	E4SH6
Ttl MoCB	110140	43	0	0	0	9230
Ttl DiCB	1601100	6347	2480	152143	69	144910
Ttl TrCB	4387410	36744	17528	2498330	1091	850750
Ttl TeCB	3323776	36608	42769	8702400	2519	758318
Ttl PeCB	1033253	15517	23757	3167584	3041	225574
Ttl HxCB	296985	6986	11560	529680	5064	64969
Ttl HpCB	110659	2528	5361	97947	3389	22503
Ttl OcCB	27366	572	1376	21687	842	5634
Ttl NoCB	2997	0	233	3947	62	859
DeCB	273	0	743	718	23	341
Cal.Ttl PCBs	10893959	105345	105806	15174436	16099	2083088
Lab reported	10900000	105000	106000	15200000	16100	2080000

	E4SJ1	E4SJ9	E4SL1	E4SL7	E4SM6	E4SM7
Ttl MoCB	653	1073	128	383	0	0
Ttl DiCB	47814	85372	542	21020	569	2621
Ttl TrCB	684105	347807	8373	105457	24253	108660
Ttl TeCB	493595	352934	34374	114504	252605	1268827
Ttl PeCB	470680	105828	66381	42382	131712	670391
Ttl HxCB	82033	19804	38993	15922	23650	104660
Ttl HpCB	19869	3862	11524	6152	5629	24156
Ttl OcCB	5756	779	2974	1357	1541	6872
Ttl NoCB	894	119	728	100	301	1304
DeCB	159	0	290	50	95	363
Cal.Ttl PCBs	1805558	917578	164306	307327	440357	2187855
Lab reported	1800000	918000	164000	307000	440000	2190000

	E4SM8	E4SM9	E4SN0
Ttl MoCB	0	0	0
Ttl DiCB	109122	115842	101595
Ttl TrCB	1107100	1335060	1011301
Ttl TeCB	2124259	3916160	1802483
Ttl PeCB	736203	2479680	570489
Ttl HxCB	154681	874147	110633
Ttl HpCB	54698	146521	30994
Ttl OcCB	14156	35753	7421
Ttl NoCB	1799	7843	958
DeCB	426	786	0
Cal.Ttl PCBs	4302444	8911792	3635874
Lab reported	4300000	8910000	3630000

8. MATRIX SPIKE / MATRIX SPIKE RECOVERIES

Sample E4S07 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

The RPDs for PCB-4, PCB-37, PCB-54, PCB-77, PCB-81, PCB-104, PCB-105, PCB-114, PCB-118, PCB-123, PCB-126, PCB-155, PCB-156/157, PCB-167, PCB-169, PCB-188, PCB-189, PCB-202, PCB-205, PCB-206, PCB-208 and PCB-209 in the MS/MSD analyses of sample E4S07 were above the QC limits. As a result of non-compliant RPDs, the following detected results were qualified as estimated (J) and non-detected results as estimated (UJ) in the associated parent sample:

- PCB-4, PCB-37, PCB-54, PCB-77, PCB-81, PCB-104, PCB-105, PCB-114, PCB-118, PCB-123, PCB-126, PCB-155, PCB-156/157, PCB-167, PCB-169, PCB-188, PCB-189, PCB-202, PCB-205, PCB-206, PCB-208 and PCB-209 in sample E4S07.

The recoveries of PCB-4, PCB-15, PCB-19 and PCB-37 in E4S07MS and E4S07MSD were above the QC limits. The recoveries of PCB-77, PCB-81, PCB-105, PCB-114, PCB-118, PCB-156/157, PCB-167 and PCB-169 in E4S07MS were above the QC limits. Non-detected PCB-81 and PCB-169 are not qualified for elevated recoveries but qualified (UJ) for non-compliant RPDs. As a result of the elevated recoveries, the following detected results were qualified as estimated (J) in the associated parent sample:

- PCB-4, PCB-15, PCB-19, PCB-37, PCB-77, PCB-81, PCB-105, PCB-114, PCB-118, PCB-156/157, PCB-167 and PCB-169 in E4S07.

The recoveries of PCB-206 in E4S07MS and E4S07MSD were below the QC limits. The recoveries of PCB-77, PCB-105, PCB-118, PCB-123, PCB-156/157, PCB-167, PCB-189, PCB-202, PCB-205, PCB-208 and PCB-209 in E4S07MSD were below the QC limits. As a result of the low recoveries, the following detected results were qualified as estimated (J) in the associated parent sample:

- PCB-77, PCB-105, PCB-118, PCB-123, PCB-156/157, PCB-167, PCB-189, PCB-202, PCB-205, PCB-206, PCB-208 and PCB-209 in E4S07.

9. LAB CONTROL SAMPLE (QUALITY CONTROL SUMMARY SPIKE RECOVER REPORT)

The LCS and LCSD were extracted on 08-24-10 and identified as LCS13252 and LCSD13252.

The relative percent different ((RPDs) for the spiked PCB congeners in the LCS-13252 and LCSD-13252 analyses were within the QC limit. The recovery for PCB-15 (157%) in the LCSD-13252 analysis was above the QC limit of 50% - 150%. As a result of the elevated recovery, the following detected results were qualified as estimated (J):

- PCB-15 in samples E4RX9, E4S07, E4S17, E4S88, E4S99, E4SA0, E4SA8, E4SC0, E4SF5, E4SH6, E4SJ1, E4SJ9, E4SL7, E4SM6, E4SM7, E4SM8, E4SM9, E4SN0

10. LABELED COMPOUND RECOVERIES (SURROGATE RECOVERY REPORT)

According to the laboratory narrative, no labeled compound percent recoveries were reported for the field samples because all samples were analyzed at the dilution and surrogates were diluted out. The dilution factors for the field samples were summarized in the following table:

EPA ID	Lab ID	Dilution factors	EPA ID	Lab ID	Dilution factors
E4RX9	1555003	10	E4SH3	1555010	10
E4S07	1555001	10	E4SH6	1555011	50
E4S07MS	1555001	10	E4SJ1	1555012	50
E4S07MSD	1555001	10	E4SJ9	1555013	40
E4S17	1555002	10	E4SL1	1555015	20
E4S88	1555007	20	E4SL7	1555014	20
E4S99	1555005	100	E4SM6	1555016	20
E4SA0	1555006	100	E4SM7	1555017	50
E4SA8	1555004	20	E4SM8	1555018	80
E4SC0	1555008	20	E4SM9	1555019	100
E4SF5	1555009	100	E4SN0	1555020	100

The labeled compound percent recoveries were only reported for the method blank and LCS/LCSD. The recoveries for these QC samples were within the QC limits; therefore, no qualification is required.

11. FIELD QC SAMPLES

Sample E4SM7 was identified as field duplicate of sample E4SM6. Sample E4SH3 was identified as field duplicate sample but its duplicate sample is not included in this SDG. A summary of the field duplicate sample results and RPDs for E4SM6 and E4SM7 are presented in the Excel spreadsheet included with this report.

Sample results are not qualified based on the results of field duplicate samples.

12. LAB QC SAMPLES

No PE (Performance Evaluation Sample) was provided to the laboratory for analysis. No laboratory duplicate samples were analyzed. However the Laboratory Control Samples were analyzed in duplicate for precision evaluation and the RPDs were within the QC limit; therefore, no qualification is required.

13. TARGET COMPOUND IDENTIFICATION

The non-detected congeners were reported at the adjusted CRQLs as identified in SOW CBC01.2 (12/09) Exhibit C – Section 1 [Pages C-3 thru C-7]. The adjusted CRQLs were reported as the Practical Quantitation Limits (PQL) on the "Certificate of Analysis – Sample Summary" form.

No problems were found.

14. ADDITIONAL INFORMATION

No Exes file is available for this SDG. A summary of the sample results and the recommended qualifications are presented in the Excel spreadsheet included with this report.

The following samples have one or more congeners whose concentration exceeded the laboratory's upper calibration limit and no further dilution was performed. The detected congeners are qualified "J".

E4SA0
PCB-4, PCB-17, PCB-20/28, PCB-31, PCB-52

E4SF5
PCB-31, PCB-40/71, PCB-44/47/65, PCB-52, PCB-56, PCB-64, PCB-66, PCB-118

E4SM7
PCB-52

E4SM9
PCB-52, PCB-66

The samples were analyzed accordingly to the SOW CBC01.2. However, non-standard Forms were used in the data package. The following Forms were used to evaluate the sample results:

- "Certificate of Analysis – Sample Summary" form is equivalent to 1A-Form I CB-1, 1B-Form I CB-2, 2A-Form II CB-1

- Quality Control Summary – Spike Recovery Report is equivalent to forms 3A-Form III CB-1, and 3B-Form III CB-2.

- Surrogate Recovery Report is equivalent to 2A - Form II CB-1 [Toxics/LOC CB Congener (Labeled) Compound Recovery]. This forms were used for the method blanks LCS/LCSD and sample E4SH2 only. This form was not used for samples E4SQ0, E4SQ2, E4SQ3, E4SQ4, E4SQ5, E4SN4, E4SN7 and E4SP6 because these samples were analyzed at dilution and surrogate were diluted out.

- Laboratory forms "6A,C-Form VI CB-1,3" is equivalent to 6A-Form VI CB-1, 6C-Form VI CB-3 and 6F-Form VI CB-6 of SOW CBC01.2.

- Laboratory forms "6B,D-Form VI CB-2,4" is equivalent to 6B-Form VI CB-2, 6D-Form VI CB-4 and 6G-Form VI CB-7 of SOW CBC01.2.

- Laboratory forms "7A,C-Form VII CB-1,3" is equivalent to 7A-Form VII CB-1, 7C-Form VII CB-3 and 7F-Form VII CB-5 of SOW CBC01.2.

- Laboratory forms "7B,D-Form VII CB-2,4" is equivalent to 7B-Form VII CB-2, 7D-Form VII CB-4 and 7G-Form VII CB-6 of SOW CBC01.2.

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Data Qualifier Definitions

U The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.

J The analyte was positively identified and the associated numerical value is the approximated concentration of the analyte in the sample [due either to the quality of the data generated because certain Quality Control (QC) criteria were not met, or the concentration of the analyte was below the adjusted CRQL].

UJ The analyte was not detected at a level greater than or equal to the adjusted CRQL or the reported adjusted CRQL is approximate and may be inaccurate or imprecise.

R The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

EML Estimated Minimum Level of Quantitation – level at which the congener can be determined with laboratory contamination present.

EMDL Estimated Method Detection Limit – level at which the congener can be determined with no interferences present.

Sample:	TEFs (*)	MB-13252	E4RX9	E4S07	E4S17	E4S88	E4S99
PCB-77	0.0001	0	359	581	632	1280	7760
PCB-81	0.0003	0	0	0	0	40.7	0
PCB-105	0.00003	0	2280	1610	1570	5140	12600
PCB-114	0.00003	0	117	102	92.1	274	957
PCB-118	0.00003	0	5110	3470	3550	11700	25400
PCB-123	0.00003	0	80.8	92.4	82.3	180	567
PCB-126	0.1	0	48.5	45	124	0	0
PCB-156/157	0.00003	0	680	593	1030	1990	2060
PCB-167	0.00003	0	220	231	608	738	643
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	0	28.2	106	248	242	0
Toltal		0	8923.5	6830.4	7936.4	21584.7	49987
Cal. Total TEQ		0	5.14	4.74	12.7	0.75	2.04
Lab rep. TEQ		0	5.14	4.74	12.7	0.75	2.04

Sample:	TEFs (*)	E4SA0	E4SA8	E4SC0	E4SF5	E4SH3	E4SH6
PCB-77	0.0001	28500	267	617	114000	37.2	8460
PCB-81	0.0003	458	0	0	3670	0	143
PCB-105	0.00003	40400	804	1160	246000	135	14200
PCB-114	0.00003	3090	48.2	59.6	14300	0	1080
PCB-118	0.00003	129000	1920	2370	416000	334	28900
PCB-123	0.00003	1620	0	63.2	9910	0	509
PCB-126	0.1	241	0	0	2650	0	0
PCB-156/157	0.00003	9410	195	239	25400	64.5	2550
PCB-167	0.00003	2780	63.5	101	7170	26.3	728
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	528	0	0	721	0	119
Toltal		216027	3297.7	4609.8	839821	597	56689
Cal. Total TEQ		32.7	0.118	0.18	299.1	0.021	2.33
Lab rep. TEQ		32.7	0.118	0.18	300	0.0205	2.33

Sample:	TEFs (*)	E4SJ1	E4SJ9	E4SL1	E4SL7	E4SM6	E4SM7
PCB-77	0.0001	12300	4340	316	1440	3000	15900
PCB-81	0.0003	170	113	0	41.1	57.8	279
PCB-105	0.00003	27600	6500	4160	2750	9140	47400
PCB-114	0.00003	1800	358	228	169	424	2180
PCB-118	0.00003	64600	11900	9870	5270	16700	85800
PCB-123	0.00003	1110	297	166	136	422	2180
PCB-126	0.1	0	0	73.7	0	0	0

PCB-156/157	0.00003	3310	730	1410	449	938	4500
PCB-167	0.00003	884	244	416	140	285	1310
PCB-169	0.03	0	0	0	0	0	0
PCB-189	0.00003	115	0	64.4	0	0	165
Toltal		111889	24482	16704.1	10395.1	30966.8	159714
Cal. Total TEQ		4.3	1.07	7.9	0.424	1.15	5.98
Lab rep. TEQ		4.27	1.07	7.89	0.424	1.15	5.99

Sample:	**TEFs (*)**	**E4SM8**	**E4SM9**	**E4SN0**			
PCB-77	0.0001	31600	46800	25700			
PCB-81	0.0003	951	1300	802			
PCB-105	0.00003	55700	106000	45500			
PCB-114	0.00003	3280	5690	2880			
PCB-118	0.00003	97100	264000	76300			
PCB-123	0.00003	2440	5860	1990			
PCB-126	0.1	172		479			
PCB-156/157	0.00003	5940	21600	4620			
PCB-167	0.00003	1830	6470	1330			
PCB-169	0.03	0	0	0			
PCB-189	0.00003	258	855	0			
Toltal		199271	458575	159601	0	0	0
Cal. Total TEQ		25.64	17.4	54.7	0.0	0.0	0.0
Lab rep. TEQ		25.7	17.4	54.7			

(*) Toxicity Equivalency Factors (TEFs) found in "The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds, Society of Toxicology, July 7, 2006

	MB-13252	E4RX9	E4S07	E4S17	E4S88	E4S99
Ttl MoCB		0	50.9	0	62.5	17243
Ttl DiCB		485	4468	1393	3903	387340
Ttl TrCB		6632	25287	9118	34762	1054435
Ttl TeCB	2.35	28778	40384	35197	88678	775071
Ttl PeCB		36145	29454	60577	92995	209827
Ttl HxCB		21660	43652	103815	114830	67183
Ttl HpCB		6290	34186	78714	72052	31619
Ttl OcCB		1655	8318	18474	17534	7877
Ttl NoCB		375	756	1588	1414	668
DeCB		135	151	236	354	514
Cal.Ttl PCBs	2.35	102157	186706	309112	426585	2551777
Lab reported	2.35	102000	187000	309000	426000	2550000

	E4SA0	E4SA8	E4SC0	E4SF5	E4SH3	E4SH6
Ttl MoCB	110140	42.7	0	0	0	9230
Ttl DiCB	1601100	6347	2480	152143	69	144910
Ttl TrCB	4387410	36744	17528	2498330	1091	850750
Ttl TeCB	3323776	36076	42769	8702400	2519	758318
Ttl PeCB	1033253	15517	23757	3167584	3041	225574
Ttl HxCB	296985	6986	11560	529680	5064	64645
Ttl HpCB	110659	2526	5361	97947	3389	22503
Ttl OcCB	27366	572	1376	21687	842	5634
Ttl NoCB	2997	0	233	3947	62	859
DeCB	273	0	743	718	23	341
Cal.Ttl PCBs	10893959	104811	105806	15174436	16099	2082764
Lab reported	10900000	105000	106000	15200000	16100	2080000

	E4SJ1	E4SJ9	E4SL1	E4SL7	E4SM6	E4SM7
Ttl MoCB	653	1073	128	383	0	0
Ttl DiCB	47814	85372	542	21020	569	2621
Ttl TrCB	684105	347807	8373	105457	24253	108660
Ttl TeCB	493595	352934	34374	114504	252605	1268827
Ttl PeCB	470680	105828	66381	42382	131712	670391
Ttl HxCB	81784	19804	38993	15922	23650	104660
Ttl HpCB	19869	3862	11524	6152	5629	24156
Ttl OcCB	5756	779	2974	1357	1541	6872
Ttl NoCB	894	119	728	100	301	1304
DeCB	159	0	290	50	95	363
Cal.Ttl PCBs	1805309	917578	164306	307327	440356	2187854
Lab reported	1800000	918000	164000	307000	440000	2190000

	E4SM8	E4SM9	E4SN0			
Ttl MoCB	0	0	0			

Ttl DiCB	109122	115842	101595			
Ttl TrCB	1107100	1335060	1011301			
Ttl TeCB	2124259	3916160	1802483			
Ttl PeCB	736203	2479680	570489			
Ttl HxCB	154681	874147	110633			
Ttl HpCB	54698	146521	30994			
Ttl OcCB	14156	35753	7421			
Ttl NoCB	1799	7843	958			
DeCB	426	786	0			
Cal.Ttl PCBs	4302444	8911792	3635874			
Lab reported	4300000	8910000	3630000			

SUMMARY OF THE CHAIN OF CUSTODIES

Sample No.	Lab sample ID	Station Location	Col. Date	Col. Time	Microbac rec.	Cape lab rec.	Extraction date	Analysis date
E4RX9	1555003	LP2-SD34N-D1.5/2.5	2/24/2010	14:10	3/1/2010	8/7/2010	8/24/2010	9/6/2010
E4S07	1555001	LP2-SD18E-E0.5/1.5	2/26/2010	11:05	3/3/2010	8/7/2010	8/24/2010	9/6/2010
E4S17	1555002	LP2-SD27W-A0.5/1.5	3/1/2010	15:20	3/3/2010	8/7/2010	8/24/2010	9/6/2010
E4S88	1555007	LP2-SD30W-B0.5/1.5	3/3/2010	11:05	3/5/2010	8/7/2010	8/24/2010	9/10/2010
E4S99	1555005	LP2-SD15E-I0.5/1.5	3/3/2010	13:35	3/5/2010	8/7/2010	8/24/2010	10/7/2010
E4SA0	1555006	LP2-SD15E-I1.5/2.5	3/3/2010	13:40	3/5/2010	8/7/2010	8/24/2010	10/7/2010
E4SA8	1555004	LP2-SD13E-A0.5/1.7	3/3/2010	15:20	3/5/2010	8/7/2010	8/24/2010	9/10/2010
E4SC0	1555008	LP2-SD35W-A0.5/1.5	3/4/2010	13:55	3/9/2010	8/7/2010	8/24/2010	9/13/2010
E4SF5	1555009	LP2-SD44N-A0.0/0.5	3/5/2010	8:00	3/9/2010	8/7/2010	8/24/2010	10/7/2010
E4SH3	1555010	LP2-SD04E-A0.0/1.0R	4/14/2010	10:55	4/17/2010	8/7/2010	8/24/2010	9/10/2010
E4SH6	1555011	LP2-SD12S-B0.5/1.5	4/14/2010	13:35	4/17/2010	8/7/2010	8/24/2010	10/6/2010
E4SJ1	1555012	LP2-SD17W-L0.5/1.5	4/14/2010	14:50	4/17/2010	8/7/2010	8/24/2010	10/6/2010
E4SJ9	1555013	LP2-SD36S-B0.0/0.5	4/14/2010	16:10	4/17/2010	8/7/2010	8/24/2010	10/8/2010
E4SL1	1555015	LP2-SD38W-B0.5/1.9	4/15/2010	11:10	4/20/2010	8/7/2010	8/24/2010	9/14/2010
E4SL7	1555014	LP2-SD42E-A0.0/0.4	4/15/2010	11:40	4/17/2010	8/7/2010	8/24/2010	9/13/2010
E4SM6	1555016	LP2-SD43N-A0.5/1.7	4/15/2010	14:05	4/20/2010	8/7/2010	8/24/2010	10/6/2010
E4SM7	1555017	LP2-SD43N-A0.5/1.7R	4/15/2010	14:10	4/20/2010	8/7/2010	8/24/2010	10/6/2010
E4SM8	1555018	LP2-SD46NA0.0/0.5	4/15/2010	14:30	4/20/2010	8/7/2010	8/24/2010	10/6/2010
E4SM9	1555019	LP2-SD46N-A0.5/1.8	4/15/2010	14:35	4/20/2010	8/7/2010	8/24/2010	10/7/2010
E4SN0	1555020	LP2-SD47S-I0.0/0.5	4/15/2010	14:43	4/20/2010	8/7/2010	8/24/2010	10/7/2010

SDG Number	E4RX9	E4RX9	
Lab Sample ID	1555016	1555017	
Client ID	**E4SM6**	**E4SM7**	
Date Collected	15-Apr-10	15-Apr-10	
Date Received	7-Aug-10	7-Aug-10	
Matrix	SOIL	SOIL	
moisture factor	0.247	0.242	
theoretical aliquot	10 gs	10 gs	
actual aliquot	14.49 gs	15.7 gs	
Prep Date	24-Aug-10	24-Aug-10	
Run Date	6-Oct-10	6-Oct-10	
Dilution	20	50	
Congener	Result	Result	RPDs
PCB-4	ND	126	200
PCB-8	88.4	415	-130
PCB-15	481	2080	-125
PCB-16	1120	4830	-125
PCB-17	1080	4380	-121
PCB-18/30	4170	15900	-117
PCB-19	1370	6610	-131
PCB-20/28	4980	22900	-129
PCB-21/33	1150	5770	-134
PCB-22	586	2990	-134
PCB-25	236	1150	-132
PCB-26/29	644	3150	-132
PCB-27	647	3190	-133
PCB-31	3310	14900	-127
PCB-32	2840	13000	-128
PCB-37	2120	9890	-129
PCB-40/71	18500	91800	-133
PCB-41	3310	12500	-116
PCB-42	10700	55600	-135
PCB-43	1980	11300	-140
PCB-44/47/65	39300	199000	-134
PCB-45/51	8470	41200	-132
PCB-46	2990	14400	-131
PCB-48	4540	21600	-131
PCB-49/69	21200	109000	-135
PCB-50/53	6390	30700	-131
PCB-52	39900	200000	-133
PCB-54	111	535	-131
PCB-56	10400	53700	-135
PCB-57	52.3	147	-95
PCB-58	ND	230	200
PCB-59/32/75	2730	13900	-134
PCB-60	2440	11300	-129
PCB-61/70/74/76	33600	171000	-134
PCB-63	265	1150	-125
PCB-64	12800	60100	-130
PCB-66	27900	149000	-137
PCB-67	202	1040	-135
PCB-68	43.8	237	-138
PCB-72	119	622	-136

SDG Number	E4RX9	E4RX9	
Lab Sample ID	1555016	1555017	
Client ID	**E4SM6**	**E4SM7**	
Date Collected	15-Apr-10	15-Apr-10	
Date Received	7-Aug-10	7-Aug-10	
Matrix	SOIL	SOIL	
moisture factor	0.247	0.242	
theoretical aliquot	10 gs	10 gs	
actual aliquot	14.49 gs	15.7 gs	
Prep Date	24-Aug-10	24-Aug-10	
Run Date	6-Oct-10	6-Oct-10	
Dilution	20	50	
Congener	Result	Result	RPDs
PCB-73	1130	ND	200
PCB-77	3000	15900	-137
PCB-78	113	589	-136
PCB-79	314	1760	-139
PCB-80	47.5	238	-133
PCB-81	57.8	279	-131
PCB-82	4500	23600	-136
PCB-83	1800	8550	-130
PCB-84	7240	37000	-135
PCB-85/116/117	5240	28100	-137
PCB-86/87/97/109/119/	15600	80600	-135
PCB-88/91	4040	20300	-134
PCB-89	708	3770	-137
PCB-90/101/113	15200	76100	-133
PCB-92	2730	13600	-133
PCB-93/100	337	1840	-138
PCB-94	183	979	-137
PCB-95	13500	66300	-132
PCB-96	364	1880	-135
PCB-98/102	1260	6920	-138
PCB-99	8910	46700	-136
PCB-103	111	582	-136
PCB-105	9140	47400	-135
PCB-107	986	5240	-137
PCB-108/124	597	3060	-135
PCB-110/115	21400	106000	-133
PCB-114	424	2180	-135
PCB-118	16700	85800	-135
PCB-122	320	1710	-137
PCB-123	422	2180	-135
PCB-128/166	1070	4890	-128
PCB-129/138/163	5940	26400	-127
PCB-130	396	1830	-129
PCB-131	108	479	-126
PCB-132	2160	9610	-127
PCB-133	56.2	258	-128
PCB-134	354	1570	-126
PCB-135/151	1340	5690	-124
PCB-136	616	2700	-126
PCB-137	409	1800	-126

SDG Number	E4RX9	E4RX9	
Lab Sample ID	1555016	1555017	
Client ID	**E4SM6**	**E4SM7**	
Date Collected	15-Apr-10	15-Apr-10	
Date Received	7-Aug-10	7-Aug-10	
Matrix	SOIL	SOIL	
moisture factor	0.247	0.242	
theoretical aliquot	10 gs	10 gs	
actual aliquot	14.49 gs	15.7 gs	
Prep Date	24-Aug-10	24-Aug-10	
Run Date	6-Oct-10	6-Oct-10	
Dilution	20	50	
Congener	Result	Result	RPDs
PCB-139/140	119	544	-128
PCB-141	992	4290	-125
PCB-144	234	975	-123
PCB-146	591	2590	-126
PCB-147/149	3600	15400	-124
PCB-153/168	3470	15100	-125
PCB-154	ND	145	200
PCB-156/157	938	4500	-131
PCB-158	626	2820	-127
PCB-159	ND	95.1	200
PCB-162	ND	134	200
PCB-164	346	1530	-126
PCB-167	285	1310	-129
PCB-170	761	3350	-126
PCB-171/173	220	927	-123
PCB-172	125	532	-124
PCB-174	726	3050	-123
PCB-175	ND	106	200
PCB-176	87.1	343	-119
PCB-177	385	1590	-122
PCB-178	128	519	-121
PCB-179	255	1010	-119
PCB-180/193	1630	7000	-124
PCB-183/185	435	1800	-122
PCB-187	728	2980	-121
PCB-189	ND	165	200
PCB-190	149	659	-126
PCB-191	ND	125	200
PCB-194	427	1910	-127
PCB-195	142	589	-122
PCB-196	181	778	-125
PCB-197/200	ND	214	200
PCB-198/199	413	1740	-123
PCB-201	43.1	172	-120
PCB-202	91.2	327	-113
PCB-203	244	1020	-123
PCB-205	ND	122	200
PCB-206	234	965	-122
PCB-207	ND	85.5	200
PCB-208	67.3	254	-116

SDG Number	E4RX9	E4RX9	
Lab Sample ID	1555016	1555017	
Client ID	**E4SM6**	**E4SM7**	
Date Collected	15-Apr-10	15-Apr-10	
Date Received	7-Aug-10	7-Aug-10	
Matrix	SOIL	SOIL	
moisture factor	0.247	0.242	
theoretical aliquot	10 gs	10 gs	
actual aliquot	14.49 gs	15.7 gs	
Prep Date	24-Aug-10	24-Aug-10	
Run Date	6-Oct-10	6-Oct-10	
Dilution	20	50	
Congener	Result	Result	RPDs
PCB-209	94.8	363	-117
Total Mono PCBs	ND	ND	0
Total Di PCBs	569	2620	-129
Total Tri PCBs	24300	109000	-127
Total Tetra PCBs	253000	1270000	-134
Total Penta PCBs	132000	671000	-134
Total Hexa PCBs	23700	105000	-126
Total Hepta PCBs	5630	24200	-125
Total Octa PCBs	1540	6870	-127
Total Nona PCBs	302	1300	-125
Total Deca PCBs	94.8	363	-117
Total PCB Congeners	440000	2190000	-133
TEQ (WHO2005, ND=0)	1.15	5.99	-136

SDG Number	E4RX9	
Lab Sample ID	1555003	
Client ID	**E4RX9**	
Date Collected	24-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.449	
theoretical aliquot	10	g
actual aliquot	18.6	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.98	19.5				
PCB-2		U	2	0.98	19.5				
PCB-3		U	2	0.98	19.5	Mono PCBs	0		
PCB-4	36.4		2	0.98	19.5				
PCB-5		U	2	0.98	19.5				
PCB-6	27.9		2	0.98	19.5				
PCB-7		U	2	0.98	19.5				
PCB-8	126		2	0.98	19.5				
PCB-9		U	2	0.98	19.5				
PCB-10		U	2	0.98	19.5				
PCB11		U	100	0.98	975.7				
PCB-12/13		U	4	0.98	39.0				
PCB-14		U	2	0.98	19.5				
PCB-15	295	J	10	0.98	97.6	Di PCBs	485.3		
PCB-16	241		2	0.98	19.5				
PCB-17	314		2	0.98	19.5				
PCB-18/30	711		4	0.98	39.0				
PCB-19	186		2	0.98	19.5				
PCB-20/28	1650		20	0.98	195.1				
PCB-21/33	677		20	0.98	195.1				
PCB-22	331		10	0.98	97.6				
PCB-23		U	2	0.98	19.5				
PCB-24		U	2	0.98	19.5				
PCB-25	78.4		2	0.98	19.5				
PCB-26/29	211		4	0.98	39.0				
PCB-27	101		2	0.98	19.5				
PCB-31	1150		10	0.98	97.6				
PCB-32	330		2	0.98	19.5				
PCB-34		U	2	0.98	19.5				
PCB-35		U	2	0.98	19.5				
PCB-36		U	2	0.98	19.5				
PCB-37	652		10	0.98	97.6				
PCB-38		U	2	0.98	19.5				
PCB-39		U	2	0.98	19.5	Tri PCBs	6632.4		
PCB-40/71	1490		2	0.98	19.5				
PCB-41		U	100	0.98	975.7				
PCB-42	887		2	0.98	19.5				
PCB-43	188		2	0.98	19.5				
PCB-44/47/65	3490		6	0.98	58.5				
PCB-45/51	745		40	0.98	390.3				

SDG Number	E4RX9	
Lab Sample ID	1555003	
Client ID	**E4RX9**	
Date Collected	24-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.449	
theoretical aliquot	10	g
actual aliquot	18.6	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	263		2	0.98	19.5				
PCB-48	494		2	0.98	19.5				
PCB-49/69	1970		4	0.98	39.0				
PCB-50/53	566		4	0.98	39.0				
PCB-52	4960		2	0.98	19.5				
PCB-54		U	2	0.98	19.5				
PCB-55		U	2	0.98	19.5				
PCB-56	1620		2	0.98	19.5				
PCB-57		U	2	0.98	19.5				
PCB-58		U	2	0.98	19.5				
PCB-59/32/75	295		6	0.98	58.5				
PCB-60	674		2	0.98	19.5				
PCB-61/70/74/76	5490		8	0.98	78.1				
PCB-63	95.7		2	0.98	19.5				
PCB-64	1580		2	0.98	19.5				
PCB-66	3380		10	0.98	97.6				
PCB-67	52		2	0.98	19.5				
PCB-68		U	2	0.98	19.5				
PCB-72	26.3		2	0.98	19.5				
PCB-73		U	2	0.98	19.5				
PCB-77	359		2	0.98	19.5			0.0001	0.0359
PCB-78	26		2	0.98	19.5				
PCB-79	103		2	0.98	19.5				
PCB-80	23.9		2	0.98	19.5				
PCB-81		U	2	0.98	19.5	Tetra PCBs	28777.9	0.0003	0
PCB-82	820		2	0.98	19.5				
PCB-83	244		2	0.98	19.5				
PCB-84	1640		2	0.98	19.5				
PCB-85/116/117	988		6	0.98	58.5				
PCB-86/87/97/109/119/	3770		12	0.98	117.1				
PCB-88/91	787		4	0.98	39.0				
PCB-89	83.8		2	0.98	19.5				
PCB-90/101/113	5000		6	0.98	58.5				
PCB-92	958		2	0.98	19.5				
PCB-93/100		U	4	0.98	39.0				
PCB-94	25.2		2	0.98	19.5				
PCB-95	4280		2	0.98	19.5				
PCB-96	43.1		2	0.98	19.5				
PCB-98/102	190		4	0.98	39.0				
PCB-99	2350		2	0.98	19.5				

SDG Number	E4RX9	
Lab Sample ID	1555003	
Client ID	**E4RX9**	
Date Collected	24-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.449	
theoretical aliquot	10	g
actual aliquot	18.6	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	27.1		2	0.98	19.5				
PCB-104		U	2	0.98	19.5				
PCB-105	2280		2	0.98	19.5			0.00003	0.0684
PCB-106		U	2	0.98	19.5				
PCB-107	385		2	0.98	19.5				
PCB-108/124	184		4	0.98	39.0				
PCB-110/115	6660		4	0.98	39.0				
PCB-111		U	2	0.98	19.5				
PCB-112		U	2	0.98	19.5				
PCB-114	117		2	0.98	19.5			0.00003	0.00351
PCB-118	5110		2	0.98	19.5			0.00003	0.1533
PCB-120		U	2	0.98	19.5				
PCB-121		U	2	0.98	19.5				
PCB-122	73.7		2	0.98	19.5				
PCB-123	80.8		2	0.98	19.5			0.00003	0.002424
PCB-126	48.5		2	0.98	19.5			0.1	4.85
PCB-127		U	2	0.98	19.5	Penta PCBs	36145.2		
PCB-128/166	973		4	0.98	39.0				
PCB-129/138/163	5820		6	0.98	58.5				
PCB-130	364		2	0.98	19.5				
PCB-131	83.7		2	0.98	19.5				
PCB-132	1710		2	0.98	19.5				
PCB-133	59.2		2	0.98	19.5				
PCB-134	327		2	0.98	19.5				
PCB-135/151	1210		4	0.98	39.0				
PCB-136	503		2	0.98	19.5				
PCB-137	293		2	0.98	19.5				
PCB-139/140	89		4	0.98	39.0				
PCB-141	790		2	0.98	19.5				
PCB-142		U	2	0.98	19.5				
PCB-143		U	2	0.98	19.5				
PCB-144	181		2	0.98	19.5				
PCB-145		U	2	0.98	19.5				
PCB-146	617		2	0.98	19.5				
PCB-147/149	3210		4	0.98	39.0				
PCB-148		U	2	0.98	19.5				
PCB-150		U	2	0.98	19.5				
PCB-152		U	2	0.98	19.5				
PCB-153/168	3600		4	0.98	39.0				
PCB-154	32.8		2	0.98	19.5				

SDG Number	E4RX9	
Lab Sample ID	1555003	
Client ID	**E4RX9**	
Date Collected	24-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.449	
theoretical aliquot	10	g
actual aliquot	18.6	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.98	19.5				
PCB-156/157	680		4	0.98	39.0			0.00003	0.0204
PCB-158	494		2	0.98	19.5				
PCB-159	30.2		2	0.98	19.5				
PCB-160		U	2	0.98	19.5				
PCB-161		U	2	0.98	19.5				
PCB-162	33		2	0.98	19.5				
PCB-164	340		2	0.98	19.5				
PCB-165		U	2	0.98	19.5				
PCB-167	220		2	0.98	19.5			0.00003	0.0066
PCB-169		U	2	0.98	19.5	Hexa PCBs	21659.9	0.03	0
PCB-170	665		2	0.98	19.5				
PCB-171/173	236		4	0.98	39.0				
PCB-172	126		2	0.98	19.5				
PCB-174	841		2	0.98	19.5				
PCB-175	34.4		2	0.98	19.5				
PCB-176	99.5		2	0.98	19.5				
PCB-177	437		2	0.98	19.5				
PCB-178	170		2	0.98	19.5				
PCB-179	326		2	0.98	19.5				
PCB-180/193	1620		4	0.98	39.0				
PCB-181		U	2	0.98	19.5				
PCB-182		U	2	0.98	19.5				
PCB-183/185	562		4	0.98	39.0				
PCB-184		U	2	0.98	19.5				
PCB-186		U	2	0.98	19.5				
PCB-187	996		2	0.98	19.5				
PCB-188		U	2	0.98	19.5				
PCB-189	28.2		2	0.98	19.5			0.00003	0.000846
PCB-190	125		2	0.98	19.5				
PCB-191	24.2		2	0.98	19.5				
PCB-192		U	2	0.98	19.5	Hepta PCBs	6290.3		
PCB-194	331		2	0.98	19.5				
PCB-195	124		2	0.98	19.5				
PCB-196	186		2	0.98	19.5				
PCB-197/200	73.2		4	0.98	39.0				
PCB-198/199	472		4	0.98	39.0				
PCB-201	59.6		2	0.98	19.5				
PCB-202	113		2	0.98	19.5				
PCB-203	276		2	0.98	19.5				

SDG Number	E4RX9	
Lab Sample ID	1555003	
Client ID	**E4RX9**	
Date Collected	24-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.449	
theoretical aliquot	10	g
actual aliquot	18.6	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.98	19.5				
PCB-205	20.5		2	0.98	19.5	Octa PCBss	1655.3		
PCB-206	259		2	0.98	19.5				
PCB-207	34.1		2	0.98	19.5				
PCB-208	82.1		2	0.98	19.5	Nona PCBs	375.2		
PCB-209	135		2	0.98	19.5	Deca PCBs	135		
Total Mono PCBs		U	2	0.98	19.5				
Total Di PCBs	485		2	0.98	19.5				
Total Tri PCBs	6640		2	0.98	19.5				
Total Tetra PCBs	28800		2	0.98	19.5				
Total Penta PCBs	36100		2	0.98	19.5				
Total Hexa PCBs	21700		2	0.98	19.5				
Total Hepta PCBs	6290		2	0.98	19.5				
Total Octa PCBs	1660		2	0.98	19.5				
Total Nona PCBs	375		2	0.98	19.5				
Total Deca PCBs	135		2	0.98	19.5				
Total PCB Congeners	102000		2	0.98	19.5		102156.5		
TEQ (WHO2005, ND=0)	5.14								5.14138

SDG Number	E4RX9	
Lab Sample ID	1555001	
Client ID	**E4S07**	
Date Collected	26-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.485	
theoretical aliquot	10	g
actual aliquot	19.85	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.98	19.6				
PCB-2		U	2	0.98	19.6				
PCB-3	50.9		2	0.98	19.6	Mono PCBs	50.9		
PCB-4	614	J	2	0.98	19.6				
PCB-5		U	2	0.98	19.6				
PCB-6	914		2	0.98	19.6				
PCB-7	36.9		2	0.98	19.6				
PCB-8	1010		2	0.98	19.6				
PCB-9	60.9		2	0.98	19.6				
PCB-10	44		2	0.98	19.6				
PCB11		U	100	0.98	978.2				
PCB-12/13	288		4	0.98	39.1				
PCB-14		U	2	0.98	19.6				
PCB-15	1500	J	10	0.98	97.8	Di PCBs	4467.8		
PCB-16	977		2	0.98	19.6				
PCB-17	1730		2	0.98	19.6				
PCB-18/30	3110		4	0.98	39.1				
PCB-19	681	J	2	0.98	19.6				
PCB-20/28	5970		20	0.98	195.6				
PCB-21/33	1240		20	0.98	195.6				
PCB-22	1170		10	0.98	97.8				
PCB-23		U	2	0.98	19.6				
PCB-24		U	2	0.98	19.6				
PCB-25	1060		2	0.98	19.6				
PCB-26/29	1810		4	0.98	39.1				
PCB-27	453		2	0.98	19.6				
PCB-31	4030		10	0.98	97.8				
PCB-32	1200		2	0.98	19.6				
PCB-34	47.5		2	0.98	19.6				
PCB-35	48.5		2	0.98	19.6				
PCB-36		U	2	0.98	19.6				
PCB-37	1760	J	10	0.98	97.8				
PCB-38		U	2	0.98	19.6				
PCB-39		U	2	0.98	19.6	Tri PCBs	25287		
PCB-40/71	2510		2	0.98	19.6				
PCB-41		U	100	0.98	978.2				
PCB-42	1620		2	0.98	19.6				
PCB-43	373		2	0.98	19.6				
PCB-44/47/65	5810		6	0.98	58.7				
PCB-45/51	1250		40	0.98	391.3				

SDG Number	E4RX9	
Lab Sample ID	1555001	
Client ID	**E4S07**	
Date Collected	26-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.485	
theoretical aliquot	10	g
actual aliquot	19.85	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	477		2	0.98	19.6				
PCB-48	710		2	0.98	19.6				
PCB-49/69	3930		4	0.98	39.1				
PCB-50/53	1040		4	0.98	39.1				
PCB-52	6540		2	0.98	19.6				
PCB-54	32.3	J	2	0.98	19.6				
PCB-55		U	2	0.98	19.6				
PCB-56	1880		2	0.98	19.6				
PCB-57		U	2	0.98	19.6				
PCB-58	23.1		2	0.98	19.6				
PCB-59/32/75	523		6	0.98	58.7				
PCB-60	706		2	0.98	19.6				
PCB-61/70/74/76	5610		8	0.98	78.3				
PCB-63	196		2	0.98	19.6				
PCB-64	2140		2	0.98	19.6				
PCB-66	4200		10	0.98	97.8				
PCB-67	134		2	0.98	19.6				
PCB-68		U	2	0.98	19.6				
PCB-72	57.7		2	0.98	19.6				
PCB-73		U	2	0.98	19.6				
PCB-77	581	J	2	0.98	19.6			0.0001	0.0581
PCB-78		U	2	0.98	19.6				
PCB-79		U	2	0.98	19.6				
PCB-80	41.1		2	0.98	19.6				
PCB-81		UJ	2	0.98	19.6	Tetra PCBs	40384.2	0.0003	0
PCB-82	550		2	0.98	19.6				
PCB-83	271		2	0.98	19.6				
PCB-84	1080		2	0.98	19.6				
PCB-85/116/117	734		6	0.98	58.7				
PCB-86/87/97/109/119/	2630		12	0.98	117.4				
PCB-88/91	775		4	0.98	39.1				
PCB-89	91.2		2	0.98	19.6				
PCB-90/101/113	4790		6	0.98	58.7				
PCB-92	1620		2	0.98	19.6				
PCB-93/100	121		4	0.98	39.1				
PCB-94	140		2	0.98	19.6				
PCB-95	3170		2	0.98	19.6				
PCB-96	51.9		2	0.98	19.6				
PCB-98/102	474		4	0.98	39.1				
PCB-99	2470		2	0.98	19.6				

SDG Number	E4RX9	
Lab Sample ID	1555001	
Client ID	**E4S07**	
Date Collected	26-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.485	
theoretical aliquot	10	g
actual aliquot	19.85	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	169		2	0.98	19.6				
PCB-104		UJ	2	0.98	19.6				
PCB-105	1610	J	2	0.98	19.6			0.00003	0.0483
PCB-106		U	2	0.98	19.6				
PCB-107	324		2	0.98	19.6				
PCB-108/124	111		4	0.98	39.1				
PCB-110/115	4470		4	0.98	39.1				
PCB-111		U	2	0.98	19.6				
PCB-112		U	2	0.98	19.6				
PCB-114	102	J	2	0.98	19.6			0.00003	0.00306
PCB-118	3470	J	2	0.98	19.6			0.00003	0.1041
PCB-120	45.8		2	0.98	19.6				
PCB-121		U	2	0.98	19.6				
PCB-122	47		2	0.98	19.6				
PCB-123	92.4	J	2	0.98	19.6			0.00003	0.002772
PCB-126	45	J	2	0.98	19.6			0.1	4.5
PCB-127		U	2	0.98	19.6	Penta PCBs	29454.3		
PCB-128/166	649		4	0.98	39.1				
PCB-129/138/163	8810		6	0.98	58.7				
PCB-130	486		2	0.98	19.6				
PCB-131	53.4		2	0.98	19.6				
PCB-132	2130		2	0.98	19.6				
PCB-133	436		2	0.98	19.6				
PCB-134	430		2	0.98	19.6				
PCB-135/151	4490		4	0.98	39.1				
PCB-136	1050		2	0.98	19.6				
PCB-137	153		2	0.98	19.6				
PCB-139/140	175		4	0.98	39.1				
PCB-141	1380		2	0.98	19.6				
PCB-142		U	2	0.98	19.6				
PCB-143		U	2	0.98	19.6				
PCB-144	283		2	0.98	19.6				
PCB-145		U	2	0.98	19.6				
PCB-146	2840		2	0.98	19.6				
PCB-147/149	8040		4	0.98	39.1				
PCB-148	125		2	0.98	19.6				
PCB-150	47.6		2	0.98	19.6				
PCB-152		U	2	0.98	19.6				
PCB-153/168	9190		4	0.98	39.1				
PCB-154	577		2	0.98	19.6				

SDG Number	E4RX9	
Lab Sample ID	1555001	
Client ID	**E4S07**	
Date Collected	26-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.485	
theoretical aliquot	10	g
actual aliquot	19.85	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		UJ	2	0.98	19.6				
PCB-156/157	593	J	4	0.98	39.1			0.00003	0.01779
PCB-158	609		2	0.98	19.6				
PCB-159	153		2	0.98	19.6				
PCB-160		U	2	0.98	19.6				
PCB-161		U	2	0.98	19.6				
PCB-162	135		2	0.98	19.6				
PCB-164	536		2	0.98	19.6				
PCB-165	49.5		2	0.98	19.6				
PCB-167	231	J	2	0.98	19.6			0.00003	0.00693
PCB-169		UJ	2	0.98	19.6	Hexa PCBs	43651.5	0.03	0
PCB-170	2930		2	0.98	19.6				
PCB-171/173	1010		4	0.98	39.1				
PCB-172	656		2	0.98	19.6				
PCB-174	4260		2	0.98	19.6				
PCB-175	150		2	0.98	19.6				
PCB-176	523		2	0.98	19.6				
PCB-177	2940		2	0.98	19.6				
PCB-178	1480		2	0.98	19.6				
PCB-179	2100		2	0.98	19.6				
PCB-180/193	8150		4	0.98	39.1				
PCB-181		U	2	0.98	19.6				
PCB-182		U	2	0.98	19.6				
PCB-183/185	2580		4	0.98	39.1				
PCB-184		U	2	0.98	19.6				
PCB-186		U	2	0.98	19.6				
PCB-187	6550		2	0.98	19.6				
PCB-188		UJ	2	0.98	19.6				
PCB-189	106	J	2	0.98	19.6			0.00003	0.00318
PCB-190	638		2	0.98	19.6				
PCB-191	113		2	0.98	19.6				
PCB-192		U	2	0.98	19.6	Hepta PCBs	34186		
PCB-194	1780		2	0.98	19.6				
PCB-195	811		2	0.98	19.6				
PCB-196	938		2	0.98	19.6				
PCB-197/200	370		4	0.98	39.1				
PCB-198/199	2290		4	0.98	39.1				
PCB-201	305		2	0.98	19.6				
PCB-202	523	J	2	0.98	19.6				
PCB-203	1190		2	0.98	19.6				

SDG Number	E4RX9	
Lab Sample ID	1555001	
Client ID	**E4S07**	
Date Collected	26-Feb-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.485	
theoretical aliquot	10	g
actual aliquot	19.85	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.98	19.6				
PCB-205	111	J	2	0.98	19.6	Octa PCBss	8318		
PCB-206	548	J	2	0.98	19.6				
PCB-207	80.7		2	0.98	19.6				
PCB-208	127	J	2	0.98	19.6	Nona PCBs	755.7		
PCB-209	151	J	2	0.98	19.6	Deca PCBs	151		
Total Mono PCBs	50.9		2	0.98	19.6				
Total Di PCBs	4470		2	0.98	19.6				
Total Tri PCBs	25300		2	0.98	19.6				
Total Tetra PCBs	40400		2	0.98	19.6				
Total Penta PCBs	29500		2	0.98	19.6				
Total Hexa PCBs	43600		2	0.98	19.6				
Total Hepta PCBs	34200		2	0.98	19.6				
Total Octa PCBs	8330		2	0.98	19.6				
Total Nona PCBs	756		2	0.98	19.6				
Total Deca PCBs	151		2	0.98	19.6				
Total PCB Congeners	187000		2	0.98	19.6		186706.4		
TEQ (WHO2005, ND=0)	4.74								4.744232

SDG Number	E4RX9	
Lab Sample ID	1555002	
Client ID	**E4S17**	
Date Collected	1-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.386	
theoretical aliquot	10	g
actual aliquot	16.61	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.98	19.6				
PCB-2		U	2	0.98	19.6				
PCB-3		U	2	0.98	19.6	Mono PCBs	0		
PCB-4	163		2	0.98	19.6				
PCB-5		U	2	0.98	19.6				
PCB-6	62.3		2	0.98	19.6				
PCB-7		U	2	0.98	19.6				
PCB-8	238		2	0.98	19.6				
PCB-9		U	2	0.98	19.6				
PCB-10		U	2	0.98	19.6				
PCB11		U	100	0.98	980.5				
PCB-12/13	40.6		4	0.98	39.2				
PCB-14		U	2	0.98	19.6				
PCB-15	889	J	10	0.98	98.1	Di PCBs	1392.9		
PCB-16	352		2	0.98	19.6				
PCB-17	435		2	0.98	19.6				
PCB-18/30	934		4	0.98	39.2				
PCB-19	964		2	0.98	19.6				
PCB-20/28	1900		20	0.98	196.1				
PCB-21/33	660		20	0.98	196.1				
PCB-22	479		10	0.98	98.1				
PCB-23		U	2	0.98	19.6				
PCB-24		U	2	0.98	19.6				
PCB-25	163		2	0.98	19.6				
PCB-26/29	267		4	0.98	39.2				
PCB-27	204		2	0.98	19.6				
PCB-31	1250		10	0.98	98.1				
PCB-32	277		2	0.98	19.6				
PCB-34		U	2	0.98	19.6				
PCB-35	33.3		2	0.98	19.6				
PCB-36		U	2	0.98	19.6				
PCB-37	1200		10	0.98	98.1				
PCB-38		U	2	0.98	19.6				
PCB-39		U	2	0.98	19.6	Tri PCBs	9118.3		
PCB-40/71	2010		2	0.98	19.6				
PCB-41		U	100	0.98	980.5				
PCB-42	1690		2	0.98	19.6				
PCB-43	205		2	0.98	19.6				
PCB-44/47/65	5090		6	0.98	58.8				
PCB-45/51	3030		40	0.98	392.2				

SDG Number	E4RX9	
Lab Sample ID	1555002	
Client ID	**E4S17**	
Date Collected	1-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.386	
theoretical aliquot	10	g
actual aliquot	16.61	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	1090		2	0.98	19.6				
PCB-48	351		2	0.98	19.6				
PCB-49/69	2510		4	0.98	39.2				
PCB-50/53	2440		4	0.98	39.2				
PCB-52	6860		2	0.98	19.6				
PCB-54	73		2	0.98	19.6				
PCB-55		U	2	0.98	19.6				
PCB-56	1180		2	0.98	19.6				
PCB-57		U	2	0.98	19.6				
PCB-58		U	2	0.98	19.6				
PCB-59/32/75	536		6	0.98	58.8				
PCB-60	448		2	0.98	19.6				
PCB-61/70/74/76	3060		8	0.98	78.4				
PCB-63	61.9		2	0.98	19.6				
PCB-64	926		2	0.98	19.6				
PCB-66	2470		10	0.98	98.1				
PCB-67	71.6		2	0.98	19.6				
PCB-68	41.3		2	0.98	19.6				
PCB-72	36.3		2	0.98	19.6				
PCB-73	115		2	0.98	19.6				
PCB-77	632		2	0.98	19.6			0.0001	0.0632
PCB-78	46.1		2	0.98	19.6				
PCB-79	152		2	0.98	19.6				
PCB-80	71.6		2	0.98	19.6				
PCB-81		U	2	0.98	19.6	Tetra PCBs	35196.8	0.0003	0
PCB-82	1460		2	0.98	19.6				
PCB-83	632		2	0.98	19.6				
PCB-84	3340		2	0.98	19.6				
PCB-85/116/117	1560		6	0.98	58.8				
PCB-86/87/97/109/119/	5610		12	0.98	117.7				
PCB-88/91	1950		4	0.98	39.2				
PCB-89	238		2	0.98	19.6				
PCB-90/101/113	10300		6	0.98	58.8				
PCB-92	2890		2	0.98	19.6				
PCB-93/100	280		4	0.98	39.2				
PCB-94	204		2	0.98	19.6				
PCB-95	9710		2	0.98	19.6				
PCB-96	139		2	0.98	19.6				
PCB-98/102	879		4	0.98	39.2				
PCB-99	4580		2	0.98	19.6				

SDG Number	E4RX9	
Lab Sample ID	1555002	
Client ID	**E4S17**	
Date Collected	1-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.386	
theoretical aliquot	10	g
actual aliquot	16.61	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	265		2	0.98	19.6				
PCB-104		U	2	0.98	19.6				
PCB-105	1570		2	0.98	19.6			0.00003	0.0471
PCB-106		U	2	0.98	19.6				
PCB-107	294		2	0.98	19.6				
PCB-108/124	111		4	0.98	39.2				
PCB-110/115	10500		4	0.98	39.2				
PCB-111		U	2	0.98	19.6				
PCB-112		U	2	0.98	19.6				
PCB-114	92.1		2	0.98	19.6			0.00003	0.002763
PCB-118	3550		2	0.98	19.6			0.00003	0.1065
PCB-120	70.2		2	0.98	19.6				
PCB-121		U	2	0.98	19.6				
PCB-122	146		2	0.98	19.6				
PCB-123	82.3		2	0.98	19.6			0.00003	0.002469
PCB-126	124		2	0.98	19.6			0.1	12.4
PCB-127		U	2	0.98	19.6	Penta PCBs	60576.6		
PCB-128/166	1960		4	0.98	39.2				
PCB-129/138/163	21900		6	0.98	58.8				
PCB-130	1130		2	0.98	19.6				
PCB-131	180		2	0.98	19.6				
PCB-132	5900		2	0.98	19.6				
PCB-133	649		2	0.98	19.6				
PCB-134	998		2	0.98	19.6				
PCB-135/151	10200		4	0.98	39.2				
PCB-136	2690		2	0.98	19.6				
PCB-137	578		2	0.98	19.6				
PCB-139/140	325		4	0.98	39.2				
PCB-141	4270		2	0.98	19.6				
PCB-142		U	2	0.98	19.6				
PCB-143		U	2	0.98	19.6				
PCB-144	912		2	0.98	19.6				
PCB-145		U	2	0.98	19.6				
PCB-146	5130		2	0.98	19.6				
PCB-147/149	19200		4	0.98	39.2				
PCB-148	156		2	0.98	19.6				
PCB-150	63.3		2	0.98	19.6				
PCB-152		U	2	0.98	19.6				
PCB-153/168	21800		4	0.98	39.2				
PCB-154	742		2	0.98	19.6				

SDG Number	E4RX9	
Lab Sample ID	1555002	
Client ID	**E4S17**	
Date Collected	1-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.386	
theoretical aliquot	10	g
actual aliquot	16.61	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.98	19.6				
PCB-156/157	1030		4	0.98	39.2			0.00003	0.0309
PCB-158	1600		2	0.98	19.6				
PCB-159	404		2	0.98	19.6				
PCB-160		U	2	0.98	19.6				
PCB-161		U	2	0.98	19.6				
PCB-162		U	2	0.98	19.6				
PCB-164	1390		2	0.98	19.6				
PCB-165		U	2	0.98	19.6				
PCB-167	608		2	0.98	19.6			0.00003	0.01824
PCB-169		U	2	0.98	19.6	Hexa PCBs	103815.3	0.03	0
PCB-170	7100		2	0.98	19.6				
PCB-171/173	2500		4	0.98	39.2				
PCB-172	1540		2	0.98	19.6				
PCB-174	10600		2	0.98	19.6				
PCB-175	341		2	0.98	19.6				
PCB-176	1240		2	0.98	19.6				
PCB-177	6390		2	0.98	19.6				
PCB-178	2850		2	0.98	19.6				
PCB-179	4620		2	0.98	19.6				
PCB-180/193	19400		4	0.98	39.2				
PCB-181	25.2		2	0.98	19.6				
PCB-182		U	2	0.98	19.6				
PCB-183/185	6460		4	0.98	39.2				
PCB-184		U	2	0.98	19.6				
PCB-186		U	2	0.98	19.6				
PCB-187	13600		2	0.98	19.6				
PCB-188		U	2	0.98	19.6				
PCB-189	248		2	0.98	19.6			0.00003	0.00744
PCB-190	1520		2	0.98	19.6				
PCB-191	280		2	0.98	19.6				
PCB-192		U	2	0.98	19.6	Hepta PCBs	78714.2		
PCB-194	3870		2	0.98	19.6				
PCB-195	1790		2	0.98	19.6				
PCB-196	2110		2	0.98	19.6				
PCB-197/200	855		4	0.98	39.2				
PCB-198/199	5080		4	0.98	39.2				
PCB-201	690		2	0.98	19.6				
PCB-202	1110		2	0.98	19.6				
PCB-203	2720		2	0.98	19.6				

SDG Number	E4RX9	
Lab Sample ID	1555002	
Client ID	**E4S17**	
Date Collected	1-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.386	
theoretical aliquot	10	g
actual aliquot	16.61	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.98	19.6				
PCB-205	249		2	0.98	19.6	Octa PCBss	18474		
PCB-206	1150		2	0.98	19.6				
PCB-207	168		2	0.98	19.6				
PCB-208	270		2	0.98	19.6	Nona PCBs	1588		
PCB-209	236		2	0.98	19.6	Deca PCBs	236		
Total Mono PCBs		U	2	0.98	19.6				
Total Di PCBs	1390		2	0.98	19.6				
Total Tri PCBs	9120		2	0.98	19.6				
Total Tetra PCBs	35200		2	0.98	19.6				
Total Penta PCBs	60600		2	0.98	19.6				
Total Hexa PCBs	104000		2	0.98	19.6				
Total Hepta PCBs	78800		2	0.98	19.6				
Total Octa PCBs	18500		2	0.98	19.6				
Total Nona PCBs	1590		2	0.98	19.6				
Total Deca PCBs	236		2	0.98	19.6				
Total PCB Congeners	309000		2	0.98	19.6		309112.1		
TEQ (WHO2005, ND=0)	12.7								12.678612

SDG Number	E4RX9	
Lab Sample ID	1555007	
Client ID	**E4S88**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.415	
theoretical aliquot	10	g
actual aliquot	18.61	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.92	36.7				
PCB-2		U	2	0.92	36.7				
PCB-3	62.5		2	0.92	36.7	Mono PCBs	62.5		
PCB-4	480		2	0.92	36.7				
PCB-5		U	2	0.92	36.7				
PCB-6	246		2	0.92	36.7				
PCB-7		U	2	0.92	36.7				
PCB-8	773		2	0.92	36.7				
PCB-9	43.4		2	0.92	36.7				
PCB-10		U	2	0.92	36.7				
PCB11		U	100	0.92	1837.1				
PCB-12/13	201		4	0.92	73.5				
PCB-14		U	2	0.92	36.7				
PCB-15	2160	J	10	0.92	183.7	Di PCBs	3903.4		
PCB-16	1720		2	0.92	36.7				
PCB-17	2260		2	0.92	36.7				
PCB-18/30	4480		4	0.92	73.5				
PCB-19	853		2	0.92	36.7				
PCB-20/28	8040		20	0.92	367.4				
PCB-21/33	2670		20	0.92	367.4				
PCB-22	1670		10	0.92	183.7				
PCB-23		U	2	0.92	36.7				
PCB-24		U	2	0.92	36.7				
PCB-25	617		2	0.92	36.7				
PCB-26/29	1180		4	0.92	73.5				
PCB-27	715		2	0.92	36.7				
PCB-31	5200		10	0.92	183.7				
PCB-32	1500		2	0.92	36.7				
PCB-34	61.1		2	0.92	36.7				
PCB-35	85.6		2	0.92	36.7				
PCB-36		U	2	0.92	36.7				
PCB-37	3710		10	0.92	183.7				
PCB-38		U	2	0.92	36.7				
PCB-39		U	2	0.92	36.7	Tri PCBs	34761.7		
PCB-40/71	4460		2	0.92	36.7				
PCB-41		U	100	0.92	1837.1				
PCB-42	2880		2	0.92	36.7				
PCB-43	686		2	0.92	36.7				
PCB-44/47/65	11400		6	0.92	110.2				
PCB-45/51	2330		40	0.92	734.8				

SDG Number	E4RX9	
Lab Sample ID	1555007	
Client ID	**E4S88**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.415	
theoretical aliquot	10	g
actual aliquot	18.61	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	797		2	0.92	36.7				
PCB-48	2030		2	0.92	36.7				
PCB-49/69	7260		4	0.92	73.5				
PCB-50/53	2000		4	0.92	73.5				
PCB-52	14600		2	0.92	36.7				
PCB-54	84.9		2	0.92	36.7				
PCB-55		U	2	0.92	36.7				
PCB-56	4550		2	0.92	36.7				
PCB-57		U	2	0.92	36.7				
PCB-58	53		2	0.92	36.7				
PCB-59/32/75	1120		6	0.92	110.2				
PCB-60	1910		2	0.92	36.7				
PCB-61/70/74/76	15100		8	0.92	147.0				
PCB-63	346		2	0.92	36.7				
PCB-64	4700		2	0.92	36.7				
PCB-66	10300		10	0.92	183.7				
PCB-67	252		2	0.92	36.7				
PCB-68	68.3		2	0.92	36.7				
PCB-72	111		2	0.92	36.7				
PCB-73		U	2	0.92	36.7				
PCB-77	1280		2	0.92	36.7			0.0001	0.128
PCB-78	42.7		2	0.92	36.7				
PCB-79	194		2	0.92	36.7				
PCB-80	82.1		2	0.92	36.7				
PCB-81	40.7		2	0.92	36.7	Tetra PCBs	88677.7	0.0003	0.01221
PCB-82	1660		2	0.92	36.7				
PCB-83	697		2	0.92	36.7				
PCB-84	3350		2	0.92	36.7				
PCB-85/116/117	2060		6	0.92	110.2				
PCB-86/87/97/109/119/1	8710		12	0.92	220.4				
PCB-88/91	2020		4	0.92	73.5				
PCB-89	175		2	0.92	36.7				
PCB-90/101/113	16000		6	0.92	110.2				
PCB-92	3920		2	0.92	36.7				
PCB-93/100	228		4	0.92	73.5				
PCB-94	242		2	0.92	36.7				
PCB-95	11400		2	0.92	36.7				
PCB-96	121		2	0.92	36.7				
PCB-98/102	1060		4	0.92	73.5				
PCB-99	7300		2	0.92	36.7				

SDG Number	E4RX9	
Lab Sample ID	1555007	
Client ID	**E4S88**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.415	
theoretical aliquot	10	g
actual aliquot	18.61	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	409		2	0.92	36.7				
PCB-104		U	2	0.92	36.7				
PCB-105	5140		2	0.92	36.7			0.00003	0.1542
PCB-106		U	2	0.92	36.7				
PCB-107	961		2	0.92	36.7				
PCB-108/124	369		4	0.92	73.5				
PCB-110/115	14800		4	0.92	73.5				
PCB-111		U	2	0.92	36.7				
PCB-112		U	2	0.92	36.7				
PCB-114	274		2	0.92	36.7			0.00003	0.00822
PCB-118	11700		2	0.92	36.7			0.00003	0.351
PCB-120	95.4		2	0.92	36.7				
PCB-121		U	2	0.92	36.7				
PCB-122	124		2	0.92	36.7				
PCB-123	180		2	0.92	36.7			0.00003	0.0054
PCB-126		U	2	0.92	36.7			0.1	0
PCB-127		U	2	0.92	36.7	Penta PCBs	92995.4		
PCB-128/166	2020		4	0.92	73.5				
PCB-129/138/163	22600		6	0.92	110.2				
PCB-130	1190		2	0.92	36.7				
PCB-131	192		2	0.92	36.7				
PCB-132	6480		2	0.92	36.7				
PCB-133	705		2	0.92	36.7				
PCB-134	1340		2	0.92	36.7				
PCB-135/151	12000		4	0.92	73.5				
PCB-136	3360		2	0.92	36.7				
PCB-137	489		2	0.92	36.7				
PCB-139/140	394		4	0.92	73.5				
PCB-141	4050		2	0.92	36.7				
PCB-142		U	2	0.92	36.7				
PCB-143		U	2	0.92	36.7				
PCB-144	896		2	0.92	36.7				
PCB-145		U	2	0.92	36.7				
PCB-146	5950		2	0.92	36.7				
PCB-147/149	21800		4	0.92	73.5				
PCB-148	199		2	0.92	36.7				
PCB-150	80.8		2	0.92	36.7				
PCB-152		U	2	0.92	36.7				
PCB-153/168	23700		4	0.92	73.5				
PCB-154	966		2	0.92	36.7				

SDG Number	E4RX9	
Lab Sample ID	1555007	
Client ID	**E4S88**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.415	
theoretical aliquot	10	g
actual aliquot	18.61	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.92	36.7				
PCB-156/157	1990		4	0.92	73.5			0.00003	0.0597
PCB-158	1680		2	0.92	36.7				
PCB-159	319		2	0.92	36.7				
PCB-160		U	2	0.92	36.7				
PCB-161		U	2	0.92	36.7				
PCB-162	261		2	0.92	36.7				
PCB-164	1380		2	0.92	36.7				
PCB-165	50.5		2	0.92	36.7				
PCB-167	738		2	0.92	36.7			0.00003	0.02214
PCB-169		U	2	0.92	36.7	Hexa PCBs	114830.3	0.03	0
PCB-170	6600		2	0.92	36.7				
PCB-171/173	2190		4	0.92	73.5				
PCB-172	1320		2	0.92	36.7				
PCB-174	8860		2	0.92	36.7				
PCB-175	337		2	0.92	36.7				
PCB-176	1230		2	0.92	36.7				
PCB-177	5750		2	0.92	36.7				
PCB-178	2620		2	0.92	36.7				
PCB-179	4880		2	0.92	36.7				
PCB-180/193	17900		4	0.92	73.5				
PCB-181		U	2	0.92	36.7				
PCB-182		U	2	0.92	36.7				
PCB-183/185	5650		4	0.92	73.5				
PCB-184		U	2	0.92	36.7				
PCB-186		U	2	0.92	36.7				
PCB-187	12800		2	0.92	36.7				
PCB-188		U	2	0.92	36.7				
PCB-189	242		2	0.92	36.7			0.00003	0.00726
PCB-190	1420		2	0.92	36.7				
PCB-191	253		2	0.92	36.7				
PCB-192		U	2	0.92	36.7	Hepta PCBs	72052		
PCB-194	3740		2	0.92	36.7				
PCB-195	1600		2	0.92	36.7				
PCB-196	2060		2	0.92	36.7				
PCB-197/200	756		4	0.92	73.5				
PCB-198/199	4850		4	0.92	73.5				
PCB-201	607		2	0.92	36.7				
PCB-202	1080		2	0.92	36.7				
PCB-203	2620		2	0.92	36.7				

SDG Number	E4RX9	
Lab Sample ID	1555007	
Client ID	**E4S88**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.415	
theoretical aliquot	10	g
actual aliquot	18.61	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.92	36.7				
PCB-205	221		2	0.92	36.7	Octa PCBss	17534		
PCB-206	1020		2	0.92	36.7				
PCB-207	141		2	0.92	36.7				
PCB-208	253		2	0.92	36.7	Nona PCBs	1414		
PCB-209	354		2	0.92	36.7	Deca PCBs	354		
Total Mono PCBs	62.5		2	0.92	36.7				
Total Di PCBs	3900		2	0.92	36.7				
Total Tri PCBs	34800		2	0.92	36.7				
Total Tetra PCBs	88600		2	0.92	36.7				
Total Penta PCBs	93000		2	0.92	36.7				
Total Hexa PCBs	115000		2	0.92	36.7				
Total Hepta PCBs	72100		2	0.92	36.7				
Total Octa PCBs	17500		2	0.92	36.7				
Total Nona PCBs	1420		2	0.92	36.7				
Total Deca PCBs	354		2	0.92	36.7				
Total PCB Congeners	426000		2	0.92	36.7		426585		
TEQ (WHO2005, ND=0)	0.75								0.74813

SDG Number	E4RX9	
Lab Sample ID	1555005	
Client ID	**E4S99**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.404	
theoretical aliquot	10	g
actual aliquot	16.89	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	15100		2	0.99	198.7				
PCB-2	693		2	0.99	198.7				
PCB-3	1450		2	0.99	198.7	Mono PCBs	17243		
PCB-4	131000		2	0.99	198.7				
PCB-5		U	2	0.99	198.7				
PCB-6	71400		2	0.99	198.7				
PCB-7	4140		2	0.99	198.7				
PCB-8	86600		2	0.99	198.7				
PCB-9	6120		2	0.99	198.7				
PCB-10	8080		2	0.99	198.7				
PCB11		U	100	0.99	9934.0				
PCB-12/13	23000		4	0.99	397.4				
PCB-14		U	2	0.99	198.7				
PCB-15	57000	J	10	0.99	993.4	Di PCBs	387340		
PCB-16	37800		2	0.99	198.7				
PCB-17	99000		2	0.99	198.7				
PCB-18/30	126000		4	0.99	397.4				
PCB-19	37900		2	0.99	198.7				
PCB-20/28	228000		20	0.99	1986.8				
PCB-21/33	29500		20	0.99	1986.8				
PCB-22	42700		10	0.99	993.4				
PCB-23	335		2	0.99	198.7				
PCB-24		U	2	0.99	198.7				
PCB-25	61900		2	0.99	198.7				
PCB-26/29	88300		4	0.99	397.4				
PCB-27	20300		2	0.99	198.7				
PCB-31	180000		10	0.99	993.4				
PCB-32	61600		2	0.99	198.7				
PCB-34	2100		2	0.99	198.7				
PCB-35	1500		2	0.99	198.7				
PCB-36		U	2	0.99	198.7				
PCB-37	37500		10	0.99	993.4				
PCB-38		U	2	0.99	198.7				
PCB-39		U	2	0.99	198.7	Tri PCBs	1054435		
PCB-40/71	55400		2	0.99	198.7				
PCB-41		U	100	0.99	9934.0				
PCB-42	40600		2	0.99	198.7				
PCB-43	10900		2	0.99	198.7				
PCB-44/47/65	125000		6	0.99	596.0				
PCB-45/51	25400		40	0.99	3973.6				

SDG Number	E4RX9	
Lab Sample ID	1555005	
Client ID	**E4S99**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.404	
theoretical aliquot	10	g
actual aliquot	16.89	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	12700		2	0.99	198.7				
PCB-48	13000		2	0.99	198.7				
PCB-49/69	90500		4	0.99	397.4				
PCB-50/53	27600		4	0.99	397.4				
PCB-52	127000		2	0.99	198.7				
PCB-54	623		2	0.99	198.7				
PCB-55		U	2	0.99	198.7				
PCB-56	24800		2	0.99	198.7				
PCB-57	1690		2	0.99	198.7				
PCB-58	372		2	0.99	198.7				
PCB-59/32/75	8920		6	0.99	596.0				
PCB-60	9910		2	0.99	198.7				
PCB-61/70/74/76	85100		8	0.99	794.7				
PCB-63	5180		2	0.99	198.7				
PCB-64	41700		2	0.99	198.7				
PCB-66	54000		10	0.99	993.4				
PCB-67	2360		2	0.99	198.7				
PCB-68	676		2	0.99	198.7				
PCB-72	1110		2	0.99	198.7				
PCB-73	2770		2	0.99	198.7				
PCB-77	7760		2	0.99	198.7			0.0001	0.776
PCB-78		U	2	0.99	198.7				
PCB-79		U	2	0.99	198.7				
PCB-80		U	2	0.99	198.7				
PCB-81		U	2	0.99	198.7	Tetra PCBs	775071	0.0003	0
PCB-82	4810		2	0.99	198.7				
PCB-83	3400		2	0.99	198.7				
PCB-84	11700		2	0.99	198.7				
PCB-85/116/117	6240		6	0.99	596.0				
PCB-86/87/97/109/119/	19900		12	0.99	1192.1				
PCB-88/91	8270		4	0.99	397.4				
PCB-89	945		2	0.99	198.7				
PCB-90/101/113	24600		6	0.99	596.0				
PCB-92	7580		2	0.99	198.7				
PCB-93/100	1000		4	0.99	397.4				
PCB-94	707		2	0.99	198.7				
PCB-95	24300		2	0.99	198.7				
PCB-96	930		2	0.99	198.7				
PCB-98/102	2980		4	0.99	397.4				
PCB-99	13900		2	0.99	198.7				

SDG Number	E4RX9	
Lab Sample ID	1555005	
Client ID	**E4S99**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.404	
theoretical aliquot	10	g
actual aliquot	16.89	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	571		2	0.99	198.7				
PCB-104		U	2	0.99	198.7				
PCB-105	12600		2	0.99	198.7			0.00003	0.378
PCB-106		U	2	0.99	198.7				
PCB-107	1930		2	0.99	198.7				
PCB-108/124	700		4	0.99	397.4				
PCB-110/115	35500		4	0.99	397.4				
PCB-111		U	2	0.99	198.7				
PCB-112		U	2	0.99	198.7				
PCB-114	957		2	0.99	198.7			0.00003	0.02871
PCB-118	25400		2	0.99	198.7			0.00003	0.762
PCB-120		U	2	0.99	198.7				
PCB-121		U	2	0.99	198.7				
PCB-122	340		2	0.99	198.7				
PCB-123	567		2	0.99	198.7			0.00003	0.01701
PCB-126		U	2	0.99	198.7			0.1	0
PCB-127		U	2	0.99	198.7	Penta PCBs	209827		
PCB-128/166	1810		4	0.99	397.4				
PCB-129/138/163	14200		6	0.99	596.0				
PCB-130	947		2	0.99	198.7				
PCB-131		U	2	0.99	198.7				
PCB-132	4810		2	0.99	198.7				
PCB-133	380		2	0.99	198.7				
PCB-134	981		2	0.99	198.7				
PCB-135/151	6230		4	0.99	397.4				
PCB-136	2100		2	0.99	198.7				
PCB-137	614		2	0.99	198.7				
PCB-139/140		U	4	0.99	397.4				
PCB-141	2410		2	0.99	198.7				
PCB-142		U	2	0.99	198.7				
PCB-143		U	2	0.99	198.7				
PCB-144	616		2	0.99	198.7				
PCB-145		U	2	0.99	198.7				
PCB-146	2870		2	0.99	198.7				
PCB-147/149	12100		4	0.99	397.4				
PCB-148		U	2	0.99	198.7				
PCB-150		U	2	0.99	198.7				
PCB-152		U	2	0.99	198.7				
PCB-153/168	11700		4	0.99	397.4				
PCB-154	475		2	0.99	198.7				

SDG Number	E4RX9	
Lab Sample ID	1555005	
Client ID	**E4S99**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.404	
theoretical aliquot	10	g
actual aliquot	16.89	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.99	198.7				
PCB-156/157	2060		4	0.99	397.4			0.00003	0.0618
PCB-158	1340		2	0.99	198.7				
PCB-159		U	2	0.99	198.7				
PCB-160		U	2	0.99	198.7				
PCB-161		U	2	0.99	198.7				
PCB-162		U	2	0.99	198.7				
PCB-164	897		2	0.99	198.7				
PCB-165		U	2	0.99	198.7				
PCB-167	643		2	0.99	198.7			0.00003	0.01929
PCB-169		U	2	0.99	198.7	Hexa PCBs	67183	0.03	0
PCB-170	3260		2	0.99	198.7				
PCB-171/173	974		4	0.99	397.4				
PCB-172	668		2	0.99	198.7				
PCB-174	4000		2	0.99	198.7				
PCB-175		U	2	0.99	198.7				
PCB-176	526		2	0.99	198.7				
PCB-177	2490		2	0.99	198.7				
PCB-178	1150		2	0.99	198.7				
PCB-179	1970		2	0.99	198.7				
PCB-180/193	8130		4	0.99	397.4				
PCB-181		U	2	0.99	198.7				
PCB-182		U	2	0.99	198.7				
PCB-183/185	2280		4	0.99	397.4				
PCB-184		U	2	0.99	198.7				
PCB-186		U	2	0.99	198.7				
PCB-187	5440		2	0.99	198.7				
PCB-188		U	2	0.99	198.7				
PCB-189		U	2	0.99	198.7			0.00003	0
PCB-190	731		2	0.99	198.7				
PCB-191		U	2	0.99	198.7				
PCB-192		U	2	0.99	198.7	Hepta PCBs	31619		
PCB-194	1810		2	0.99	198.7				
PCB-195	773		2	0.99	198.7				
PCB-196	976		2	0.99	198.7				
PCB-197/200		U	4	0.99	397.4				
PCB-198/199	2260		4	0.99	397.4				
PCB-201	266		2	0.99	198.7				
PCB-202	512		2	0.99	198.7				
PCB-203	1280		2	0.99	198.7				

SDG Number	E4RX9	
Lab Sample ID	1555005	
Client ID	**E4S99**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.404	
theoretical aliquot	10	g
actual aliquot	16.89	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.99	198.7				
PCB-205		U	2	0.99	198.7	Octa PCBss	7877		
PCB-206	668		2	0.99	198.7				
PCB-207		U	2	0.99	198.7				
PCB-208		U	2	0.99	198.7	Nona PCBs	668		
PCB-209	514		2	0.99	198.7	Deca PCBs	514		
Total Mono PCBs	17200		2	0.99	198.7				
Total Di PCBs	387000		2	0.99	198.7				
Total Tri PCBs	1050000		2	0.99	198.7				
Total Tetra PCBs	774000		2	0.99	198.7				
Total Penta PCBs	210000		2	0.99	198.7				
Total Hexa PCBs	67200		2	0.99	198.7				
Total Hepta PCBs	31600		2	0.99	198.7				
Total Octa PCBs	7870		2	0.99	198.7				
Total Nona PCBs	668		2	0.99	198.7				
Total Deca PCBs	514		2	0.99	198.7				
Total PCB Congeners	2550000		2	0.99	198.7		2551777		
TEQ (WHO2005, ND=0)	2.04								2.04281

SDG Number	E4RX9	
Lab Sample ID	1555006	
Client ID	**E4SA0**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.383	
theoretical aliquot	10	g
actual aliquot	16.84	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	102000		2	0.96	192.5				
PCB-2	3090		2	0.96	192.5				
PCB-3	5050		2	0.96	192.5	Mono PCBs	110140		
PCB-4	511000	J	2	0.96	192.5				
PCB-5	7200		2	0.96	192.5				
PCB-6	345000		2	0.96	192.5				
PCB-7	15600		2	0.96	192.5				
PCB-8	373000		2	0.96	192.5				
PCB-9	23300		2	0.96	192.5				
PCB-10	40600		2	0.96	192.5				
PCB11	21400		100	0.96	9624.4				
PCB-12/13	109000		4	0.96	385.0				
PCB-14		U	2	0.96	192.5				
PCB-15	155000	J	10	0.96	962.4	Di PCBs	1601100		
PCB-16	167000		2	0.96	192.5				
PCB-17	398000	J	2	0.96	192.5				
PCB-18/30	490000		4	0.96	385.0				
PCB-19	132000		2	0.96	192.5				
PCB-20/28	954000	J	20	0.96	1924.9				
PCB-21/33	81600		20	0.96	1924.9				
PCB-22	220000		10	0.96	962.4				
PCB-23	1540		2	0.96	192.5				
PCB-24		U	2	0.96	192.5				
PCB-25	338000		2	0.96	192.5				
PCB-26/29	457000		4	0.96	385.0				
PCB-27	73100		2	0.96	192.5				
PCB-31	779000	J	10	0.96	962.4				
PCB-32	180000		2	0.96	192.5				
PCB-34	9920		2	0.96	192.5				
PCB-35	5250		2	0.96	192.5				
PCB-36		U	2	0.96	192.5				
PCB-37	101000		10	0.96	962.4				
PCB-38		U	2	0.96	192.5				
PCB-39		U	2	0.96	192.5	Tri PCBs	4387410		
PCB-40/71	243000		2	0.96	192.5				
PCB-41	10600		100	0.96	9624.4				
PCB-42	187000		2	0.96	192.5				
PCB-43	56800		2	0.96	192.5				
PCB-44/47/65	558000		6	0.96	577.5				
PCB-45/51	117000		40	0.96	3849.8				

SDG Number	E4RX9	
Lab Sample ID	1555006	
Client ID	**E4SA0**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.383	
theoretical aliquot	10	g
actual aliquot	16.84	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	42100		2	0.96	192.5				
PCB-48	44900		2	0.96	192.5				
PCB-49/69	390000		4	0.96	385.0				
PCB-50/53	90500		4	0.96	385.0				
PCB-52	586000	J	2	0.96	192.5				
PCB-54	2270		2	0.96	192.5				
PCB-55		U	2	0.96	192.5				
PCB-56	80300		2	0.96	192.5				
PCB-57	7840		2	0.96	192.5				
PCB-58	2640		2	0.96	192.5				
PCB-59/32/75	52900		6	0.96	577.5				
PCB-60	24800		2	0.96	192.5				
PCB-61/70/74/76	315000		8	0.96	770.0				
PCB-63	26400		2	0.96	192.5				
PCB-64	255000		2	0.96	192.5				
PCB-66	172000		10	0.96	962.4				
PCB-67	15800		2	0.96	192.5				
PCB-68	4180		2	0.96	192.5				
PCB-72	6990		2	0.96	192.5				
PCB-73		U	2	0.96	192.5				
PCB-77	28500		2	0.96	192.5			0.0001	2.85
PCB-78	398		2	0.96	192.5				
PCB-79	1700		2	0.96	192.5				
PCB-80	700		2	0.96	192.5				
PCB-81	458		2	0.96	192.5	Tetra PCBs	3323776	0.0003	0.1374
PCB-82	15100		2	0.96	192.5				
PCB-83	14400		2	0.96	192.5				
PCB-84	67900		2	0.96	192.5				
PCB-85/116/117	21300		6	0.96	577.5				
PCB-86/87/97/109/119/	79900		12	0.96	1154.9				
PCB-88/91	39600		4	0.96	385.0				
PCB-89	5800		2	0.96	192.5				
PCB-90/101/113	122000		6	0.96	577.5				
PCB-92	37300		2	0.96	192.5				
PCB-93/100	4790		4	0.96	385.0				
PCB-94	2420		2	0.96	192.5				
PCB-95	141000		2	0.96	192.5				
PCB-96	3990		2	0.96	192.5				
PCB-98/102	14900		4	0.96	385.0				
PCB-99	71800		2	0.96	192.5				

SDG Number	E4RX9	
Lab Sample ID	1555006	
Client ID	**E4SA0**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.383	
theoretical aliquot	10	g
actual aliquot	16.84	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	2780		2	0.96	192.5				
PCB-104		U	2	0.96	192.5				
PCB-105	40400		2	0.96	192.5			0.00003	1.212
PCB-106		U	2	0.96	192.5				
PCB-107	9890		2	0.96	192.5				
PCB-108/124	2320		4	0.96	385.0				
PCB-110/115	200000		4	0.96	385.0				
PCB-111		U	2	0.96	192.5				
PCB-112		U	2	0.96	192.5				
PCB-114	3090		2	0.96	192.5			0.00003	0.0927
PCB-118	129000		2	0.96	192.5			0.00003	3.87
PCB-120	724		2	0.96	192.5				
PCB-121		U	2	0.96	192.5				
PCB-122	988		2	0.96	192.5				
PCB-123	1620		2	0.96	192.5			0.00003	0.0486
PCB-126	241		2	0.96	192.5			0.1	24.1
PCB-127		U	2	0.96	192.5	Penta PCBs	1033253		
PCB-128/166	8370		4	0.96	385.0				
PCB-129/138/163	59700		6	0.96	577.5				
PCB-130	4650		2	0.96	192.5				
PCB-131	824		2	0.96	192.5				
PCB-132	26000		2	0.96	192.5				
PCB-133	1460		2	0.96	192.5				
PCB-134	5020		2	0.96	192.5				
PCB-135/151	25700		4	0.96	385.0				
PCB-136	9260		2	0.96	192.5				
PCB-137	2570		2	0.96	192.5				
PCB-139/140	1430		4	0.96	385.0				
PCB-141	9560		2	0.96	192.5				
PCB-142		U	2	0.96	192.5				
PCB-143		U	2	0.96	192.5				
PCB-144	2070		2	0.96	192.5				
PCB-145		U	2	0.96	192.5				
PCB-146	12800		2	0.96	192.5				
PCB-147/149	55100		4	0.96	385.0				
PCB-148	240		2	0.96	192.5				
PCB-150		U	2	0.96	192.5				
PCB-152		U	2	0.96	192.5				
PCB-153/168	47900		4	0.96	385.0				
PCB-154	1740		2	0.96	192.5				

SDG Number	E4RX9	
Lab Sample ID	1555006	
Client ID	**E4SA0**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.383	
theoretical aliquot	10	g
actual aliquot	16.84	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.96	192.5				
PCB-156/157	9410		4	0.96	385.0			0.00003	0.2823
PCB-158	5480		2	0.96	192.5				
PCB-159	407		2	0.96	192.5				
PCB-160		U	2	0.96	192.5				
PCB-161		U	2	0.96	192.5				
PCB-162	464		2	0.96	192.5				
PCB-164	4050		2	0.96	192.5				
PCB-165		U	2	0.96	192.5				
PCB-167	2780		2	0.96	192.5			0.00003	0.0834
PCB-169		U	2	0.96	192.5	Hexa PCBs	296985	0.03	0
PCB-170	11600		2	0.96	192.5				
PCB-171/173	3740		4	0.96	385.0				
PCB-172	2310		2	0.96	192.5				
PCB-174	13900		2	0.96	192.5				
PCB-175	602		2	0.96	192.5				
PCB-176	1900		2	0.96	192.5				
PCB-177	8890		2	0.96	192.5				
PCB-178	3600		2	0.96	192.5				
PCB-179	6700		2	0.96	192.5				
PCB-180/193	27800		4	0.96	385.0				
PCB-181		U	2	0.96	192.5				
PCB-182		U	2	0.96	192.5				
PCB-183/185	8250		4	0.96	385.0				
PCB-184		U	2	0.96	192.5				
PCB-186		U	2	0.96	192.5				
PCB-187	17900		2	0.96	192.5				
PCB-188		U	2	0.96	192.5				
PCB-189	528		2	0.96	192.5			0.00003	0.01584
PCB-190	2500		2	0.96	192.5				
PCB-191	439		2	0.96	192.5				
PCB-192		U	2	0.96	192.5	Hepta PCBs	110659		
PCB-194	6250		2	0.96	192.5				
PCB-195	2530		2	0.96	192.5				
PCB-196	3200		2	0.96	192.5				
PCB-197/200	1100		4	0.96	385.0				
PCB-198/199	7260		4	0.96	385.0				
PCB-201	864		2	0.96	192.5				
PCB-202	1700		2	0.96	192.5				
PCB-203	4090		2	0.96	192.5				

SDG Number	E4RX9	
Lab Sample ID	1555006	
Client ID	**E4SA0**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.383	
theoretical aliquot	10	g
actual aliquot	16.84	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.96	192.5				
PCB-205	372		2	0.96	192.5	Octa PCBss	27366		
PCB-206	2190		2	0.96	192.5				
PCB-207	254		2	0.96	192.5				
PCB-208	553		2	0.96	192.5	Nona PCBs	2997		
PCB-209	273		2	0.96	192.5	Deca PCBs	273		
Total Mono PCBs	110000		2	0.96	192.5				
Total Di PCBs	1600000		2	0.96	192.5				
Total Tri PCBs	4390000		2	0.96	192.5				
Total Tetra PCBs	3320000		2	0.96	192.5				
Total Penta PCBs	1030000		2	0.96	192.5				
Total Hexa PCBs	297000		2	0.96	192.5				
Total Hepta PCBs	111000		2	0.96	192.5				
Total Octa PCBs	27400		2	0.96	192.5				
Total Nona PCBs	3000		2	0.96	192.5				
Total Deca PCBs	273		2	0.96	192.5				
Total PCB Congeners	10900000		2	0.96	192.5		10893959		
TEQ (WHO2005, ND=0)	32.7								32.69224

SDG Number	E4RX9	
Lab Sample ID	1555004	
Client ID	**E4SA8**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.084	
theoretical aliquot	10	g
actual aliquot	11.38	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.96	38.4				
PCB-2		U	2	0.96	38.4				
PCB-3	42.7		2	0.96	38.4	Mono PCBs	42.7		
PCB-4	1230		2	0.96	38.4				
PCB-5		U	2	0.96	38.4				
PCB-6	898		2	0.96	38.4				
PCB-7	57.9		2	0.96	38.4				
PCB-8	1470		2	0.96	38.4				
PCB-9	93.6		2	0.96	38.4				
PCB-10	118		2	0.96	38.4				
PCB11		U	100	0.96	1918.6				
PCB-12/13	319		4	0.96	76.7				
PCB-14		U	2	0.96	38.4				
PCB-15	2160	J	10	0.96	191.9	Di PCBs	6346.5		
PCB-16	2370		2	0.96	38.4				
PCB-17	3050		2	0.96	38.4				
PCB-18/30	6790		4	0.96	76.7				
PCB-19	1500		2	0.96	38.4				
PCB-20/28	6820		20	0.96	383.7				
PCB-21/33	1870		20	0.96	383.7				
PCB-22	1720		10	0.96	191.9				
PCB-23		U	2	0.96	38.4				
PCB-24		U	2	0.96	38.4				
PCB-25	967		2	0.96	38.4				
PCB-26/29	1670		4	0.96	76.7				
PCB-27	786		2	0.96	38.4				
PCB-31	5380		10	0.96	191.9				
PCB-32	2160		2	0.96	38.4				
PCB-34	46.5		2	0.96	38.4				
PCB-35	64.8		2	0.96	38.4				
PCB-36		U	2	0.96	38.4				
PCB-37	1550		10	0.96	191.9				
PCB-38		U	2	0.96	38.4				
PCB-39		U	2	0.96	38.4	Tri PCBs	36744.3		
PCB-40/71	2150		2	0.96	38.4				
PCB-41		U	100	0.96	1918.6				
PCB-42	1390		2	0.96	38.4				
PCB-43	336		2	0.96	38.4				
PCB-44/47/65	5400		6	0.96	115.1				
PCB-45/51	1580		40	0.96	767.5				

SDG Number	E4RX9	
Lab Sample ID	1555004	
Client ID	**E4SA8**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.084	
theoretical aliquot	10	g
actual aliquot	11.38	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	548		2	0.96	38.4				
PCB-48	891		2	0.96	38.4				
PCB-49/69	3340		4	0.96	76.7				
PCB-50/53	1190		4	0.96	76.7				
PCB-52	6570		2	0.96	38.4				
PCB-54		U	2	0.96	38.4				
PCB-55		U	2	0.96	38.4				
PCB-56	1430		2	0.96	38.4				
PCB-57		U	2	0.96	38.4				
PCB-58		U	2	0.96	38.4				
PCB-59/32/75	532		6	0.96	115.1				
PCB-60	533		2	0.96	38.4				
PCB-61/70/74/76	4950		8	0.96	153.5				
PCB-63	136		2	0.96	38.4				
PCB-64	2190		2	0.96	38.4				
PCB-66	3070		10	0.96	191.9				
PCB-67	105		2	0.96	38.4				
PCB-68		U	2	0.96	38.4				
PCB-72		U	2	0.96	38.4				
PCB-73		U	2	0.96	38.4				
PCB-77	267		2	0.96	38.4			0.0001	0.0267
PCB-78		U	2	0.96	38.4				
PCB-79		U	2	0.96	38.4				
PCB-80		U	2	0.96	38.4				
PCB-81		U	2	0.96	38.4	Tetra PCBs	36608	0.0003	0
PCB-82	298		2	0.96	38.4				
PCB-83	127		2	0.96	38.4				
PCB-84	823		2	0.96	38.4				
PCB-85/116/117	391		6	0.96	115.1				
PCB-86/87/97/109/119/	1590		12	0.96	230.2				
PCB-88/91	433		4	0.96	76.7				
PCB-89	60.8		2	0.96	38.4				
PCB-90/101/113	2290		6	0.96	115.1				
PCB-92	482		2	0.96	38.4				
PCB-93/100		U	4	0.96	76.7				
PCB-94		U	2	0.96	38.4				
PCB-95	2100		2	0.96	38.4				
PCB-96	40.4		2	0.96	38.4				
PCB-98/102	154		4	0.96	76.7				
PCB-99	1100		2	0.96	38.4				

SDG Number	E4RX9	
Lab Sample ID	1555004	
Client ID	**E4SA8**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.084	
theoretical aliquot	10	g
actual aliquot	11.38	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103		U	2	0.96	38.4				
PCB-104		U	2	0.96	38.4				
PCB-105	804		2	0.96	38.4			0.00003	0.02412
PCB-106		U	2	0.96	38.4				
PCB-107	146		2	0.96	38.4				
PCB-108/124		U	4	0.96	76.7				
PCB-110/115	2710		4	0.96	76.7				
PCB-111		U	2	0.96	38.4				
PCB-112		U	2	0.96	38.4				
PCB-114	48.2		2	0.96	38.4			0.00003	0.001446
PCB-118	1920		2	0.96	38.4			0.00003	0.0576
PCB-120		U	2	0.96	38.4				
PCB-121		U	2	0.96	38.4				
PCB-122		U	2	0.96	38.4				
PCB-123		U	2	0.96	38.4			0.00003	0
PCB-126		U	2	0.96	38.4			0.1	0
PCB-127		U	2	0.96	38.4	Penta PCBs	15517.4		
PCB-128/166	225		4	0.96	76.7				
PCB-129/138/163	1580		6	0.96	115.1				
PCB-130	102		2	0.96	38.4				
PCB-131		U	2	0.96	38.4				
PCB-132	517		2	0.96	38.4				
PCB-133		U	2	0.96	38.4				
PCB-134	117		2	0.96	38.4				
PCB-135/151	592		4	0.96	76.7				
PCB-136	205		2	0.96	38.4				
PCB-137	61.5		2	0.96	38.4				
PCB-139/140		U	4	0.96	76.7				
PCB-141	232		2	0.96	38.4				
PCB-142		U	2	0.96	38.4				
PCB-143		U	2	0.96	38.4				
PCB-144	65.1		2	0.96	38.4				
PCB-145		U	2	0.96	38.4				
PCB-146	278		2	0.96	38.4				
PCB-147/149	1290		4	0.96	76.7				
PCB-148		U	2	0.96	38.4				
PCB-150		U	2	0.96	38.4				
PCB-152		U	2	0.96	38.4				
PCB-153/168	1230		4	0.96	76.7				
PCB-154		U	2	0.96	38.4				

SDG Number	E4RX9	
Lab Sample ID	1555004	
Client ID	**E4SA8**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.084	
theoretical aliquot	10	g
actual aliquot	11.38	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.96	38.4				
PCB-156/157	195		4	0.96	76.7			0.00003	0.00585
PCB-158	135		2	0.96	38.4				
PCB-159		U	2	0.96	38.4				
PCB-160		U	2	0.96	38.4				
PCB-161		U	2	0.96	38.4				
PCB-162		U	2	0.96	38.4				
PCB-164	97.9		2	0.96	38.4				
PCB-165		U	2	0.96	38.4				
PCB-167	63.5		2	0.96	38.4			0.00003	0.001905
PCB-169		U	2	0.96	38.4	Hexa PCBs	6986	0.03	0
PCB-170	249		2	0.96	38.4				
PCB-171/173	84		4	0.96	76.7				
PCB-172	49.9		2	0.96	38.4				
PCB-174	301		2	0.96	38.4				
PCB-175		U	2	0.96	38.4				
PCB-176	42.6		2	0.96	38.4				
PCB-177	191		2	0.96	38.4				
PCB-178	88.8		2	0.96	38.4				
PCB-179	162		2	0.96	38.4				
PCB-180/193	615		4	0.96	76.7				
PCB-181		U	2	0.96	38.4				
PCB-182		U	2	0.96	38.4				
PCB-183/185	204		4	0.96	76.7				
PCB-184		U	2	0.96	38.4				
PCB-186		U	2	0.96	38.4				
PCB-187	490		2	0.96	38.4				
PCB-188		U	2	0.96	38.4				
PCB-189		U	2	0.96	38.4			0.00003	0
PCB-190	51		2	0.96	38.4				
PCB-191		U	2	0.96	38.4				
PCB-192		U	2	0.96	38.4	Hepta PCBs	2528.3		
PCB-194	135		2	0.96	38.4				
PCB-195	54		2	0.96	38.4				
PCB-196	74.9		2	0.96	38.4				
PCB-197/200		U	4	0.96	76.7				
PCB-198/199	172		4	0.96	76.7				
PCB-201		U	2	0.96	38.4				
PCB-202	40.1		2	0.96	38.4				
PCB-203	96.4		2	0.96	38.4				

SDG Number	E4RX9	
Lab Sample ID	1555004	
Client ID	**E4SA8**	
Date Collected	3-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.084	
theoretical aliquot	10	g
actual aliquot	11.38	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.96	38.4				
PCB-205		U	2	0.96	38.4	Octa PCBss	572.4		
PCB-206		U	2	0.96	38.4				
PCB-207		U	2	0.96	38.4				
PCB-208		U	2	0.96	38.4	Nona PCBs	0		
PCB-209		U	2	0.96	38.4	Deca PCBs	0		
Total Mono PCBs	42.7		2	0.96	38.4				
Total Di PCBs	6340		2	0.96	38.4				
Total Tri PCBs	36800		2	0.96	38.4				
Total Tetra PCBs	36600		2	0.96	38.4				
Total Penta PCBs	15500		2	0.96	38.4				
Total Hexa PCBs	6990		2	0.96	38.4				
Total Hepta PCBs	2530		2	0.96	38.4				
Total Octa PCBs	572		2	0.96	38.4				
Total Nona PCBs		U	2	0.96	38.4				
Total Deca PCBs		U	2	0.96	38.4				
Total PCB Congeners	105000		2	0.96	38.4		105345.6		
TEQ (WHO2005, ND=0)	0.118								0.117621

SDG Number	E4RX9	
Lab Sample ID	1555008	
Client ID	**E4SC0**	
Date Collected	4-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.208	
theoretical aliquot	10	g
actual aliquot	13.99	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.90	36.1				
PCB-2		U	2	0.90	36.1				
PCB-3		U	2	0.90	36.1	Mono PCBs	0		
PCB-4	318		2	0.90	36.1				
PCB-5		U	2	0.90	36.1				
PCB-6	97.1		2	0.90	36.1				
PCB-7		U	2	0.90	36.1				
PCB-8	277		2	0.90	36.1				
PCB-9		U	2	0.90	36.1				
PCB-10		U	2	0.90	36.1				
PCB11		U	100	0.90	1805.0				
PCB-12/13	78.2		4	0.90	72.2				
PCB-14		U	2	0.90	36.1				
PCB-15	1710	J	10	0.90	180.5	Di PCBs	2480.3		
PCB-16	1000		2	0.90	36.1				
PCB-17	1090		2	0.90	36.1				
PCB-18/30	2280		4	0.90	72.2				
PCB-19	798		2	0.90	36.1				
PCB-20/28	3750		20	0.90	361.0				
PCB-21/33	1040		20	0.90	361.0				
PCB-22	741		10	0.90	180.5				
PCB-23		U	2	0.90	36.1				
PCB-24		U	2	0.90	36.1				
PCB-25	282		2	0.90	36.1				
PCB-26/29	633		4	0.90	72.2				
PCB-27	476		2	0.90	36.1				
PCB-31	2620		10	0.90	180.5				
PCB-32	1050		2	0.90	36.1				
PCB-34		U	2	0.90	36.1				
PCB-35	57.6		2	0.90	36.1				
PCB-36		U	2	0.90	36.1				
PCB-37	1710		10	0.90	180.5				
PCB-38		U	2	0.90	36.1				
PCB-39		U	2	0.90	36.1	Tri PCBs	17527.6		
PCB-40/71	2890		2	0.90	36.1				
PCB-41		U	100	0.90	1805.0				
PCB-42	1940		2	0.90	36.1				
PCB-43		U	2	0.90	36.1				
PCB-44/47/65	6810		6	0.90	108.3				
PCB-45/51	1900		40	0.90	722.0				

SDG Number	E4RX9	
Lab Sample ID	1555008	
Client ID	**E4SC0**	
Date Collected	4-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.208	
theoretical aliquot	10	g
actual aliquot	13.99	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	687		2	0.90	36.1				
PCB-48	699		2	0.90	36.1				
PCB-49/69	3770		4	0.90	72.2				
PCB-50/53	1400		4	0.90	72.2				
PCB-52	6930		2	0.90	36.1				
PCB-54		U	2	0.90	36.1				
PCB-55		U	2	0.90	36.1				
PCB-56	1990		2	0.90	36.1				
PCB-57		U	2	0.90	36.1				
PCB-58		U	2	0.90	36.1				
PCB-59/32/75	651		6	0.90	108.3				
PCB-60	615		2	0.90	36.1				
PCB-61/70/74/76	5110		8	0.90	144.4				
PCB-63	80		2	0.90	36.1				
PCB-64	2090		2	0.90	36.1				
PCB-66	4420		10	0.90	180.5				
PCB-67	78.8		2	0.90	36.1				
PCB-68		U	2	0.90	36.1				
PCB-72	37.2		2	0.90	36.1				
PCB-73		U	2	0.90	36.1				
PCB-77	617		2	0.90	36.1			0.0001	0.0617
PCB-78		U	2	0.90	36.1				
PCB-79	53.6		2	0.90	36.1				
PCB-80		U	2	0.90	36.1				
PCB-81		U	2	0.90	36.1	Tetra PCBs	42768.6	0.0003	0
PCB-82	603		2	0.90	36.1				
PCB-83	223		2	0.90	36.1				
PCB-84	1350		2	0.90	36.1				
PCB-85/116/117	733		6	0.90	108.3				
PCB-86/87/97/109/119/	2570		12	0.90	216.6				
PCB-88/91	743		4	0.90	72.2				
PCB-89	116		2	0.90	36.1				
PCB-90/101/113	3190		6	0.90	108.3				
PCB-92	744		2	0.90	36.1				
PCB-93/100	75.6		4	0.90	72.2				
PCB-94	50.4		2	0.90	36.1				
PCB-95	3050		2	0.90	36.1				
PCB-96	61.5		2	0.90	36.1				
PCB-98/102	266		4	0.90	72.2				
PCB-99	1790		2	0.90	36.1				

SDG Number	E4RX9	
Lab Sample ID	1555008	
Client ID	**E4SC0**	
Date Collected	4-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.208	
theoretical aliquot	10	g
actual aliquot	13.99	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	46.4		2	0.90	36.1				
PCB-104		U	2	0.90	36.1				
PCB-105	1160		2	0.90	36.1			0.00003	0.0348
PCB-106		U	2	0.90	36.1				
PCB-107	171		2	0.90	36.1				
PCB-108/124	81.8		4	0.90	72.2				
PCB-110/115	4190		4	0.90	72.2				
PCB-111		U	2	0.90	36.1				
PCB-112		U	2	0.90	36.1				
PCB-114	59.6		2	0.90	36.1			0.00003	0.001788
PCB-118	2370		2	0.90	36.1			0.00003	0.0711
PCB-120		U	2	0.90	36.1				
PCB-121		U	2	0.90	36.1				
PCB-122	49		2	0.90	36.1				
PCB-123	63.2		2	0.90	36.1			0.00003	0.001896
PCB-126		U	2	0.90	36.1			0.1	0
PCB-127		U	2	0.90	36.1	Penta PCBs	23756.5		
PCB-128/166	361		4	0.90	72.2				
PCB-129/138/163	2510		6	0.90	108.3				
PCB-130	159		2	0.90	36.1				
PCB-131		U	2	0.90	36.1				
PCB-132	800		2	0.90	36.1				
PCB-133	72.1		2	0.90	36.1				
PCB-134	149		2	0.90	36.1				
PCB-135/151	1060		4	0.90	72.2				
PCB-136	326		2	0.90	36.1				
PCB-137	97.1		2	0.90	36.1				
PCB-139/140		U	4	0.90	72.2				
PCB-141	397		2	0.90	36.1				
PCB-142		U	2	0.90	36.1				
PCB-143		U	2	0.90	36.1				
PCB-144	103		2	0.90	36.1				
PCB-145		U	2	0.90	36.1				
PCB-146	546		2	0.90	36.1				
PCB-147/149	2090		4	0.90	72.2				
PCB-148		U	2	0.90	36.1				
PCB-150		U	2	0.90	36.1				
PCB-152		U	2	0.90	36.1				
PCB-153/168	2080		4	0.90	72.2				
PCB-154	97.5		2	0.90	36.1				

SDG Number	E4RX9	
Lab Sample ID	1555008	
Client ID	**E4SC0**	
Date Collected	4-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.208	
theoretical aliquot	10	g
actual aliquot	13.99	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.90	36.1				
PCB-156/157	239		4	0.90	72.2			0.00003	0.00717
PCB-158	212		2	0.90	36.1				
PCB-159		U	2	0.90	36.1				
PCB-160		U	2	0.90	36.1				
PCB-161		U	2	0.90	36.1				
PCB-162		U	2	0.90	36.1				
PCB-164	160		2	0.90	36.1				
PCB-165		U	2	0.90	36.1				
PCB-167	101		2	0.90	36.1			0.00003	0.00303
PCB-169		U	2	0.90	36.1	Hexa PCBs	11559.7	0.03	0
PCB-170	529		2	0.90	36.1				
PCB-171/173	163		4	0.90	72.2				
PCB-172	105		2	0.90	36.1				
PCB-174	629		2	0.90	36.1				
PCB-175		U	2	0.90	36.1				
PCB-176	87.3		2	0.90	36.1				
PCB-177	423		2	0.90	36.1				
PCB-178	212		2	0.90	36.1				
PCB-179	350		2	0.90	36.1				
PCB-180/193	1360		4	0.90	72.2				
PCB-181		U	2	0.90	36.1				
PCB-182		U	2	0.90	36.1				
PCB-183/185	394		4	0.90	72.2				
PCB-184		U	2	0.90	36.1				
PCB-186		U	2	0.90	36.1				
PCB-187	1000		2	0.90	36.1				
PCB-188		U	2	0.90	36.1				
PCB-189		U	2	0.90	36.1			0.00003	0
PCB-190	109		2	0.90	36.1				
PCB-191		U	2	0.90	36.1				
PCB-192		U	2	0.90	36.1	Hepta PCBs	5361.3		
PCB-194	310		2	0.90	36.1				
PCB-195	130		2	0.90	36.1				
PCB-196	165		2	0.90	36.1				
PCB-197/200		U	4	0.90	72.2				
PCB-198/199	403		4	0.90	72.2				
PCB-201	50.2		2	0.90	36.1				
PCB-202	95.6		2	0.90	36.1				
PCB-203	222		2	0.90	36.1				

SDG Number	E4RX9	
Lab Sample ID	1555008	
Client ID	**E4SC0**	
Date Collected	4-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.208	
theoretical aliquot	10	g
actual aliquot	13.99	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.90	36.1				
PCB-205		U	2	0.90	36.1	Octa PCBss	1375.8		
PCB-206	137		2	0.90	36.1				
PCB-207	39.4		2	0.90	36.1				
PCB-208	57		2	0.90	36.1	Nona PCBs	233.4		
PCB-209	743		2	0.90	36.1	Deca PCBs	743		
Total Mono PCBs		U	2	0.90	36.1				
Total Di PCBs	2480		2	0.90	36.1				
Total Tri PCBs	17500		2	0.90	36.1				
Total Tetra PCBs	42800		2	0.90	36.1				
Total Penta PCBs	23800		2	0.90	36.1				
Total Hexa PCBs	11600		2	0.90	36.1				
Total Hepta PCBs	5360		2	0.90	36.1				
Total Octa PCBs	1380		2	0.90	36.1				
Total Nona PCBs	234		2	0.90	36.1				
Total Deca PCBs	743		2	0.90	36.1				
Total PCB Congeners	106000		2	0.90	36.1		105806.2		
TEQ (WHO2005, ND=0)	0.182								0.181484

SDG Number	E4RX9	
Lab Sample ID	1555009	
Client ID	**E4SF5**	
Date Collected	5-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.466	
theoretical aliquot	10	g
actual aliquot	19.68	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.95	190.3				
PCB-2		U	2	0.95	190.3				
PCB-3		U	2	0.95	190.3	Mono PCBs	0		
PCB-4	7090		2	0.95	190.3				
PCB-5		U	2	0.95	190.3				
PCB-6	1170		2	0.95	190.3				
PCB-7		U	2	0.95	190.3				
PCB-8	7050		2	0.95	190.3				
PCB-9	232		2	0.95	190.3				
PCB-10	371		2	0.95	190.3				
PCB11		U	100	0.95	9515.5				
PCB-12/13	1230		4	0.95	380.6				
PCB-14		U	2	0.95	190.3				
PCB-15	135000	J	10	0.95	951.6	Di PCBs	152143		
PCB-16	106000		2	0.95	190.3				
PCB-17	134000		2	0.95	190.3				
PCB-18/30	237000		4	0.95	380.6				
PCB-19	109000		2	0.95	190.3				
PCB-20/28	647000		20	0.95	1903.1				
PCB-21/33	62700		20	0.95	1903.1				
PCB-22	62000		10	0.95	951.6				
PCB-23		U	2	0.95	190.3				
PCB-24		U	2	0.95	190.3				
PCB-25	35900		2	0.95	190.3				
PCB-26/29	121000		4	0.95	380.6				
PCB-27	52900		2	0.95	190.3				
PCB-31	489000	J	10	0.95	951.6				
PCB-32	146000		2	0.95	190.3				
PCB-34	2170		2	0.95	190.3				
PCB-35	6660		2	0.95	190.3				
PCB-36		U	2	0.95	190.3				
PCB-37	287000		10	0.95	951.6				
PCB-38		U	2	0.95	190.3				
PCB-39		U	2	0.95	190.3	Tri PCBs	2498330		
PCB-40/71	557000	J	2	0.95	190.3				
PCB-41	90700		100	0.95	9515.5				
PCB-42	370000		2	0.95	190.3				
PCB-43	96400		2	0.95	190.3				
PCB-44/47/65	1180000	J	6	0.95	570.9				
PCB-45/51	259000		40	0.95	3806.2				

SDG Number	E4RX9	
Lab Sample ID	1555009	
Client ID	**E4SF5**	
Date Collected	5-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.466	
theoretical aliquot	10	g
actual aliquot	19.68	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	97500		2	0.95	190.3				
PCB-48	218000		2	0.95	190.3				
PCB-49/69	707000		4	0.95	380.6				
PCB-50/53	185000		4	0.95	380.6				
PCB-52	1160000	J	2	0.95	190.3				
PCB-54	3850		2	0.95	190.3				
PCB-55	30700		2	0.95	190.3				
PCB-56	481000	J	2	0.95	190.3				
PCB-57	2540		2	0.95	190.3				
PCB-58	1490		2	0.95	190.3				
PCB-59/32/75	98000		6	0.95	570.9				
PCB-60	135000		2	0.95	190.3				
PCB-61/70/74/76	1460000		8	0.95	761.2				
PCB-63	21100		2	0.95	190.3				
PCB-64	385000	J	2	0.95	190.3				
PCB-66	979000	J	10	0.95	951.6				
PCB-67	22300		2	0.95	190.3				
PCB-68	1980		2	0.95	190.3				
PCB-72	4440		2	0.95	190.3				
PCB-73	25400		2	0.95	190.3				
PCB-77	114000		2	0.95	190.3			0.0001	11.4
PCB-78	2640		2	0.95	190.3				
PCB-79	8540		2	0.95	190.3				
PCB-80	1150		2	0.95	190.3				
PCB-81	3670		2	0.95	190.3	Tetra PCBs	8702400	0.0003	1.101
PCB-82	103000		2	0.95	190.3				
PCB-83	33100		2	0.95	190.3				
PCB-84	174000		2	0.95	190.3				
PCB-85/116/117	111000		6	0.95	570.9				
PCB-86/87/97/109/119/	370000		12	0.95	1141.9				
PCB-88/91	95500		4	0.95	380.6				
PCB-89	18400		2	0.95	190.3				
PCB-90/101/113	369000		6	0.95	570.9				
PCB-92	67100		2	0.95	190.3				
PCB-93/100	8830		4	0.95	380.6				
PCB-94	4750		2	0.95	190.3				
PCB-95	334000		2	0.95	190.3				
PCB-96	9640		2	0.95	190.3				
PCB-98/102	34400		4	0.95	380.6				
PCB-99	215000		2	0.95	190.3				

SDG Number	E4RX9	
Lab Sample ID	1555009	
Client ID	**E4SF5**	
Date Collected	5-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.466	
theoretical aliquot	10	g
actual aliquot	19.68	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	3030		2	0.95	190.3				
PCB-104		U	2	0.95	190.3				
PCB-105	246000		2	0.95	190.3			0.00003	7.38
PCB-106		U	2	0.95	190.3				
PCB-107	25400		2	0.95	190.3				
PCB-108/124	14500		4	0.95	380.6				
PCB-110/115	480000		4	0.95	380.6				
PCB-111		U	2	0.95	190.3				
PCB-112		U	2	0.95	190.3				
PCB-114	14300		2	0.95	190.3			0.00003	0.429
PCB-118	416000	J	2	0.95	190.3			0.00003	12.48
PCB-120	404		2	0.95	190.3				
PCB-121		U	2	0.95	190.3				
PCB-122	7670		2	0.95	190.3				
PCB-123	9910		2	0.95	190.3			0.00003	0.2973
PCB-126	2650		2	0.95	190.3			0.1	265
PCB-127		U	2	0.95	190.3	Penta PCBs	3167584		
PCB-128/166	24100		4	0.95	380.6				
PCB-129/138/163	127000		6	0.95	570.9				
PCB-130	9220		2	0.95	190.3				
PCB-131	2860		2	0.95	190.3				
PCB-132	48400		2	0.95	190.3				
PCB-133	1310		2	0.95	190.3				
PCB-134	8650		2	0.95	190.3				
PCB-135/151	29600		4	0.95	380.6				
PCB-136	14900		2	0.95	190.3				
PCB-137	8630		2	0.95	190.3				
PCB-139/140	2850		4	0.95	380.6				
PCB-141	24100		2	0.95	190.3				
PCB-142		U	2	0.95	190.3				
PCB-143		U	2	0.95	190.3				
PCB-144	5420		2	0.95	190.3				
PCB-145		U	2	0.95	190.3				
PCB-146	13300		2	0.95	190.3				
PCB-147/149	79200		4	0.95	380.6				
PCB-148		U	2	0.95	190.3				
PCB-150		U	2	0.95	190.3				
PCB-152	231		2	0.95	190.3				
PCB-153/168	72700		4	0.95	380.6				
PCB-154	824		2	0.95	190.3				

SDG Number	E4RX9	
Lab Sample ID	1555009	
Client ID	**E4SF5**	
Date Collected	5-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.466	
theoretical aliquot	10	g
actual aliquot	19.68	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.95	190.3				
PCB-156/157	25400		4	0.95	380.6			0.00003	0.762
PCB-158	14600		2	0.95	190.3				
PCB-159	386		2	0.95	190.3				
PCB-160		U	2	0.95	190.3				
PCB-161		U	2	0.95	190.3				
PCB-162	649		2	0.95	190.3				
PCB-164	8180		2	0.95	190.3				
PCB-165		U	2	0.95	190.3				
PCB-167	7170		2	0.95	190.3			0.00003	0.2151
PCB-169		U	2	0.95	190.3	Hexa PCBs	529680	0.03	0
PCB-170	13700		2	0.95	190.3				
PCB-171/173	4130		4	0.95	380.6				
PCB-172	2070		2	0.95	190.3				
PCB-174	12900		2	0.95	190.3				
PCB-175	517		2	0.95	190.3				
PCB-176	1550		2	0.95	190.3				
PCB-177	6800		2	0.95	190.3				
PCB-178	2150		2	0.95	190.3				
PCB-179	4540		2	0.95	190.3				
PCB-180/193	26200		4	0.95	380.6				
PCB-181	208		2	0.95	190.3				
PCB-182		U	2	0.95	190.3				
PCB-183/185	7680		4	0.95	380.6				
PCB-184		U	2	0.95	190.3				
PCB-186		U	2	0.95	190.3				
PCB-187	11700		2	0.95	190.3				
PCB-188		U	2	0.95	190.3				
PCB-189	721		2	0.95	190.3			0.00003	0.02163
PCB-190	2580		2	0.95	190.3				
PCB-191	501		2	0.95	190.3				
PCB-192		U	2	0.95	190.3	Hepta PCBs	97947		
PCB-194	5400		2	0.95	190.3				
PCB-195	1850		2	0.95	190.3				
PCB-196	2450		2	0.95	190.3				
PCB-197/200	796		4	0.95	380.6				
PCB-198/199	5630		4	0.95	380.6				
PCB-201	617		2	0.95	190.3				
PCB-202	1250		2	0.95	190.3				
PCB-203	3380		2	0.95	190.3				

SDG Number	E4RX9	
Lab Sample ID	1555009	
Client ID	**E4SF5**	
Date Collected	5-Mar-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.466	
theoretical aliquot	10	g
actual aliquot	19.68	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.95	190.3				
PCB-205	314		2	0.95	190.3	Octa PCBss	21687		
PCB-206	2860		2	0.95	190.3				
PCB-207	262		2	0.95	190.3				
PCB-208	825		2	0.95	190.3	Nona PCBs	3947		
PCB-209	718		2	0.95	190.3	Deca PCBs	718		
Total Mono PCBs		U	2	0.95	190.3				
Total Di PCBs	152000		2	0.95	190.3				
Total Tri PCBs	2500000		2	0.95	190.3				
Total Tetra PCBs	8700000		2	0.95	190.3				
Total Penta PCBs	3170000		2	0.95	190.3				
Total Hexa PCBs	529000		2	0.95	190.3				
Total Hepta PCBs	98000		2	0.95	190.3				
Total Octa PCBs	21700		2	0.95	190.3				
Total Nona PCBs	3950		2	0.95	190.3				
Total Deca PCBs	718		2	0.95	190.3				
Total PCB Congeners	15200000		2	0.95	190.3		15174436		
TEQ (WHO2005, ND=0)	300								299.08603

SDG Number	E4RX9	
Lab Sample ID	1555010	
Client ID	**E4SH3**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.227	
theoretical aliquot	10	g
actual aliquot	13.93	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.93	18.6				
PCB-2		U	2	0.93	18.6				
PCB-3		U	2	0.93	18.6	Mono PCBs	0		
PCB-4	36.6		2	0.93	18.6				
PCB-5		U	2	0.93	18.6				
PCB-6		U	2	0.93	18.6				
PCB-7		U	2	0.93	18.6				
PCB-8	32.6		2	0.93	18.6				
PCB-9		U	2	0.93	18.6				
PCB-10		U	2	0.93	18.6				
PCB11		U	100	0.93	928.7				
PCB-12/13		U	4	0.93	37.1				
PCB-14		U	2	0.93	18.6				
PCB-15		U	10	0.93	92.9	Di PCBs	69.2		
PCB-16	48		2	0.93	18.6				
PCB-17	94.9		2	0.93	18.6				
PCB-18/30	143		4	0.93	37.1				
PCB-19	34.6		2	0.93	18.6				
PCB-20/28	310		20	0.93	185.7				
PCB-21/33		U	20	0.93	185.7				
PCB-22		U	10	0.93	92.9				
PCB-23		U	2	0.93	18.6				
PCB-24		U	2	0.93	18.6				
PCB-25	35.8		2	0.93	18.6				
PCB-26/29	57.4		4	0.93	37.1				
PCB-27	28		2	0.93	18.6				
PCB-31	184		10	0.93	92.9				
PCB-32	49.4		2	0.93	18.6				
PCB-34		U	2	0.93	18.6				
PCB-35		U	2	0.93	18.6				
PCB-36		U	2	0.93	18.6				
PCB-37	106		10	0.93	92.9				
PCB-38		U	2	0.93	18.6				
PCB-39		U	2	0.93	18.6	Tri PCBs	1091.1		
PCB-40/71	127		2	0.93	18.6				
PCB-41		U	100	0.93	928.7				
PCB-42	77.6		2	0.93	18.6				
PCB-43	19.8		2	0.93	18.6				
PCB-44/47/65	350		6	0.93	55.7				
PCB-45/51	70		40	0.93	371.5				

SDG Number	E4RX9	
Lab Sample ID	1555010	
Client ID	**E4SH3**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.227	
theoretical aliquot	10	g
actual aliquot	13.93	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	23.7		2	0.93	18.6				
PCB-48	43.5		2	0.93	18.6				
PCB-49/69	305		4	0.93	37.1				
PCB-50/53	73.3		4	0.93	37.1				
PCB-52	480		2	0.93	18.6				
PCB-54		U	2	0.93	18.6				
PCB-55		U	2	0.93	18.6				
PCB-56	108		2	0.93	18.6				
PCB-57		U	2	0.93	18.6				
PCB-58		U	2	0.93	18.6				
PCB-59/32/75		U	6	0.93	55.7				
PCB-60	39.7		2	0.93	18.6				
PCB-61/70/74/76	361		8	0.93	74.3				
PCB-63		U	2	0.93	18.6				
PCB-64	135		2	0.93	18.6				
PCB-66	268		10	0.93	92.9				
PCB-67		U	2	0.93	18.6				
PCB-68		U	2	0.93	18.6				
PCB-72		U	2	0.93	18.6				
PCB-73		U	2	0.93	18.6				
PCB-77	37.2		2	0.93	18.6			0.0001	0.00372
PCB-78		U	2	0.93	18.6				
PCB-79		U	2	0.93	18.6				
PCB-80		U	2	0.93	18.6				
PCB-81		U	2	0.93	18.6	Tetra PCBs	2518.8	0.0003	0
PCB-82	37.3		2	0.93	18.6				
PCB-83	25.9		2	0.93	18.6				
PCB-84	85.2		2	0.93	18.6				
PCB-85/116/117	57.8		6	0.93	55.7				
PCB-86/87/97/109/119/1	238		12	0.93	111.4				
PCB-88/91	82		4	0.93	37.1				
PCB-89		U	2	0.93	18.6				
PCB-90/101/113	601		6	0.93	55.7				
PCB-92	214		2	0.93	18.6				
PCB-93/100		U	4	0.93	37.1				
PCB-94	24.7		2	0.93	18.6				
PCB-95	354		2	0.93	18.6				
PCB-96		U	2	0.93	18.6				
PCB-98/102	59.9		4	0.93	37.1				
PCB-99	283		2	0.93	18.6				

SDG Number	E4RX9	
Lab Sample ID	1555010	
Client ID	**E4SH3**	
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Matrix	SOIL	
moisture factor	0.227	
theoretical aliquot	10	g
actual aliquot	13.93	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	28		2	0.93	18.6				
PCB-104		U	2	0.93	18.6				
PCB-105	135		2	0.93	18.6			0.00003	0.00405
PCB-106		U	2	0.93	18.6				
PCB-107	33.2		2	0.93	18.6				
PCB-108/124		U	4	0.93	37.1				
PCB-110/115	448		4	0.93	37.1				
PCB-111		U	2	0.93	18.6				
PCB-112		U	2	0.93	18.6				
PCB-114		U	2	0.93	18.6			0.00003	0
PCB-118	334		2	0.93	18.6			0.00003	0.01002
PCB-120		U	2	0.93	18.6				
PCB-121		U	2	0.93	18.6				
PCB-122		U	2	0.93	18.6				
PCB-123		U	2	0.93	18.6			0.00003	0
PCB-126		U	2	0.93	18.6			0.1	0
PCB-127		U	2	0.93	18.6	Penta PCBs	3041		
PCB-128/166	61.1		4	0.93	37.1				
PCB-129/138/163	948		6	0.93	55.7				
PCB-130	53.9		2	0.93	18.6				
PCB-131		U	2	0.93	18.6				
PCB-132	223		2	0.93	18.6				
PCB-133	59.1		2	0.93	18.6				
PCB-134	53.2		2	0.93	18.6				
PCB-135/151	610		4	0.93	37.1				
PCB-136	135		2	0.93	18.6				
PCB-137		U	2	0.93	18.6				
PCB-139/140		U	4	0.93	37.1				
PCB-141	136		2	0.93	18.6				
PCB-142		U	2	0.93	18.6				
PCB-143		U	2	0.93	18.6				
PCB-144	35		2	0.93	18.6				
PCB-145		U	2	0.93	18.6				
PCB-146	343		2	0.93	18.6				
PCB-147/149	1020		4	0.93	37.1				
PCB-148	21.8		2	0.93	18.6				
PCB-150		U	2	0.93	18.6				
PCB-152		U	2	0.93	18.6				
PCB-153/168	1070		4	0.93	37.1				
PCB-154	86.9		2	0.93	18.6				

SDG Number	E4RX9	
Lab Sample ID	1555010	
Client ID	**E4SH3**	
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Matrix	SOIL	
moisture factor	0.227	
theoretical aliquot	10	g
actual aliquot	13.93	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.93	18.6				
PCB-156/157	64.5		4	0.93	37.1			0.00003	0.001935
PCB-158	60.2		2	0.93	18.6				
PCB-159		U	2	0.93	18.6				
PCB-160		U	2	0.93	18.6				
PCB-161		U	2	0.93	18.6				
PCB-162		U	2	0.93	18.6				
PCB-164	57.4		2	0.93	18.6				
PCB-165		U	2	0.93	18.6				
PCB-167	26.3		2	0.93	18.6			0.00003	0.000789
PCB-169		U	2	0.93	18.6	Hexa PCBs	5064.4	0.03	0
PCB-170	297		2	0.93	18.6				
PCB-171/173	89.8		4	0.93	37.1				
PCB-172	63.2		2	0.93	18.6				
PCB-174	381		2	0.93	18.6				
PCB-175		U	2	0.93	18.6				
PCB-176	50		2	0.93	18.6				
PCB-177	287		2	0.93	18.6				
PCB-178	164		2	0.93	18.6				
PCB-179	242		2	0.93	18.6				
PCB-180/193	786		4	0.93	37.1				
PCB-181		U	2	0.93	18.6				
PCB-182		U	2	0.93	18.6				
PCB-183/185	232		4	0.93	37.1				
PCB-184		U	2	0.93	18.6				
PCB-186		U	2	0.93	18.6				
PCB-187	727		2	0.93	18.6				
PCB-188		U	2	0.93	18.6				
PCB-189		U	2	0.93	18.6			0.00003	0
PCB-190	69.7		2	0.93	18.6				
PCB-191		U	2	0.93	18.6				
PCB-192		U	2	0.93	18.6	Hepta PCBs	3388.7		
PCB-194	184		2	0.93	18.6				
PCB-195	86.1		2	0.93	18.6				
PCB-196	94.3		2	0.93	18.6				
PCB-197/200		U	4	0.93	37.1				
PCB-198/199	255		4	0.93	37.1				
PCB-201	28.4		2	0.93	18.6				
PCB-202	62.7		2	0.93	18.6				
PCB-203	131		2	0.93	18.6				

SDG Number	E4RX9	
Lab Sample ID	1555010	
Client ID	**E4SH3**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.227	
theoretical aliquot	10	g
actual aliquot	13.93	g
Prep Date	24-Aug-10	
Run Date	10-Sep-10	
Dilution	10	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.93	18.6				
PCB-205		U	2	0.93	18.6	Octa PCBss	841.5		
PCB-206	61.7		2	0.93	18.6				
PCB-207		U	2	0.93	18.6				
PCB-208		U	2	0.93	18.6	Nona PCBs	61.7		
PCB-209	22.8		2	0.93	18.6	Deca PCBs	22.8		
Total Mono PCBs		U	2	0.93	18.6				
Total Di PCBs	69.2		2	0.93	18.6				
Total Tri PCBs	1090		2	0.93	18.6				
Total Tetra PCBs	2520		2	0.93	18.6				
Total Penta PCBs	3040		2	0.93	18.6				
Total Hexa PCBs	5070		2	0.93	18.6				
Total Hepta PCBs	3390		2	0.93	18.6				
Total Octa PCBs	843		2	0.93	18.6				
Total Nona PCBs	61.7		2	0.93	18.6				
Total Deca PCBs	22.8		2	0.93	18.6				
Total PCB Congeners	16100		2	0.93	18.6		16099.2		
TEQ (WHO2005, ND=0)	0.0205								0.020514

SDG Number	E4RX9	
Lab Sample ID	1555011	
Client ID	**E4SH6**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.206	
theoretical aliquot	10	g
actual aliquot	13.63	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	6620		2	0.92	92.4				
PCB-2	590		2	0.92	92.4				
PCB-3	2020		2	0.92	92.4	Mono PCBs	9230		
PCB-4	26000		2	0.92	92.4				
PCB-5		U	2	0.92	92.4				
PCB-6	37200		2	0.92	92.4				
PCB-7	1120		2	0.92	92.4				
PCB-8	31400		2	0.92	92.4				
PCB-9	1860		2	0.92	92.4				
PCB-10	2330		2	0.92	92.4				
PCB11		U	100	0.92	4620.1				
PCB-12/13	10500		4	0.92	184.8				
PCB-14		U	2	0.92	92.4				
PCB-15	34500	J	10	0.92	462.0	Di PCBs	144910		
PCB-16	44700		2	0.92	92.4				
PCB-17	68400		2	0.92	92.4				
PCB-18/30	112000		4	0.92	184.8				
PCB-19	22200		2	0.92	92.4				
PCB-20/28	188000		20	0.92	924.0				
PCB-21/33	20900		20	0.92	924.0				
PCB-22	47400		10	0.92	462.0				
PCB-23		U	2	0.92	92.4				
PCB-24		U	2	0.92	92.4				
PCB-25	51100		2	0.92	92.4				
PCB-26/29	68000		4	0.92	184.8				
PCB-27	12000		2	0.92	92.4				
PCB-31	138000		10	0.92	462.0				
PCB-32	39800		2	0.92	92.4				
PCB-34	1760		2	0.92	92.4				
PCB-35	1290		2	0.92	92.4				
PCB-36		U	2	0.92	92.4				
PCB-37	35200		10	0.92	462.0				
PCB-38		U	2	0.92	92.4				
PCB-39		U	2	0.92	92.4	Tri PCBs	850750		
PCB-40/71	54900		2	0.92	92.4				
PCB-41	4700		100	0.92	4620.1				
PCB-42	40500		2	0.92	92.4				
PCB-43	7390		2	0.92	92.4				
PCB-44/47/65	124000		6	0.92	277.2				
PCB-45/51	23900		40	0.92	1848.0				

SDG Number	E4RX9	
Lab Sample ID	1555011	
Client ID	**E4SH6**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.206	
theoretical aliquot	10	g
actual aliquot	13.63	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	11500		2	0.92	92.4				
PCB-48	10700		2	0.92	92.4				
PCB-49/69	85900		4	0.92	184.8				
PCB-50/53	25200		4	0.92	184.8				
PCB-52	115000		2	0.92	92.4				
PCB-54	642		2	0.92	92.4				
PCB-55		U	2	0.92	92.4				
PCB-56	25500		2	0.92	92.4				
PCB-57	1260		2	0.92	92.4				
PCB-58	499		2	0.92	92.4				
PCB-59/32/75	8660		6	0.92	277.2				
PCB-60	8580		2	0.92	92.4				
PCB-61/70/74/76	86500		8	0.92	369.6				
PCB-63	4830		2	0.92	92.4				
PCB-64	41800		2	0.92	92.4				
PCB-66	58500		10	0.92	462.0				
PCB-67	2370		2	0.92	92.4				
PCB-68	780		2	0.92	92.4				
PCB-72	1200		2	0.92	92.4				
PCB-73	4220		2	0.92	92.4				
PCB-77	8460		2	0.92	92.4			0.0001	0.846
PCB-78	130		2	0.92	92.4				
PCB-79	432		2	0.92	92.4				
PCB-80	122		2	0.92	92.4				
PCB-81	143		2	0.92	92.4	Tetra PCBs	758318	0.0003	0.0429
PCB-82	4980		2	0.92	92.4				
PCB-83	3750		2	0.92	92.4				
PCB-84	12100		2	0.92	92.4				
PCB-85/116/117	7610		6	0.92	277.2				
PCB-86/87/97/109/119/	20900		12	0.92	554.4				
PCB-88/91	9720		4	0.92	184.8				
PCB-89	821		2	0.92	92.4				
PCB-90/101/113	25400		6	0.92	277.2				
PCB-92	7920		2	0.92	92.4				
PCB-93/100	1960		4	0.92	184.8				
PCB-94	953		2	0.92	92.4				
PCB-95	23300		2	0.92	92.4				
PCB-96	909		2	0.92	92.4				
PCB-98/102	2290		4	0.92	184.8				
PCB-99	15100		2	0.92	92.4				

SDG Number	E4RX9	
Lab Sample ID	1555011	
Client ID	**E4SH6**	
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Matrix	SOIL	
moisture factor	0.206	
theoretical aliquot	10	g
actual aliquot	13.63	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	557		2	0.92	92.4				
PCB-104		U	2	0.92	92.4				
PCB-105	14200		2	0.92	92.4			0.00003	0.426
PCB-106		U	2	0.92	92.4				
PCB-107	2390		2	0.92	92.4				
PCB-108/124	834		4	0.92	184.8				
PCB-110/115	39000		4	0.92	184.8				
PCB-111		U	2	0.92	92.4				
PCB-112		U	2	0.92	92.4				
PCB-114	1080		2	0.92	92.4			0.00003	0.0324
PCB-118	28900		2	0.92	92.4			0.00003	0.867
PCB-120		U	2	0.92	92.4				
PCB-121		U	2	0.92	92.4				
PCB-122	391		2	0.92	92.4				
PCB-123	509		2	0.92	92.4			0.00003	0.01527
PCB-126		U	2	0.92	92.4			0.1	0
PCB-127		U	2	0.92	92.4	Penta PCBs	225574		
PCB-128/166	2360		4	0.92	184.8				
PCB-129/138/163	15200		6	0.92	277.2				
PCB-130	1010		2	0.92	92.4				
PCB-131	211		2	0.92	92.4				
PCB-132	4920		2	0.92	92.4				
PCB-133	394		2	0.92	92.4				
PCB-134	925		2	0.92	92.4				
PCB-135/151	4750		4	0.92	184.8				
PCB-136	1780		2	0.92	92.4				
PCB-137	878		2	0.92	92.4				
PCB-139/140	332		4	0.92	184.8				
PCB-141	2130		2	0.92	92.4				
PCB-142		U	2	0.92	92.4				
PCB-143		U	2	0.92	92.4				
PCB-144	466		2	0.92	92.4				
PCB-145		U	2	0.92	92.4				
PCB-146	2290		2	0.92	92.4				
PCB-147/149	10800		4	0.92	184.8				
PCB-148	107		2	0.92	92.4				
PCB-150		U	2	0.92	92.4				
PCB-152		U	2	0.92	92.4				
PCB-153/168	10300		4	0.92	184.8				
PCB-154	324		2	0.92	92.4				

SDG Number	E4RX9	
Lab Sample ID	1555011	
Client ID	**E4SH6**	
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Matrix	SOIL	
moisture factor	0.206	
theoretical aliquot	10	g
actual aliquot	13.63	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.92	92.4				
PCB-156/157	2550		4	0.92	184.8			0.00003	0.0765
PCB-158	1550		2	0.92	92.4				
PCB-159		U	2	0.92	92.4				
PCB-160		U	2	0.92	92.4				
PCB-161		U	2	0.92	92.4				
PCB-162	108		2	0.92	92.4				
PCB-164	856		2	0.92	92.4				
PCB-165		U	2	0.92	92.4				
PCB-167	728		2	0.92	92.4			0.00003	0.02184
PCB-169		U	2	0.92	92.4	Hexa PCBs	64969	0.03	0
PCB-170	2630		2	0.92	92.4				
PCB-171/173	768		4	0.92	184.8				
PCB-172	457		2	0.92	92.4				
PCB-174	2670		2	0.92	92.4				
PCB-175	103		2	0.92	92.4				
PCB-176	350		2	0.92	92.4				
PCB-177	1710		2	0.92	92.4				
PCB-178	733		2	0.92	92.4				
PCB-179	1240		2	0.92	92.4				
PCB-180/193	5960		4	0.92	184.8				
PCB-181		U	2	0.92	92.4				
PCB-182		U	2	0.92	92.4				
PCB-183/185	1640		4	0.92	184.8				
PCB-184		U	2	0.92	92.4				
PCB-186		U	2	0.92	92.4				
PCB-187	3500		2	0.92	92.4				
PCB-188		U	2	0.92	92.4				
PCB-189	119		2	0.92	92.4			0.00003	0.00357
PCB-190	525		2	0.92	92.4				
PCB-191	97.6		2	0.92	92.4				
PCB-192		U	2	0.92	92.4	Hepta PCBs	22502.6		
PCB-194	1300		2	0.92	92.4				
PCB-195	486		2	0.92	92.4				
PCB-196	661		2	0.92	92.4				
PCB-197/200	210		4	0.92	184.8				
PCB-198/199	1560		4	0.92	184.8				
PCB-201	174		2	0.92	92.4				
PCB-202	367		2	0.92	92.4				
PCB-203	876		2	0.92	92.4				

SDG Number	E4RX9	
Lab Sample ID	1555011	
Client ID	**E4SH6**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.206	
theoretical aliquot	10	g
actual aliquot	13.63	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.92	92.4				
PCB-205		U	2	0.92	92.4	Octa PCBss	5634		
PCB-206	671		2	0.92	92.4				
PCB-207		U	2	0.92	92.4				
PCB-208	188		2	0.92	92.4	Nona PCBs	859		
PCB-209	341		2	0.92	92.4	Deca PCBs	341		
Total Mono PCBs	9220		2	0.92	92.4				
Total Di PCBs	145000		2	0.92	92.4				
Total Tri PCBs	851000		2	0.92	92.4				
Total Tetra PCBs	759000		2	0.92	92.4				
Total Penta PCBs	226000		2	0.92	92.4				
Total Hexa PCBs	65000		2	0.92	92.4				
Total Hepta PCBs	22500		2	0.92	92.4				
Total Octa PCBs	5630		2	0.92	92.4				
Total Nona PCBs	859		2	0.92	92.4				
Total Deca PCBs	341		2	0.92	92.4				
Total PCB Congeners	2080000		2	0.92	92.4		2083087.6		
TEQ (WHO2005, ND=0)	2.33								2.33148

SDG Number	E4RX9	
Lab Sample ID	1555012	
Client ID	**E4SJ1**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.271	
theoretical aliquot	10	g
actual aliquot	14.41	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	150		2	0.95	95.2				
PCB-2	178		2	0.95	95.2				
PCB-3	325		2	0.95	95.2	Mono PCBs	653		
PCB-4	2110		2	0.95	95.2				
PCB-5		U	2	0.95	95.2				
PCB-6	27000		2	0.95	95.2				
PCB-7	256		2	0.95	95.2				
PCB-8	8620		2	0.95	95.2				
PCB-9	398		2	0.95	95.2				
PCB-10	130		2	0.95	95.2				
PCB11		U	100	0.95	4759.7				
PCB-12/13	4330		4	0.95	190.4				
PCB-14		U	2	0.95	95.2				
PCB-15	4970	J	10	0.95	476.0	Di PCBs	47814		
PCB-16	23200		2	0.95	95.2				
PCB-17	41500		2	0.95	95.2				
PCB-18/30	85000		4	0.95	190.4				
PCB-19	4940		2	0.95	95.2				
PCB-20/28	157000		20	0.95	951.9				
PCB-21/33	26500		20	0.95	951.9				
PCB-22	35300		10	0.95	476.0				
PCB-23		U	2	0.95	95.2				
PCB-24		U	2	0.95	95.2				
PCB-25	53500		2	0.95	95.2				
PCB-26/29	75600		4	0.95	190.4				
PCB-27	4390		2	0.95	95.2				
PCB-31	133000		10	0.95	476.0				
PCB-32	19200		2	0.95	95.2				
PCB-34	1940		2	0.95	95.2				
PCB-35	735		2	0.95	95.2				
PCB-36		U	2	0.95	95.2				
PCB-37	22300		10	0.95	476.0				
PCB-38		U	2	0.95	95.2				
PCB-39		U	2	0.95	95.2	Tri PCBs	684105		
PCB-40/71		U	2	0.95	95.2				
PCB-41		U	100	0.95	4759.7				
PCB-42		U	2	0.95	95.2				
PCB-43		U	2	0.95	95.2				
PCB-44/47/65		U	6	0.95	285.6				
PCB-45/51	32700		40	0.95	1903.9				

SDG Number	E4RX9	
Lab Sample ID	1555012	
Client ID	**E4SJ1**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.271	
theoretical aliquot	10	g
actual aliquot	14.41	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	11600		2	0.95	95.2				
PCB-48		U	2	0.95	95.2				
PCB-49/69		U	4	0.95	190.4				
PCB-50/53	24800		4	0.95	190.4				
PCB-52		U	2	0.95	95.2				
PCB-54	423		2	0.95	95.2				
PCB-55		U	2	0.95	95.2				
PCB-56	60200		2	0.95	95.2				
PCB-57	1290		2	0.95	95.2				
PCB-58	735		2	0.95	95.2				
PCB-59/32/75		U	6	0.95	285.6				
PCB-60	11100		2	0.95	95.2				
PCB-61/70/74/76	204000		8	0.95	380.8				
PCB-63	7130		2	0.95	95.2				
PCB-64		U	2	0.95	95.2				
PCB-66	119000		10	0.95	476.0				
PCB-67	4150		2	0.95	95.2				
PCB-68	1010		2	0.95	95.2				
PCB-72	1660		2	0.95	95.2				
PCB-73		U	2	0.95	95.2				
PCB-77	12300		2	0.95	95.2			0.0001	1.23
PCB-78	254		2	0.95	95.2				
PCB-79	879		2	0.95	95.2				
PCB-80	194		2	0.95	95.2				
PCB-81	170		2	0.95	95.2	Tetra PCBs	493595	0.0003	0.051
PCB-82	9430		2	0.95	95.2				
PCB-83	7790		2	0.95	95.2				
PCB-84	29000		2	0.95	95.2				
PCB-85/116/117	15600		6	0.95	285.6				
PCB-86/87/97/109/119/1	42300		12	0.95	571.2				
PCB-88/91	16300		4	0.95	190.4				
PCB-89	2680		2	0.95	95.2				
PCB-90/101/113	54800		6	0.95	285.6				
PCB-92	12000		2	0.95	95.2				
PCB-93/100	1570		4	0.95	190.4				
PCB-94	799		2	0.95	95.2				
PCB-95	54200		2	0.95	95.2				
PCB-96	1480		2	0.95	95.2				
PCB-98/102	5390		4	0.95	190.4				
PCB-99	32500		2	0.95	95.2				

SDG Number	E4RX9	
Lab Sample ID	1555012	
Client ID	**E4SJ1**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.271	
theoretical aliquot	10	g
actual aliquot	14.41	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	668		2	0.95	95.2				
PCB-104		U	2	0.95	95.2				
PCB-105	27600		2	0.95	95.2			0.00003	0.828
PCB-106		U	2	0.95	95.2				
PCB-107	4560		2	0.95	95.2				
PCB-108/124	1350		4	0.95	190.4				
PCB-110/115	82300		4	0.95	190.4				
PCB-111		U	2	0.95	95.2				
PCB-112		U	2	0.95	95.2				
PCB-114	1800		2	0.95	95.2			0.00003	0.054
PCB-118	64600		2	0.95	95.2			0.00003	1.938
PCB-120	166		2	0.95	95.2				
PCB-121		U	2	0.95	95.2				
PCB-122	687		2	0.95	95.2				
PCB-123	1110		2	0.95	95.2			0.00003	0.0333
PCB-126		U	2	0.95	95.2			0.1	0
PCB-127		U	2	0.95	95.2	Penta PCBs	470680		
PCB-128/166	3390		4	0.95	190.4				
PCB-129/138/163	19200		6	0.95	285.6				
PCB-130	1380		2	0.95	95.2				
PCB-131	273		2	0.95	95.2				
PCB-132	7930		2	0.95	95.2				
PCB-133	337		2	0.95	95.2				
PCB-134	1250		2	0.95	95.2				
PCB-135/151	5260		4	0.95	190.4				
PCB-136	2290		2	0.95	95.2				
PCB-137	1180		2	0.95	95.2				
PCB-139/140	429		4	0.95	190.4				
PCB-141	2550		2	0.95	95.2				
PCB-142		U	2	0.95	95.2				
PCB-143		U	2	0.95	95.2				
PCB-144	560		2	0.95	95.2				
PCB-145		U	2	0.95	95.2				
PCB-146	2680		2	0.95	95.2				
PCB-147/149	13300		4	0.95	190.4				
PCB-148		U	2	0.95	95.2				
PCB-150		U	2	0.95	95.2				
PCB-152		U	2	0.95	95.2				
PCB-153/168	12500		4	0.95	190.4				
PCB-154	249		2	0.95	95.2				

SDG Number	E4RX9	
Lab Sample ID	1555012	
Client ID	**E4SJ1**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.271	
theoretical aliquot	10	g
actual aliquot	14.41	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.95	95.2				
PCB-156/157	3310		4	0.95	190.4			0.00003	0.0993
PCB-158	1810		2	0.95	95.2				
PCB-159		U	2	0.95	95.2				
PCB-160		U	2	0.95	95.2				
PCB-161		U	2	0.95	95.2				
PCB-162	101		2	0.95	95.2				
PCB-164	1170		2	0.95	95.2				
PCB-165		U	2	0.95	95.2				
PCB-167	884		2	0.95	95.2			0.00003	0.02652
PCB-169		U	2	0.95	95.2	Hexa PCBs	82033	0.03	0
PCB-170	2560		2	0.95	95.2				
PCB-171/173	704		4	0.95	190.4				
PCB-172	433		2	0.95	95.2				
PCB-174	2470		2	0.95	95.2				
PCB-175		U	2	0.95	95.2				
PCB-176	293		2	0.95	95.2				
PCB-177	1480		2	0.95	95.2				
PCB-178	552		2	0.95	95.2				
PCB-179	950		2	0.95	95.2				
PCB-180/193	5410		4	0.95	190.4				
PCB-181		U	2	0.95	95.2				
PCB-182		U	2	0.95	95.2				
PCB-183/185	1440		4	0.95	190.4				
PCB-184		U	2	0.95	95.2				
PCB-186		U	2	0.95	95.2				
PCB-187	2840		2	0.95	95.2				
PCB-188		U	2	0.95	95.2				
PCB-189	115		2	0.95	95.2			0.00003	0.00345
PCB-190	522		2	0.95	95.2				
PCB-191	100		2	0.95	95.2				
PCB-192		U	2	0.95	95.2	Hepta PCBs	19869		
PCB-194	1510		2	0.95	95.2				
PCB-195	505		2	0.95	95.2				
PCB-196	662		2	0.95	95.2				
PCB-197/200	194		4	0.95	190.4				
PCB-198/199	1530		4	0.95	190.4				
PCB-201	161		2	0.95	95.2				
PCB-202	323		2	0.95	95.2				
PCB-203	871		2	0.95	95.2				

SDG Number	E4RX9	
Lab Sample ID	1555012	
Client ID	**E4SJ1**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.271	
theoretical aliquot	10	g
actual aliquot	14.41	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.95	95.2				
PCB-205		U	2	0.95	95.2	Octa PCBss	5756		
PCB-206	717		2	0.95	95.2				
PCB-207		U	2	0.95	95.2				
PCB-208	177		2	0.95	95.2	Nona PCBs	894		
PCB-209	159		2	0.95	95.2	Deca PCBs	159		
Total Mono PCBs	653		2	0.95	95.2				
Total Di PCBs	47800		2	0.95	95.2				
Total Tri PCBs	684000		2	0.95	95.2				
Total Tetra PCBs	493000		2	0.95	95.2				
Total Penta PCBs	471000		2	0.95	95.2				
Total Hexa PCBs	82000		2	0.95	95.2				
Total Hepta PCBs	19900		2	0.95	95.2				
Total Octa PCBs	5760		2	0.95	95.2				
Total Nona PCBs	894		2	0.95	95.2				
Total Deca PCBs	159		2	0.95	95.2				
Total PCB Congeners	1800000		2	0.95	95.2		1805558		
TEQ (WHO2005, ND=0)	4.27								4.26357

SDG Number	E4RX9	
Lab Sample ID	1555013	
Client ID	**E4SJ9**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.149	
theoretical aliquot	10	g
actual aliquot	12.86	g
Prep Date	24-Aug-10	
Run Date	8-Oct-10	
Dilution	40	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	685		2	0.91	73.1				
PCB-2		U	2	0.91	73.1				
PCB-3	388		2	0.91	73.1	Mono PCBs	1073		
PCB-4	14300		2	0.91	73.1				
PCB-5	693		2	0.91	73.1				
PCB-6	13200		2	0.91	73.1				
PCB-7	989		2	0.91	73.1				
PCB-8	25600		2	0.91	73.1				
PCB-9	1780		2	0.91	73.1				
PCB-10	1390		2	0.91	73.1				
PCB11		U	100	0.91	3655.0				
PCB-12/13	3120		4	0.91	146.2				
PCB-14		U	2	0.91	73.1				
PCB-15	24300	J	10	0.91	365.5	Di PCBs	85372		
PCB-16	24000		2	0.91	73.1				
PCB-17	28100		2	0.91	73.1				
PCB-18/30	50900		4	0.91	146.2				
PCB-19	10800		2	0.91	73.1				
PCB-20/28	66500		20	0.91	731.0				
PCB-21/33	23900		20	0.91	731.0				
PCB-22	19800		10	0.91	365.5				
PCB-23		U	2	0.91	73.1				
PCB-24		U	2	0.91	73.1				
PCB-25	9140		2	0.91	73.1				
PCB-26/29	16700		4	0.91	146.2				
PCB-27	6160		2	0.91	73.1				
PCB-31	50700		10	0.91	365.5				
PCB-32	17900		2	0.91	73.1				
PCB-34	385		2	0.91	73.1				
PCB-35	722		2	0.91	73.1				
PCB-36		U	2	0.91	73.1				
PCB-37	22100		10	0.91	365.5				
PCB-38		U	2	0.91	73.1				
PCB-39		U	2	0.91	73.1	Tri PCBs	347807		
PCB-40/71	25800		2	0.91	73.1				
PCB-41		U	100	0.91	3655.0				
PCB-42	16600		2	0.91	73.1				
PCB-43	3090		2	0.91	73.1				
PCB-44/47/65	55700		6	0.91	219.3				
PCB-45/51	13000		40	0.91	1462.0				

SDG Number	E4RX9	
Lab Sample ID	1555013	
Client ID	**E4SJ9**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.149	
theoretical aliquot	10	g
actual aliquot	12.86	g
Prep Date	24-Aug-10	
Run Date	8-Oct-10	
Dilution	40	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	5410		2	0.91	73.1				
PCB-48	7510		2	0.91	73.1				
PCB-49/69	32200		4	0.91	146.2				
PCB-50/53	10200		4	0.91	146.2				
PCB-52	52200		2	0.91	73.1				
PCB-54	218		2	0.91	73.1				
PCB-55	942		2	0.91	73.1				
PCB-56	15600		2	0.91	73.1				
PCB-57	162		2	0.91	73.1				
PCB-58	160		2	0.91	73.1				
PCB-59/32/75	4840		6	0.91	219.3				
PCB-60	5840		2	0.91	73.1				
PCB-61/70/74/76	44300		8	0.91	292.4				
PCB-63	1160		2	0.91	73.1				
PCB-64	19300		2	0.91	73.1				
PCB-66	31500		10	0.91	365.5				
PCB-67	940		2	0.91	73.1				
PCB-68	162		2	0.91	73.1				
PCB-72	280		2	0.91	73.1				
PCB-73	985		2	0.91	73.1				
PCB-77	4340		2	0.91	73.1			0.0001	0.434
PCB-78	96.8		2	0.91	73.1				
PCB-79	285		2	0.91	73.1				
PCB-80		U	2	0.91	73.1				
PCB-81	113		2	0.91	73.1	Tetra PCBs	352933.8	0.0003	0.0339
PCB-82	3130		2	0.91	73.1				
PCB-83	1070		2	0.91	73.1				
PCB-84	6520		2	0.91	73.1				
PCB-85/116/117	3740		6	0.91	219.3				
PCB-86/87/97/109/119/	11900		12	0.91	438.6				
PCB-88/91	3700		4	0.91	146.2				
PCB-89	598		2	0.91	73.1				
PCB-90/101/113	11900		6	0.91	219.3				
PCB-92	2730		2	0.91	73.1				
PCB-93/100	422		4	0.91	146.2				
PCB-94	194		2	0.91	73.1				
PCB-95	12300		2	0.91	73.1				
PCB-96	354		2	0.91	73.1				
PCB-98/102	1090		4	0.91	146.2				
PCB-99	7320		2	0.91	73.1				

SDG Number	E4RX9	
Lab Sample ID	1555013	
Client ID	**E4SJ9**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.149	
theoretical aliquot	10	g
actual aliquot	12.86	g
Prep Date	24-Aug-10	
Run Date	8-Oct-10	
Dilution	40	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	136		2	0.91	73.1				
PCB-104		U	2	0.91	73.1				
PCB-105	6500		2	0.91	73.1			0.00003	0.195
PCB-106		U	2	0.91	73.1				
PCB-107	849		2	0.91	73.1				
PCB-108/124	394		4	0.91	146.2				
PCB-110/115	18200		4	0.91	146.2				
PCB-111		U	2	0.91	73.1				
PCB-112		U	2	0.91	73.1				
PCB-114	358		2	0.91	73.1			0.00003	0.01074
PCB-118	11900		2	0.91	73.1			0.00003	0.357
PCB-120		U	2	0.91	73.1				
PCB-121		U	2	0.91	73.1				
PCB-122	226		2	0.91	73.1				
PCB-123	297		2	0.91	73.1			0.00003	0.00891
PCB-126		U	2	0.91	73.1			0.1	0
PCB-127		U	2	0.91	73.1	Penta PCBs	105828		
PCB-128/166	816		4	0.91	146.2				
PCB-129/138/163	4800		6	0.91	219.3				
PCB-130	346		2	0.91	73.1				
PCB-131	93.7		2	0.91	73.1				
PCB-132	1760		2	0.91	73.1				
PCB-133		U	2	0.91	73.1				
PCB-134	378		2	0.91	73.1				
PCB-135/151	1270		4	0.91	146.2				
PCB-136	597		2	0.91	73.1				
PCB-137	292		2	0.91	73.1				
PCB-139/140		U	4	0.91	146.2				
PCB-141	728		2	0.91	73.1				
PCB-142		U	2	0.91	73.1				
PCB-143		U	2	0.91	73.1				
PCB-144	200		2	0.91	73.1				
PCB-145		U	2	0.91	73.1				
PCB-146	566		2	0.91	73.1				
PCB-147/149	3150		4	0.91	146.2				
PCB-148		U	2	0.91	73.1				
PCB-150		U	2	0.91	73.1				
PCB-152		U	2	0.91	73.1				
PCB-153/168	2940		4	0.91	146.2				
PCB-154		U	2	0.91	73.1				

SDG Number	E4RX9	
Lab Sample ID	1555013	
Client ID	**E4SJ9**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.149	
theoretical aliquot	10	g
actual aliquot	12.86	g
Prep Date	24-Aug-10	
Run Date	8-Oct-10	
Dilution	40	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.91	73.1				
PCB-156/157	730		4	0.91	146.2			0.00003	0.0219
PCB-158	515		2	0.91	73.1				
PCB-159		U	2	0.91	73.1				
PCB-160		U	2	0.91	73.1				
PCB-161		U	2	0.91	73.1				
PCB-162	92.4		2	0.91	73.1				
PCB-164	286		2	0.91	73.1				
PCB-165		U	2	0.91	73.1				
PCB-167	244		2	0.91	73.1			0.00003	0.00732
PCB-169		U	2	0.91	73.1	Hexa PCBs	19804.1	0.03	0
PCB-170	505		2	0.91	73.1				
PCB-171/173	160		4	0.91	146.2				
PCB-172	86.5		2	0.91	73.1				
PCB-174	495		2	0.91	73.1				
PCB-175		U	2	0.91	73.1				
PCB-176		U	2	0.91	73.1				
PCB-177	302		2	0.91	73.1				
PCB-178	109		2	0.91	73.1				
PCB-179	213		2	0.91	73.1				
PCB-180/193	1020		4	0.91	146.2				
PCB-181		U	2	0.91	73.1				
PCB-182		U	2	0.91	73.1				
PCB-183/185	295		4	0.91	146.2				
PCB-184		U	2	0.91	73.1				
PCB-186		U	2	0.91	73.1				
PCB-187	573		2	0.91	73.1				
PCB-188		U	2	0.91	73.1				
PCB-189		U	2	0.91	73.1			0.00003	0
PCB-190	103		2	0.91	73.1				
PCB-191		U	2	0.91	73.1				
PCB-192		U	2	0.91	73.1	Hepta PCBs	3861.5		
PCB-194	216		2	0.91	73.1				
PCB-195	81.2		2	0.91	73.1				
PCB-196	104		2	0.91	73.1				
PCB-197/200		U	4	0.91	146.2				
PCB-198/199	240		4	0.91	146.2				
PCB-201		U	2	0.91	73.1				
PCB-202		U	2	0.91	73.1				
PCB-203	138		2	0.91	73.1				

SDG Number	E4RX9	
Lab Sample ID	1555013	
Client ID	**E4SJ9**	
Date Collected	14-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.149	
theoretical aliquot	10	g
actual aliquot	12.86	g
Prep Date	24-Aug-10	
Run Date	8-Oct-10	
Dilution	40	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.91	73.1				
PCB-205		U	2	0.91	73.1	Octa PCBss	779.2		
PCB-206	119		2	0.91	73.1				
PCB-207		U	2	0.91	73.1				
PCB-208		U	2	0.91	73.1	Nona PCBs	119		
PCB-209		U	2	0.91	73.1	Deca PCBs	0		
Total Mono PCBs	1070		2	0.91	73.1				
Total Di PCBs	85500		2	0.91	73.1				
Total Tri PCBs	348000		2	0.91	73.1				
Total Tetra PCBs	353000		2	0.91	73.1				
Total Penta PCBs	106000		2	0.91	73.1				
Total Hexa PCBs	19800		2	0.91	73.1				
Total Hepta PCBs	3860		2	0.91	73.1				
Total Octa PCBs	779		2	0.91	73.1				
Total Nona PCBs	119		2	0.91	73.1				
Total Deca PCBs		U	2	0.91	73.1				
Total PCB Congeners	918000		2	0.91	73.1		917577.6		
TEQ (WHO2005, ND=0)	1.07								1.06877

SDG Number	E4RX9	
Lab Sample ID	1555015	
Client ID	**E4SL1**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.267	
theoretical aliquot	10	g
actual aliquot	13.76	g
Prep Date	24-Aug-10	
Run Date	14-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	72.6		2	0.99	39.7				
PCB-2		U	2	0.99	39.7				
PCB-3	55.3		2	0.99	39.7	Mono PCBs	127.9		
PCB-4	190		2	0.99	39.7				
PCB-5		U	2	0.99	39.7				
PCB-6	97.9		2	0.99	39.7				
PCB-7		U	2	0.99	39.7				
PCB-8	254		2	0.99	39.7				
PCB-9		U	2	0.99	39.7				
PCB-10		U	2	0.99	39.7				
PCB11		U	100	0.99	1982.9				
PCB-12/13		U	4	0.99	79.3				
PCB-14		U	2	0.99	39.7				
PCB-15		U	10	0.99	198.3	Di PCBs	541.9		
PCB-16	342		2	0.99	39.7				
PCB-17	469		2	0.99	39.7				
PCB-18/30	1040		4	0.99	79.3				
PCB-19	95.6		2	0.99	39.7				
PCB-20/28	1910		20	0.99	396.6				
PCB-21/33	881		20	0.99	396.6				
PCB-22	542		10	0.99	198.3				
PCB-23		U	2	0.99	39.7				
PCB-24		U	2	0.99	39.7				
PCB-25	117		2	0.99	39.7				
PCB-26/29	259		4	0.99	79.3				
PCB-27	75.1		2	0.99	39.7				
PCB-31	1750		10	0.99	198.3				
PCB-32	307		2	0.99	39.7				
PCB-34		U	2	0.99	39.7				
PCB-35		U	2	0.99	39.7				
PCB-36		U	2	0.99	39.7				
PCB-37	585		10	0.99	198.3				
PCB-38		U	2	0.99	39.7				
PCB-39		U	2	0.99	39.7	Tri PCBs	8372.7		
PCB-40/71	1300		2	0.99	39.7				
PCB-41		U	100	0.99	1982.9				
PCB-42	686		2	0.99	39.7				
PCB-43	193		2	0.99	39.7				
PCB-44/47/65	4200		6	0.99	119.0				
PCB-45/51	445		40	0.99	793.2				

SDG Number	E4RX9	
Lab Sample ID	1555015	
Client ID	**E4SL1**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.267	
theoretical aliquot	10	g
actual aliquot	13.76	g
Prep Date	24-Aug-10	
Run Date	14-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	157		2	0.99	39.7				
PCB-48	556		2	0.99	39.7				
PCB-49/69	2310		4	0.99	79.3				
PCB-50/53	378		4	0.99	79.3				
PCB-52	7980		2	0.99	39.7				
PCB-54		U	2	0.99	39.7				
PCB-55		U	2	0.99	39.7				
PCB-56	1540		2	0.99	39.7				
PCB-57		U	2	0.99	39.7				
PCB-58		U	2	0.99	39.7				
PCB-59/32/75	197		6	0.99	119.0				
PCB-60	757		2	0.99	39.7				
PCB-61/70/74/76	8030		8	0.99	158.6				
PCB-63	114		2	0.99	39.7				
PCB-64	1630		2	0.99	39.7				
PCB-66	3360		10	0.99	198.3				
PCB-67	70.9		2	0.99	39.7				
PCB-68		U	2	0.99	39.7				
PCB-72		U	2	0.99	39.7				
PCB-73		U	2	0.99	39.7				
PCB-77	316		2	0.99	39.7			0.0001	0.0316
PCB-78		U	2	0.99	39.7				
PCB-79	154		2	0.99	39.7				
PCB-80		U	2	0.99	39.7				
PCB-81		U	2	0.99	39.7	Tetra PCBs	34373.9	0.0003	0
PCB-82	1220		2	0.99	39.7				
PCB-83	468		2	0.99	39.7				
PCB-84	2800		2	0.99	39.7				
PCB-85/116/117	1540		6	0.99	119.0				
PCB-86/87/97/109/119/	7140		12	0.99	238.0				
PCB-88/91	1220		4	0.99	79.3				
PCB-89	77.4		2	0.99	39.7				
PCB-90/101/113	10300		6	0.99	119.0				
PCB-92	1720		2	0.99	39.7				
PCB-93/100		U	4	0.99	79.3				
PCB-94		U	2	0.99	39.7				
PCB-95	7970		2	0.99	39.7				
PCB-96	54.6		2	0.99	39.7				
PCB-98/102	263		4	0.99	79.3				
PCB-99	4560		2	0.99	39.7				

SDG Number	E4RX9	
Lab Sample ID	1555015	
Client ID	**E4SL1**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.267	
theoretical aliquot	10	g
actual aliquot	13.76	g
Prep Date	24-Aug-10	
Run Date	14-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	41.9		2	0.99	39.7				
PCB-104		U	2	0.99	39.7				
PCB-105	4160		2	0.99	39.7			0.00003	0.1248
PCB-106		U	2	0.99	39.7				
PCB-107	515		2	0.99	39.7				
PCB-108/124	314		4	0.99	79.3				
PCB-110/115	11600		4	0.99	79.3				
PCB-111		U	2	0.99	39.7				
PCB-112		U	2	0.99	39.7				
PCB-114	228		2	0.99	39.7			0.00003	0.00684
PCB-118	9870		2	0.99	39.7			0.00003	0.2961
PCB-120		U	2	0.99	39.7				
PCB-121		U	2	0.99	39.7				
PCB-122	79.2		2	0.99	39.7				
PCB-123	166		2	0.99	39.7			0.00003	0.00498
PCB-126	73.7		2	0.99	39.7			0.1	7.37
PCB-127		U	2	0.99	39.7	Penta PCBs	66380.8		
PCB-128/166	1550		4	0.99	79.3				
PCB-129/138/163	9560		6	0.99	119.0				
PCB-130	545		2	0.99	39.7				
PCB-131	153		2	0.99	39.7				
PCB-132	3140		2	0.99	39.7				
PCB-133	93.3		2	0.99	39.7				
PCB-134	554		2	0.99	39.7				
PCB-135/151	2500		4	0.99	79.3				
PCB-136	1100		2	0.99	39.7				
PCB-137	502		2	0.99	39.7				
PCB-139/140	168		4	0.99	79.3				
PCB-141	1580		2	0.99	39.7				
PCB-142		U	2	0.99	39.7				
PCB-143		U	2	0.99	39.7				
PCB-144	387		2	0.99	39.7				
PCB-145		U	2	0.99	39.7				
PCB-146	1070		2	0.99	39.7				
PCB-147/149	6170		4	0.99	79.3				
PCB-148		U	2	0.99	39.7				
PCB-150		U	2	0.99	39.7				
PCB-152		U	2	0.99	39.7				
PCB-153/168	6460		4	0.99	79.3				
PCB-154	57.3		2	0.99	39.7				

SDG Number	E4RX9	
Lab Sample ID	1555015	
Client ID	**E4SL1**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.267	
theoretical aliquot	10	g
actual aliquot	13.76	g
Prep Date	24-Aug-10	
Run Date	14-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.99	39.7				
PCB-156/157	1410		4	0.99	79.3			0.00003	0.0423
PCB-158	922		2	0.99	39.7				
PCB-159	46.3		2	0.99	39.7				
PCB-160		U	2	0.99	39.7				
PCB-161		U	2	0.99	39.7				
PCB-162	55.4		2	0.99	39.7				
PCB-164	554		2	0.99	39.7				
PCB-165		U	2	0.99	39.7				
PCB-167	416		2	0.99	39.7			0.00003	0.01248
PCB-169		U	2	0.99	39.7	Hexa PCBs	38993.3	0.03	0
PCB-170	1400		2	0.99	39.7				
PCB-171/173	440		4	0.99	79.3				
PCB-172	239		2	0.99	39.7				
PCB-174	1460		2	0.99	39.7				
PCB-175	62.6		2	0.99	39.7				
PCB-176	195		2	0.99	39.7				
PCB-177	787		2	0.99	39.7				
PCB-178	289		2	0.99	39.7				
PCB-179	620		2	0.99	39.7				
PCB-180/193	3130		4	0.99	79.3				
PCB-181		U	2	0.99	39.7				
PCB-182		U	2	0.99	39.7				
PCB-183/185	957		4	0.99	79.3				
PCB-184		U	2	0.99	39.7				
PCB-186		U	2	0.99	39.7				
PCB-187	1570		2	0.99	39.7				
PCB-188		U	2	0.99	39.7				
PCB-189	64.4		2	0.99	39.7			0.00003	0.001932
PCB-190	260		2	0.99	39.7				
PCB-191	50.1		2	0.99	39.7				
PCB-192		U	2	0.99	39.7	Hepta PCBs	11524.1		
PCB-194	666		2	0.99	39.7				
PCB-195	229		2	0.99	39.7				
PCB-196	364		2	0.99	39.7				
PCB-197/200	118		4	0.99	79.3				
PCB-198/199	826		4	0.99	79.3				
PCB-201	95.5		2	0.99	39.7				
PCB-202	182		2	0.99	39.7				
PCB-203	493		2	0.99	39.7				

SDG Number	E4RX9	
Lab Sample ID	1555015	
Client ID	**E4SL1**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.267	
theoretical aliquot	10	g
actual aliquot	13.76	g
Prep Date	24-Aug-10	
Run Date	14-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.99	39.7				
PCB-205		U	2	0.99	39.7	Octa PCBss	2973.5		
PCB-206	513		2	0.99	39.7				
PCB-207	54.8		2	0.99	39.7				
PCB-208	160		2	0.99	39.7	Nona PCBs	727.8		
PCB-209	290		2	0.99	39.7	Deca PCBs	290		
Total Mono PCBs	128		2	0.99	39.7				
Total Di PCBs	543		2	0.99	39.7				
Total Tri PCBs	8370		2	0.99	39.7				
Total Tetra PCBs	34400		2	0.99	39.7				
Total Penta PCBs	66400		2	0.99	39.7				
Total Hexa PCBs	39000		2	0.99	39.7				
Total Hepta PCBs	11500		2	0.99	39.7				
Total Octa PCBs	2970		2	0.99	39.7				
Total Nona PCBs	728		2	0.99	39.7				
Total Deca PCBs	290		2	0.99	39.7				
Total PCB Congeners	164000		2	0.99	39.7		164305.9		
TEQ (WHO2005, ND=0)	7.89								7.891032

SDG Number	E4RX9	
Lab Sample ID	1555014	
Client ID	**E4SL7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.313	
theoretical aliquot	10	g
actual aliquot	15.21	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1	271		2	0.96	38.3				
PCB-2		U	2	0.96	38.3				
PCB-3	112		2	0.96	38.3	Mono PCBs	383		
PCB-4	3270		2	0.96	38.3				
PCB-5		U	2	0.96	38.3				
PCB-6	4080		2	0.96	38.3				
PCB-7	202		2	0.96	38.3				
PCB-8	5360		2	0.96	38.3				
PCB-9	341		2	0.96	38.3				
PCB-10	277		2	0.96	38.3				
PCB11		U	100	0.96	1914.0				
PCB-12/13	1170		4	0.96	76.6				
PCB-14		U	2	0.96	38.3				
PCB-15	6320	J	10	0.96	191.4	Di PCBs	21020		
PCB-16	5310		2	0.96	38.3				
PCB-17	7720		2	0.96	38.3				
PCB-18/30	13600		4	0.96	76.6				
PCB-19	2030		2	0.96	38.3				
PCB-20/28	24000		20	0.96	382.8				
PCB-21/33	5600		20	0.96	382.8				
PCB-22	6230		10	0.96	191.4				
PCB-23		U	2	0.96	38.3				
PCB-24		U	2	0.96	38.3				
PCB-25	3970		2	0.96	38.3				
PCB-26/29	6530		4	0.96	76.6				
PCB-27	1620		2	0.96	38.3				
PCB-31	17400		10	0.96	191.4				
PCB-32	4790		2	0.96	38.3				
PCB-34	151		2	0.96	38.3				
PCB-35	226		2	0.96	38.3				
PCB-36		U	2	0.96	38.3				
PCB-37	6280		10	0.96	191.4				
PCB-38		U	2	0.96	38.3				
PCB-39		U	2	0.96	38.3	Tri PCBs	105457		
PCB-40/71	7340		2	0.96	38.3				
PCB-41		U	100	0.96	1914.0				
PCB-42	4910		2	0.96	38.3				
PCB-43	947		2	0.96	38.3				
PCB-44/47/65	16600		6	0.96	114.8				
PCB-45/51	3370		40	0.96	765.6				

SDG Number	E4RX9	
Lab Sample ID	1555014	
Client ID	**E4SL7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.313	
theoretical aliquot	10	g
actual aliquot	15.21	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	1370		2	0.96	38.3				
PCB-48	2440		2	0.96	38.3				
PCB-49/69	10700		4	0.96	76.6				
PCB-50/53	2730		4	0.96	76.6				
PCB-52	16600		2	0.96	38.3				
PCB-54	47.9		2	0.96	38.3				
PCB-55		U	2	0.96	38.3				
PCB-56	5460		2	0.96	38.3				
PCB-57	76.4		2	0.96	38.3				
PCB-58	49.5		2	0.96	38.3				
PCB-59/32/75	1450		6	0.96	114.8				
PCB-60	1930		2	0.96	38.3				
PCB-61/70/74/76	17100		8	0.96	153.1				
PCB-63	485		2	0.96	38.3				
PCB-64	6400		2	0.96	38.3				
PCB-66	12500		10	0.96	191.4				
PCB-67	348		2	0.96	38.3				
PCB-68	61.9		2	0.96	38.3				
PCB-72	107		2	0.96	38.3				
PCB-73		U	2	0.96	38.3				
PCB-77	1440		2	0.96	38.3			0.0001	0.144
PCB-78		U	2	0.96	38.3				
PCB-79		U	2	0.96	38.3				
PCB-80		U	2	0.96	38.3				
PCB-81	41.1		2	0.96	38.3	Tetra PCBs	114503.8	0.0003	0.01233
PCB-82	1100		2	0.96	38.3				
PCB-83	327		2	0.96	38.3				
PCB-84	2150		2	0.96	38.3				
PCB-85/116/117	1390		6	0.96	114.8				
PCB-86/87/97/109/119/1	4560		12	0.96	229.7				
PCB-88/91	1330		4	0.96	76.6				
PCB-89	181		2	0.96	38.3				
PCB-90/101/113	5370		6	0.96	114.8				
PCB-92	1260		2	0.96	38.3				
PCB-93/100	129		4	0.96	76.6				
PCB-94	93.3		2	0.96	38.3				
PCB-95	4500		2	0.96	38.3				
PCB-96	107		2	0.96	38.3				
PCB-98/102	442		4	0.96	76.6				
PCB-99	3420		2	0.96	38.3				

SDG Number	E4RX9	
Lab Sample ID	1555014	
Client ID	**E4SL7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.313	
theoretical aliquot	10	g
actual aliquot	15.21	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	80.5		2	0.96	38.3				
PCB-104		U	2	0.96	38.3				
PCB-105	2750		2	0.96	38.3			0.00003	0.0825
PCB-106		U	2	0.96	38.3				
PCB-107	367		2	0.96	38.3				
PCB-108/124	178		4	0.96	76.6				
PCB-110/115	6990		4	0.96	76.6				
PCB-111		U	2	0.96	38.3				
PCB-112		U	2	0.96	38.3				
PCB-114	169		2	0.96	38.3			0.00003	0.00507
PCB-118	5270		2	0.96	38.3			0.00003	0.1581
PCB-120		U	2	0.96	38.3				
PCB-121		U	2	0.96	38.3				
PCB-122	82.6		2	0.96	38.3				
PCB-123	136		2	0.96	38.3			0.00003	0.00408
PCB-126		U	2	0.96	38.3			0.1	0
PCB-127		U	2	0.96	38.3	Penta PCBs	42382.4		
PCB-128/166	476		4	0.96	76.6				
PCB-129/138/163	3520		6	0.96	114.8				
PCB-130	224		2	0.96	38.3				
PCB-131	52.8		2	0.96	38.3				
PCB-132	1110		2	0.96	38.3				
PCB-133	100		2	0.96	38.3				
PCB-134	204		2	0.96	38.3				
PCB-135/151	1400		4	0.96	76.6				
PCB-136	439		2	0.96	38.3				
PCB-137	160		2	0.96	38.3				
PCB-139/140		U	4	0.96	76.6				
PCB-141	574		2	0.96	38.3				
PCB-142		U	2	0.96	38.3				
PCB-143		U	2	0.96	38.3				
PCB-144	141		2	0.96	38.3				
PCB-145		U	2	0.96	38.3				
PCB-146	710		2	0.96	38.3				
PCB-147/149	2800		4	0.96	76.6				
PCB-148		U	2	0.96	38.3				
PCB-150		U	2	0.96	38.3				
PCB-152		U	2	0.96	38.3				
PCB-153/168	2750		4	0.96	76.6				
PCB-154	133		2	0.96	38.3				

SDG Number	E4RX9	
Lab Sample ID	1555014	
Client ID	**E4SL7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.313	
theoretical aliquot	10	g
actual aliquot	15.21	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.96	38.3				
PCB-156/157	449		4	0.96	76.6			0.00003	0.01347
PCB-158	324		2	0.96	38.3				
PCB-159		U	2	0.96	38.3				
PCB-160		U	2	0.96	38.3				
PCB-161		U	2	0.96	38.3				
PCB-162		U	2	0.96	38.3				
PCB-164	215		2	0.96	38.3				
PCB-165		U	2	0.96	38.3				
PCB-167	140		2	0.96	38.3			0.00003	0.0042
PCB-169		U	2	0.96	38.3	Hexa PCBs	15921.8	0.03	0
PCB-170	622		2	0.96	38.3				
PCB-171/173	194		4	0.96	76.6				
PCB-172	123		2	0.96	38.3				
PCB-174	730		2	0.96	38.3				
PCB-175		U	2	0.96	38.3				
PCB-176	104		2	0.96	38.3				
PCB-177	486		2	0.96	38.3				
PCB-178	244		2	0.96	38.3				
PCB-179	412		2	0.96	38.3				
PCB-180/193	1490		4	0.96	76.6				
PCB-181		U	2	0.96	38.3				
PCB-182		U	2	0.96	38.3				
PCB-183/185	457		4	0.96	76.6				
PCB-184		U	2	0.96	38.3				
PCB-186		U	2	0.96	38.3				
PCB-187	1150		2	0.96	38.3				
PCB-188		U	2	0.96	38.3				
PCB-189		U	2	0.96	38.3			0.00003	0
PCB-190	140		2	0.96	38.3				
PCB-191		U	2	0.96	38.3				
PCB-192		U	2	0.96	38.3	Hepta PCBs	6152		
PCB-194	302		2	0.96	38.3				
PCB-195	122		2	0.96	38.3				
PCB-196	171		2	0.96	38.3				
PCB-197/200		U	4	0.96	76.6				
PCB-198/199	403		4	0.96	76.6				
PCB-201	48.9		2	0.96	38.3				
PCB-202	93		2	0.96	38.3				
PCB-203	217		2	0.96	38.3				

SDG Number	E4RX9	
Lab Sample ID	1555014	
Client ID	**E4SL7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.313	
theoretical aliquot	10	g
actual aliquot	15.21	g
Prep Date	24-Aug-10	
Run Date	13-Sep-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.96	38.3				
PCB-205		U	2	0.96	38.3	Octa PCBss	1356.9		
PCB-206	99.9		2	0.96	38.3				
PCB-207		U	2	0.96	38.3				
PCB-208		U	2	0.96	38.3	Nona PCBs	99.9		
PCB-209	50.2		2	0.96	38.3	Deca PCBs	50.2		
Total Mono PCBs	383		2	0.96	38.3				
Total Di PCBs	21000		2	0.96	38.3				
Total Tri PCBs	105000		2	0.96	38.3				
Total Tetra PCBs	114000		2	0.96	38.3				
Total Penta PCBs	42400		2	0.96	38.3				
Total Hexa PCBs	15900		2	0.96	38.3				
Total Hepta PCBs	6160		2	0.96	38.3				
Total Octa PCBs	1360		2	0.96	38.3				
Total Nona PCBs	99.9		2	0.96	38.3				
Total Deca PCBs	50.2		2	0.96	38.3				
Total PCB Congeners	307000		2	0.96	38.3		307327		
TEQ (WHO2005, ND=0)	0.424								0.42375

SDG Number	E4RX9	
Lab Sample ID	1555016	
Client ID	**E4SM6**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.247	
theoretical aliquot	10	g
actual aliquot	14.49	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.92	36.7				
PCB-2		U	2	0.92	36.7				
PCB-3		U	2	0.92	36.7	Mono PCBs	0		
PCB-4		U	2	0.92	36.7				
PCB-5		U	2	0.92	36.7				
PCB-6		U	2	0.92	36.7				
PCB-7		U	2	0.92	36.7				
PCB-8	88.4		2	0.92	36.7				
PCB-9		U	2	0.92	36.7				
PCB-10		U	2	0.92	36.7				
PCB11		U	100	0.92	1833.0				
PCB-12/13		U	4	0.92	73.3				
PCB-14		U	2	0.92	36.7				
PCB-15	481	J	10	0.92	183.3	Di PCBs	569.4		
PCB-16	1120		2	0.92	36.7				
PCB-17	1080		2	0.92	36.7				
PCB-18/30	4170		4	0.92	73.3				
PCB-19	1370		2	0.92	36.7				
PCB-20/28	4980		20	0.92	366.6				
PCB-21/33	1150		20	0.92	366.6				
PCB-22	586		10	0.92	183.3				
PCB-23		U	2	0.92	36.7				
PCB-24		U	2	0.92	36.7				
PCB-25	236		2	0.92	36.7				
PCB-26/29	644		4	0.92	73.3				
PCB-27	647		2	0.92	36.7				
PCB-31	3310		10	0.92	183.3				
PCB-32	2840		2	0.92	36.7				
PCB-34		U	2	0.92	36.7				
PCB-35		U	2	0.92	36.7				
PCB-36		U	2	0.92	36.7				
PCB-37	2120		10	0.92	183.3				
PCB-38		U	2	0.92	36.7				
PCB-39		U	2	0.92	36.7	Tri PCBs	24253		
PCB-40/71	18500		2	0.92	36.7				
PCB-41	3310		100	0.92	1833.0				
PCB-42	10700		2	0.92	36.7				
PCB-43	1980		2	0.92	36.7				
PCB-44/47/65	39300		6	0.92	110.0				
PCB-45/51	8470		40	0.92	733.2				

SDG Number	E4RX9	
Lab Sample ID	1555016	
Client ID	**E4SM6**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.247	
theoretical aliquot	10	g
actual aliquot	14.49	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	2990		2	0.92	36.7				
PCB-48	4540		2	0.92	36.7				
PCB-49/69	21200		4	0.92	73.3				
PCB-50/53	6390		4	0.92	73.3				
PCB-52	39900		2	0.92	36.7				
PCB-54	111		2	0.92	36.7				
PCB-55		U	2	0.92	36.7				
PCB-56	10400		2	0.92	36.7				
PCB-57	52.3		2	0.92	36.7				
PCB-58		U	2	0.92	36.7				
PCB-59/32/75	2730		6	0.92	110.0				
PCB-60	2440		2	0.92	36.7				
PCB-61/70/74/76	33600		8	0.92	146.6				
PCB-63	265		2	0.92	36.7				
PCB-64	12800		2	0.92	36.7				
PCB-66	27900		10	0.92	183.3				
PCB-67	202		2	0.92	36.7				
PCB-68	43.8		2	0.92	36.7				
PCB-72	119		2	0.92	36.7				
PCB-73	1130		2	0.92	36.7				
PCB-77	3000		2	0.92	36.7			0.0001	0.3
PCB-78	113		2	0.92	36.7				
PCB-79	314		2	0.92	36.7				
PCB-80	47.5		2	0.92	36.7				
PCB-81	57.8		2	0.92	36.7	Tetra PCBs	252605.4	0.0003	0.01734
PCB-82	4500		2	0.92	36.7				
PCB-83	1800		2	0.92	36.7				
PCB-84	7240		2	0.92	36.7				
PCB-85/116/117	5240		6	0.92	110.0				
PCB-86/87/97/109/119/	15600		12	0.92	220.0				
PCB-88/91	4040		4	0.92	73.3				
PCB-89	708		2	0.92	36.7				
PCB-90/101/113	15200		6	0.92	110.0				
PCB-92	2730		2	0.92	36.7				
PCB-93/100	337		4	0.92	73.3				
PCB-94	183		2	0.92	36.7				
PCB-95	13500		2	0.92	36.7				
PCB-96	364		2	0.92	36.7				
PCB-98/102	1260		4	0.92	73.3				
PCB-99	8910		2	0.92	36.7				

SDG Number	E4RX9	
Lab Sample ID	1555016	
Client ID	**E4SM6**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.247	
theoretical aliquot	10	g
actual aliquot	14.49	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	111		2	0.92	36.7				
PCB-104		U	2	0.92	36.7				
PCB-105	9140		2	0.92	36.7			0.00003	0.2742
PCB-106		U	2	0.92	36.7				
PCB-107	986		2	0.92	36.7				
PCB-108/124	597		4	0.92	73.3				
PCB-110/115	21400		4	0.92	73.3				
PCB-111		U	2	0.92	36.7				
PCB-112		U	2	0.92	36.7				
PCB-114	424		2	0.92	36.7			0.00003	0.01272
PCB-118	16700		2	0.92	36.7			0.00003	0.501
PCB-120		U	2	0.92	36.7				
PCB-121		U	2	0.92	36.7				
PCB-122	320		2	0.92	36.7				
PCB-123	422		2	0.92	36.7			0.00003	0.01266
PCB-126		U	2	0.92	36.7			0.1	0
PCB-127		U	2	0.92	36.7	Penta PCBs	131712		
PCB-128/166	1070		4	0.92	73.3				
PCB-129/138/163	5940		6	0.92	110.0				
PCB-130	396		2	0.92	36.7				
PCB-131	108		2	0.92	36.7				
PCB-132	2160		2	0.92	36.7				
PCB-133	56.2		2	0.92	36.7				
PCB-134	354		2	0.92	36.7				
PCB-135/151	1340		4	0.92	73.3				
PCB-136	616		2	0.92	36.7				
PCB-137	409		2	0.92	36.7				
PCB-139/140	119		4	0.92	73.3				
PCB-141	992		2	0.92	36.7				
PCB-142		U	2	0.92	36.7				
PCB-143		U	2	0.92	36.7				
PCB-144	234		2	0.92	36.7				
PCB-145		U	2	0.92	36.7				
PCB-146	591		2	0.92	36.7				
PCB-147/149	3600		4	0.92	73.3				
PCB-148		U	2	0.92	36.7				
PCB-150		U	2	0.92	36.7				
PCB-152		U	2	0.92	36.7				
PCB-153/168	3470		4	0.92	73.3				
PCB-154		U	2	0.92	36.7				

SDG Number	E4RX9	
Lab Sample ID	1555016	
Client ID	**E4SM6**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.247	
theoretical aliquot	10	g
actual aliquot	14.49	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.92	36.7				
PCB-156/157	938		4	0.92	73.3			0.00003	0.02814
PCB-158	626		2	0.92	36.7				
PCB-159		U	2	0.92	36.7				
PCB-160		U	2	0.92	36.7				
PCB-161		U	2	0.92	36.7				
PCB-162		U	2	0.92	36.7				
PCB-164	346		2	0.92	36.7				
PCB-165		U	2	0.92	36.7				
PCB-167	285		2	0.92	36.7			0.00003	0.00855
PCB-169		U	2	0.92	36.7	Hexa PCBs	23650.2	0.03	0
PCB-170	761		2	0.92	36.7				
PCB-171/173	220		4	0.92	73.3				
PCB-172	125		2	0.92	36.7				
PCB-174	726		2	0.92	36.7				
PCB-175		U	2	0.92	36.7				
PCB-176	87.1		2	0.92	36.7				
PCB-177	385		2	0.92	36.7				
PCB-178	128		2	0.92	36.7				
PCB-179	255		2	0.92	36.7				
PCB-180/193	1630		4	0.92	73.3				
PCB-181		U	2	0.92	36.7				
PCB-182		U	2	0.92	36.7				
PCB-183/185	435		4	0.92	73.3				
PCB-184		U	2	0.92	36.7				
PCB-186		U	2	0.92	36.7				
PCB-187	728		2	0.92	36.7				
PCB-188		U	2	0.92	36.7				
PCB-189		U	2	0.92	36.7			0.00003	0
PCB-190	149		2	0.92	36.7				
PCB-191		U	2	0.92	36.7				
PCB-192		U	2	0.92	36.7	Hepta PCBs	5629.1		
PCB-194	427		2	0.92	36.7				
PCB-195	142		2	0.92	36.7				
PCB-196	181		2	0.92	36.7				
PCB-197/200		U	4	0.92	73.3				
PCB-198/199	413		4	0.92	73.3				
PCB-201	43.1		2	0.92	36.7				
PCB-202	91.2		2	0.92	36.7				
PCB-203	244		2	0.92	36.7				

SDG Number	E4RX9	
Lab Sample ID	1555016	
Client ID	**E4SM6**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.247	
theoretical aliquot	10	g
actual aliquot	14.49	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	20	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.92	36.7				
PCB-205		U	2	0.92	36.7	Octa PCBss	1541.3		
PCB-206	234		2	0.92	36.7				
PCB-207		U	2	0.92	36.7				
PCB-208	67.3		2	0.92	36.7	Nona PCBs	301.3		
PCB-209	94.8		2	0.92	36.7	Deca PCBs	94.8		
Total Mono PCBs		U	2	0.92	36.7				
Total Di PCBs	569		2	0.92	36.7				
Total Tri PCBs	24300		2	0.92	36.7				
Total Tetra PCBs	253000		2	0.92	36.7				
Total Penta PCBs	132000		2	0.92	36.7				
Total Hexa PCBs	23700		2	0.92	36.7				
Total Hepta PCBs	5630		2	0.92	36.7				
Total Octa PCBs	1540		2	0.92	36.7				
Total Nona PCBs	302		2	0.92	36.7				
Total Deca PCBs	94.8		2	0.92	36.7				
Total PCB Congeners	440000		2	0.92	36.7		440356.5		
TEQ (WHO2005, ND=0)	1.15								1.15461

SDG Number	E4RX9	
Lab Sample ID	1555017	
Client ID	**E4SM7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.242	
theoretical aliquot	10	g
actual aliquot	15.7	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.84	84.0				
PCB-2		U	2	0.84	84.0				
PCB-3		U	2	0.84	84.0	Mono PCBs	0		
PCB-4	126		2	0.84	84.0				
PCB-5		U	2	0.84	84.0				
PCB-6		U	2	0.84	84.0				
PCB-7		U	2	0.84	84.0				
PCB-8	415		2	0.84	84.0				
PCB-9		U	2	0.84	84.0				
PCB-10		U	2	0.84	84.0				
PCB11		U	100	0.84	4201.5				
PCB-12/13		U	4	0.84	168.1				
PCB-14		U	2	0.84	84.0				
PCB-15	2080	J	10	0.84	420.1	Di PCBs	2621		
PCB-16	4830		2	0.84	84.0				
PCB-17	4380		2	0.84	84.0				
PCB-18/30	15900		4	0.84	168.1				
PCB-19	6610		2	0.84	84.0				
PCB-20/28	22900		20	0.84	840.3				
PCB-21/33	5770		20	0.84	840.3				
PCB-22	2990		10	0.84	420.1				
PCB-23		U	2	0.84	84.0				
PCB-24		U	2	0.84	84.0				
PCB-25	1150		2	0.84	84.0				
PCB-26/29	3150		4	0.84	168.1				
PCB-27	3190		2	0.84	84.0				
PCB-31	14900		10	0.84	420.1				
PCB-32	13000		2	0.84	84.0				
PCB-34		U	2	0.84	84.0				
PCB-35		U	2	0.84	84.0				
PCB-36		U	2	0.84	84.0				
PCB-37	9890		10	0.84	420.1				
PCB-38		U	2	0.84	84.0				
PCB-39		U	2	0.84	84.0	Tri PCBs	108660		
PCB-40/71	91800		2	0.84	84.0				
PCB-41	12500		100	0.84	4201.5				
PCB-42	55600		2	0.84	84.0				
PCB-43	11300		2	0.84	84.0				
PCB-44/47/65	199000		6	0.84	252.1				
PCB-45/51	41200		40	0.84	1680.6				

SDG Number	E4RX9	
Lab Sample ID	1555017	
Client ID	**E4SM7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.242	
theoretical aliquot	10	g
actual aliquot	15.7	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	14400		2	0.84	84.0				
PCB-48	21600		2	0.84	84.0				
PCB-49/69	109000		4	0.84	168.1				
PCB-50/53	30700		4	0.84	168.1				
PCB-52	200000	J	2	0.84	84.0				
PCB-54	535		2	0.84	84.0				
PCB-55		U	2	0.84	84.0				
PCB-56	53700		2	0.84	84.0				
PCB-57	147		2	0.84	84.0				
PCB-58	230		2	0.84	84.0				
PCB-59/32/75	13900		6	0.84	252.1				
PCB-60	11300		2	0.84	84.0				
PCB-61/70/74/76	171000		8	0.84	336.1				
PCB-63	1150		2	0.84	84.0				
PCB-64	60100		2	0.84	84.0				
PCB-66	149000		10	0.84	420.1				
PCB-67	1040		2	0.84	84.0				
PCB-68	237		2	0.84	84.0				
PCB-72	622		2	0.84	84.0				
PCB-73		U	2	0.84	84.0				
PCB-77	15900		2	0.84	84.0			0.0001	1.59
PCB-78	589		2	0.84	84.0				
PCB-79	1760		2	0.84	84.0				
PCB-80	238		2	0.84	84.0				
PCB-81	279		2	0.84	84.0	Tetra PCBs	1268827	0.0003	0.0837
PCB-82	23600		2	0.84	84.0				
PCB-83	8550		2	0.84	84.0				
PCB-84	37000		2	0.84	84.0				
PCB-85/116/117	28100		6	0.84	252.1				
PCB-86/87/97/109/119/1	80600		12	0.84	504.2				
PCB-88/91	20300		4	0.84	168.1				
PCB-89	3770		2	0.84	84.0				
PCB-90/101/113	76100		6	0.84	252.1				
PCB-92	13600		2	0.84	84.0				
PCB-93/100	1840		4	0.84	168.1				
PCB-94	979		2	0.84	84.0				
PCB-95	66300		2	0.84	84.0				
PCB-96	1880		2	0.84	84.0				
PCB-98/102	6920		4	0.84	168.1				
PCB-99	46700		2	0.84	84.0				

SDG Number	E4RX9	
Lab Sample ID	1555017	
Client ID	**E4SM7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.242	
theoretical aliquot	10	g
actual aliquot	15.7	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	582		2	0.84	84.0				
PCB-104		U	2	0.84	84.0				
PCB-105	47400		2	0.84	84.0			0.00003	1.422
PCB-106		U	2	0.84	84.0				
PCB-107	5240		2	0.84	84.0				
PCB-108/124	3060		4	0.84	168.1				
PCB-110/115	106000		4	0.84	168.1				
PCB-111		U	2	0.84	84.0				
PCB-112		U	2	0.84	84.0				
PCB-114	2180		2	0.84	84.0			0.00003	0.0654
PCB-118	85800		2	0.84	84.0			0.00003	2.574
PCB-120		U	2	0.84	84.0				
PCB-121		U	2	0.84	84.0				
PCB-122	1710		2	0.84	84.0				
PCB-123	2180		2	0.84	84.0			0.00003	0.0654
PCB-126		U	2	0.84	84.0			0.1	0
PCB-127		U	2	0.84	84.0	Penta PCBs	670391		
PCB-128/166	4890		4	0.84	168.1				
PCB-129/138/163	26400		6	0.84	252.1				
PCB-130	1830		2	0.84	84.0				
PCB-131	479		2	0.84	84.0				
PCB-132	9610		2	0.84	84.0				
PCB-133	258		2	0.84	84.0				
PCB-134	1570		2	0.84	84.0				
PCB-135/151	5690		4	0.84	168.1				
PCB-136	2700		2	0.84	84.0				
PCB-137	1800		2	0.84	84.0				
PCB-139/140	544		4	0.84	168.1				
PCB-141	4290		2	0.84	84.0				
PCB-142		U	2	0.84	84.0				
PCB-143		U	2	0.84	84.0				
PCB-144	975		2	0.84	84.0				
PCB-145		U	2	0.84	84.0				
PCB-146	2590		2	0.84	84.0				
PCB-147/149	15400		4	0.84	168.1				
PCB-148		U	2	0.84	84.0				
PCB-150		U	2	0.84	84.0				
PCB-152		U	2	0.84	84.0				
PCB-153/168	15100		4	0.84	168.1				
PCB-154	145		2	0.84	84.0				

SDG Number	E4RX9	
Lab Sample ID	1555017	
Client ID	**E4SM7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.242	
theoretical aliquot	10	g
actual aliquot	15.7	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.84	84.0				
PCB-156/157	4500		4	0.84	168.1			0.00003	0.135
PCB-158	2820		2	0.84	84.0				
PCB-159	95.1		2	0.84	84.0				
PCB-160		U	2	0.84	84.0				
PCB-161		U	2	0.84	84.0				
PCB-162	134		2	0.84	84.0				
PCB-164	1530		2	0.84	84.0				
PCB-165		U	2	0.84	84.0				
PCB-167	1310		2	0.84	84.0			0.00003	0.0393
PCB-169		U	2	0.84	84.0	Hexa PCBs	104660.1	0.03	0
PCB-170	3350		2	0.84	84.0				
PCB-171/173	927		4	0.84	168.1				
PCB-172	532		2	0.84	84.0				
PCB-174	3050		2	0.84	84.0				
PCB-175	106		2	0.84	84.0				
PCB-176	343		2	0.84	84.0				
PCB-177	1590		2	0.84	84.0				
PCB-178	519		2	0.84	84.0				
PCB-179	1010		2	0.84	84.0				
PCB-180/193	7000		4	0.84	168.1				
PCB-181		U	2	0.84	84.0				
PCB-182		U	2	0.84	84.0				
PCB-183/185	1800		4	0.84	168.1				
PCB-184		U	2	0.84	84.0				
PCB-186		U	2	0.84	84.0				
PCB-187	2980		2	0.84	84.0				
PCB-188		U	2	0.84	84.0				
PCB-189	165		2	0.84	84.0			0.00003	0.00495
PCB-190	659		2	0.84	84.0				
PCB-191	125		2	0.84	84.0				
PCB-192		U	2	0.84	84.0	Hepta PCBs	24156		
PCB-194	1910		2	0.84	84.0				
PCB-195	589		2	0.84	84.0				
PCB-196	778		2	0.84	84.0				
PCB-197/200	214		4	0.84	168.1				
PCB-198/199	1740		4	0.84	168.1				
PCB-201	172		2	0.84	84.0				
PCB-202	327		2	0.84	84.0				
PCB-203	1020		2	0.84	84.0				

SDG Number	E4RX9	
Lab Sample ID	1555017	
Client ID	**E4SM7**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.242	
theoretical aliquot	10	g
actual aliquot	15.7	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	50	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.84	84.0				
PCB-205	122		2	0.84	84.0	Octa PCBss	6872		
PCB-206	965		2	0.84	84.0				
PCB-207	85.5		2	0.84	84.0				
PCB-208	254		2	0.84	84.0	Nona PCBs	1304.5		
PCB-209	363		2	0.84	84.0	Deca PCBs	363		
Total Mono PCBs		U	2	0.84	84.0				
Total Di PCBs	2620		2	0.84	84.0				
Total Tri PCBs	109000		2	0.84	84.0				
Total Tetra PCBs	1270000		2	0.84	84.0				
Total Penta PCBs	671000		2	0.84	84.0				
Total Hexa PCBs	105000		2	0.84	84.0				
Total Hepta PCBs	24200		2	0.84	84.0				
Total Octa PCBs	6870		2	0.84	84.0				
Total Nona PCBs	1300		2	0.84	84.0				
Total Deca PCBs	363		2	0.84	84.0				
Total PCB Congeners	2190000		2	0.84	84.0		2187854.6		
TEQ (WHO2005, ND=0)	5.99								5.97975

SDG Number	E4RX9	
Lab Sample ID	1555018	
Client ID	**E4SM8**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.432	
theoretical aliquot	10	g
actual aliquot	17.69	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	80	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	1.00	159.2				
PCB-2		U	2	1.00	159.2				
PCB-3		U	2	1.00	159.2	Mono PCBs	0		
PCB-4	10200		2	1.00	159.2				
PCB-5		U	2	1.00	159.2				
PCB-6	3170		2	1.00	159.2				
PCB-7	258		2	1.00	159.2				
PCB-8	8310		2	1.00	159.2				
PCB-9	458		2	1.00	159.2				
PCB-10	866		2	1.00	159.2				
PCB11		U	100	1.00	7961.8				
PCB-12/13	2760		4	1.00	318.5				
PCB-14		U	2	1.00	159.2				
PCB-15	83100	J	10	1.00	796.2	Di PCBs	109122		
PCB-16	62300		2	1.00	159.2				
PCB-17	74300		2	1.00	159.2				
PCB-18/30	146000		4	1.00	318.5				
PCB-19	29600		2	1.00	159.2				
PCB-20/28	270000		20	1.00	1592.4				
PCB-21/33	43400		20	1.00	1592.4				
PCB-22	44500		10	1.00	796.2				
PCB-23		U	2	1.00	159.2				
PCB-24		U	2	1.00	159.2				
PCB-25	19600		2	1.00	159.2				
PCB-26/29	49500		4	1.00	318.5				
PCB-27	19800		2	1.00	159.2				
PCB-31	180000		10	1.00	796.2				
PCB-32	52400		2	1.00	159.2				
PCB-34	900		2	1.00	159.2				
PCB-35	2800		2	1.00	159.2				
PCB-36		U	2	1.00	159.2				
PCB-37	112000		10	1.00	796.2				
PCB-38		U	2	1.00	159.2				
PCB-39		U	2	1.00	159.2	Tri PCBs	1107100		
PCB-40/71	124000		2	1.00	159.2				
PCB-41	37700		100	1.00	7961.8				
PCB-42	91200		2	1.00	159.2				
PCB-43	17700		2	1.00	159.2				
PCB-44/47/65	288000		6	1.00	477.7				
PCB-45/51	65800		40	1.00	3184.7				

SDG Number	E4RX9	
Lab Sample ID	1555018	
Client ID	**E4SM8**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.432	
theoretical aliquot	10	g
actual aliquot	17.69	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	80	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	22200		2	1.00	159.2				
PCB-48	50700		2	1.00	159.2				
PCB-49/69	175000		4	1.00	318.5				
PCB-50/53	47400		4	1.00	318.5				
PCB-52	269000		2	1.00	159.2				
PCB-54	961		2	1.00	159.2				
PCB-55		U	2	1.00	159.2				
PCB-56	121000		2	1.00	159.2				
PCB-57	948		2	1.00	159.2				
PCB-58	365		2	1.00	159.2				
PCB-59/32/75	24600		6	1.00	477.7				
PCB-60	38900		2	1.00	159.2				
PCB-61/70/74/76	340000		8	1.00	636.9				
PCB-63	6290		2	1.00	159.2				
PCB-64	105000		2	1.00	159.2				
PCB-66	254000		10	1.00	796.2				
PCB-67	6510		2	1.00	159.2				
PCB-68	709		2	1.00	159.2				
PCB-72	1400		2	1.00	159.2				
PCB-73		U	2	1.00	159.2				
PCB-77	31600		2	1.00	159.2			0.0001	3.16
PCB-78	585		2	1.00	159.2				
PCB-79	1740		2	1.00	159.2				
PCB-80		U	2	1.00	159.2				
PCB-81	951		2	1.00	159.2	Tetra PCBs	2124259	0.0003	0.2853
PCB-82	23500		2	1.00	159.2				
PCB-83	9340		2	1.00	159.2				
PCB-84	38700		2	1.00	159.2				
PCB-85/116/117	27200		6	1.00	477.7				
PCB-86/87/97/109/119/1	83700		12	1.00	955.4				
PCB-88/91	22700		4	1.00	318.5				
PCB-89	3770		2	1.00	159.2				
PCB-90/101/113	86500		6	1.00	477.7				
PCB-92	16900		2	1.00	159.2				
PCB-93/100	2280		4	1.00	318.5				
PCB-94	1280		2	1.00	159.2				
PCB-95	73900		2	1.00	159.2				
PCB-96	2030		2	1.00	159.2				
PCB-98/102	7580		4	1.00	318.5				
PCB-99	51000		2	1.00	159.2				

SDG Number	E4RX9	
Lab Sample ID	1555018	
Client ID	**E4SM8**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.432	
theoretical aliquot	10	g
actual aliquot	17.69	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	80	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	921		2	1.00	159.2				
PCB-104		U	2	1.00	159.2				
PCB-105	55700		2	1.00	159.2			0.00003	1.671
PCB-106		U	2	1.00	159.2				
PCB-107	6310		2	1.00	159.2				
PCB-108/124	3170		4	1.00	318.5				
PCB-110/115	115000		4	1.00	318.5				
PCB-111		U	2	1.00	159.2				
PCB-112		U	2	1.00	159.2				
PCB-114	3280		2	1.00	159.2			0.00003	0.0984
PCB-118	97100		2	1.00	159.2			0.00003	2.913
PCB-120		U	2	1.00	159.2				
PCB-121		U	2	1.00	159.2				
PCB-122	1730		2	1.00	159.2				
PCB-123	2440		2	1.00	159.2			0.00003	0.0732
PCB-126	172		2	1.00	159.2			0.1	17.2
PCB-127		U	2	1.00	159.2	Penta PCBs	736203		
PCB-128/166	5730		4	1.00	318.5				
PCB-129/138/163	35900		6	1.00	477.7				
PCB-130	2460		2	1.00	159.2				
PCB-131	567		2	1.00	159.2				
PCB-132	12300		2	1.00	159.2				
PCB-133	752		2	1.00	159.2				
PCB-134	2110		2	1.00	159.2				
PCB-135/151	10900		4	1.00	318.5				
PCB-136	4020		2	1.00	159.2				
PCB-137	2160		2	1.00	159.2				
PCB-139/140	777		4	1.00	318.5				
PCB-141	5670		2	1.00	159.2				
PCB-142		U	2	1.00	159.2				
PCB-143		U	2	1.00	159.2				
PCB-144	1340		2	1.00	159.2				
PCB-145		U	2	1.00	159.2				
PCB-146	5310		2	1.00	159.2				
PCB-147/149	24600		4	1.00	318.5				
PCB-148	177		2	1.00	159.2				
PCB-150		U	2	1.00	159.2				
PCB-152		U	2	1.00	159.2				
PCB-153/168	25200		4	1.00	318.5				
PCB-154	751		2	1.00	159.2				

SDG Number	E4RX9	
Lab Sample ID	1555018	
Client ID	**E4SM8**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.432	
theoretical aliquot	10	g
actual aliquot	17.69	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	80	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	1.00	159.2				
PCB-156/157	5940		4	1.00	318.5			0.00003	0.1782
PCB-158	3620		2	1.00	159.2				
PCB-159	208		2	1.00	159.2				
PCB-160		U	2	1.00	159.2				
PCB-161		U	2	1.00	159.2				
PCB-162	259		2	1.00	159.2				
PCB-164	2100		2	1.00	159.2				
PCB-165		U	2	1.00	159.2				
PCB-167	1830		2	1.00	159.2			0.00003	0.0549
PCB-169		U	2	1.00	159.2	Hexa PCBs	154681	0.03	0
PCB-170	6240		2	1.00	159.2				
PCB-171/173	1860		4	1.00	318.5				
PCB-172	1130		2	1.00	159.2				
PCB-174	6800		2	1.00	159.2				
PCB-175	237		2	1.00	159.2				
PCB-176	812		2	1.00	159.2				
PCB-177	4180		2	1.00	159.2				
PCB-178	1810		2	1.00	159.2				
PCB-179	2990		2	1.00	159.2				
PCB-180/193	14300		4	1.00	318.5				
PCB-181		U	2	1.00	159.2				
PCB-182		U	2	1.00	159.2				
PCB-183/185	3870		4	1.00	318.5				
PCB-184		U	2	1.00	159.2				
PCB-186		U	2	1.00	159.2				
PCB-187	8660		2	1.00	159.2				
PCB-188		U	2	1.00	159.2				
PCB-189	258		2	1.00	159.2			0.00003	0.00774
PCB-190	1330		2	1.00	159.2				
PCB-191	221		2	1.00	159.2				
PCB-192		U	2	1.00	159.2	Hepta PCBs	54698		
PCB-194	3190		2	1.00	159.2				
PCB-195	1270		2	1.00	159.2				
PCB-196	1540		2	1.00	159.2				
PCB-197/200	541		4	1.00	318.5				
PCB-198/199	3900		4	1.00	318.5				
PCB-201	413		2	1.00	159.2				
PCB-202	900		2	1.00	159.2				
PCB-203	2210		2	1.00	159.2				

SDG Number	E4RX9	
Lab Sample ID	1555018	
Client ID	**E4SM8**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.432	
theoretical aliquot	10	g
actual aliquot	17.69	g
Prep Date	24-Aug-10	
Run Date	6-Oct-10	
Dilution	80	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	1.00	159.2				
PCB-205	192		2	1.00	159.2	Octa PCBss	14156		
PCB-206	1410		2	1.00	159.2				
PCB-207		U	2	1.00	159.2				
PCB-208	389		2	1.00	159.2	Nona PCBs	1799		
PCB-209	426		2	1.00	159.2	Deca PCBs	426		
Total Mono PCBs		U	2	1.00	159.2				
Total Di PCBs	109000		2	1.00	159.2				
Total Tri PCBs	1110000		2	1.00	159.2				
Total Tetra PCBs	2120000		2	1.00	159.2				
Total Penta PCBs	736000		2	1.00	159.2				
Total Hexa PCBs	155000		2	1.00	159.2				
Total Hepta PCBs	54700		2	1.00	159.2				
Total Octa PCBs	14200		2	1.00	159.2				
Total Nona PCBs	1800		2	1.00	159.2				
Total Deca PCBs	426		2	1.00	159.2				
Total PCB Congeners	4300000		2	1.00	159.2		4302444		
TEQ (WHO2005, ND=0)	25.7								25.64174

SDG Number	E4RX9	
Lab Sample ID	1555019	
Client ID	**E4SM9**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.301	
theoretical aliquot	10	g
actual aliquot	15.8	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.91	181.1				
PCB-2		U	2	0.91	181.1				
PCB-3		U	2	0.91	181.1	Mono PCBs	0		
PCB-4	7870		2	0.91	181.1				
PCB-5		U	2	0.91	181.1				
PCB-6	1280		2	0.91	181.1				
PCB-7		U	2	0.91	181.1				
PCB-8	5380		2	0.91	181.1				
PCB-9	245		2	0.91	181.1				
PCB-10	807		2	0.91	181.1				
PCB11		U	100	0.91	9054.5				
PCB-12/13	1560		4	0.91	362.2				
PCB-14		U	2	0.91	181.1				
PCB-15	98700	J	10	0.91	905.5	Di PCBs	115842		
PCB-16	100000		2	0.91	181.1				
PCB-17	109000		2	0.91	181.1				
PCB-18/30	192000		4	0.91	362.2				
PCB-19	73300		2	0.91	181.1				
PCB-20/28	293000		20	0.91	1810.9				
PCB-21/33	35200		20	0.91	1810.9				
PCB-22	27700		10	0.91	905.5				
PCB-23		U	2	0.91	181.1				
PCB-24		U	2	0.91	181.1				
PCB-25	23800		2	0.91	181.1				
PCB-26/29	69500		4	0.91	362.2				
PCB-27	34500		2	0.91	181.1				
PCB-31	173000		10	0.91	905.5				
PCB-32	82100		2	0.91	181.1				
PCB-34	1110		2	0.91	181.1				
PCB-35	3850		2	0.91	181.1				
PCB-36		U	2	0.91	181.1				
PCB-37	117000		10	0.91	905.5				
PCB-38		U	2	0.91	181.1				
PCB-39		U	2	0.91	181.1	Tri PCBs	1335060		
PCB-40/71	251000		2	0.91	181.1				
PCB-41	40100		100	0.91	9054.5				
PCB-42	174000		2	0.91	181.1				
PCB-43	47000		2	0.91	181.1				
PCB-44/47/65	576000		6	0.91	543.3				
PCB-45/51	128000		40	0.91	3621.8				

SDG Number	E4RX9	
Lab Sample ID	1555019	
Client ID	**E4SM9**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.301	
theoretical aliquot	10	g
actual aliquot	15.8	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	46800		2	0.91	181.1				
PCB-48	87200		2	0.91	181.1				
PCB-49/69	365000		4	0.91	362.2				
PCB-50/53	93000		4	0.91	362.2				
PCB-52	622000	J	2	0.91	181.1				
PCB-54	1950		2	0.91	181.1				
PCB-55		U	2	0.91	181.1				
PCB-56	184000		2	0.91	181.1				
PCB-57	6190		2	0.91	181.1				
PCB-58	1420		2	0.91	181.1				
PCB-59/32/75	46100		6	0.91	543.3				
PCB-60	41100		2	0.91	181.1				
PCB-61/70/74/76	534000		8	0.91	724.4				
PCB-63	9590		2	0.91	181.1				
PCB-64	173000		2	0.91	181.1				
PCB-66	403000	J	10	0.91	905.5				
PCB-67	22800		2	0.91	181.1				
PCB-68	4170		2	0.91	181.1				
PCB-72	6820		2	0.91	181.1				
PCB-73		U	2	0.91	181.1				
PCB-77	46800		2	0.91	181.1			0.0001	4.68
PCB-78	1270		2	0.91	181.1				
PCB-79	2550		2	0.91	181.1				
PCB-80		U	2	0.91	181.1				
PCB-81	1300		2	0.91	181.1	Tetra PCBs	3916160	0.0003	0.39
PCB-82	50300		2	0.91	181.1				
PCB-83	27200		2	0.91	181.1				
PCB-84	140000		2	0.91	181.1				
PCB-85/116/117	61200		6	0.91	543.3				
PCB-86/87/97/109/119/	228000		12	0.91	1086.5				
PCB-88/91	76700		4	0.91	362.2				
PCB-89	8210		2	0.91	181.1				
PCB-90/101/113	330000		6	0.91	543.3				
PCB-92	93400		2	0.91	181.1				
PCB-93/100	9370		4	0.91	362.2				
PCB-94	3300		2	0.91	181.1				
PCB-95	318000		2	0.91	181.1				
PCB-96	5010		2	0.91	181.1				
PCB-98/102	21900		4	0.91	362.2				
PCB-99	198000		2	0.91	181.1				

SDG Number	E4RX9	
Lab Sample ID	1555019	
Client ID	**E4SM9**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.301	
theoretical aliquot	10	g
actual aliquot	15.8	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	5800		2	0.91	181.1				
PCB-104		U	2	0.91	181.1				
PCB-105	106000		2	0.91	181.1			0.00003	3.18
PCB-106		U	2	0.91	181.1				
PCB-107	25700		2	0.91	181.1				
PCB-108/124	6900		4	0.91	362.2				
PCB-110/115	481000		4	0.91	362.2				
PCB-111	738		2	0.91	181.1				
PCB-112		U	2	0.91	181.1				
PCB-114	5690		2	0.91	181.1			0.00003	0.1707
PCB-118	264000		2	0.91	181.1			0.00003	7.92
PCB-120	3460		2	0.91	181.1				
PCB-121	274		2	0.91	181.1				
PCB-122	3450		2	0.91	181.1				
PCB-123	5860		2	0.91	181.1			0.00003	0.1758
PCB-126		U	2	0.91	181.1			0.1	0
PCB-127	218		2	0.91	181.1	Penta PCBs	2479680		
PCB-128/166	26200		4	0.91	362.2				
PCB-129/138/163	165000		6	0.91	543.3				
PCB-130	10500		2	0.91	181.1				
PCB-131	2510		2	0.91	181.1				
PCB-132	99300		2	0.91	181.1				
PCB-133	7040		2	0.91	181.1				
PCB-134	22000		2	0.91	181.1				
PCB-135/151	70100		4	0.91	362.2				
PCB-136	32300		2	0.91	181.1				
PCB-137	7220		2	0.91	181.1				
PCB-139/140	4430		4	0.91	362.2				
PCB-141	21000		2	0.91	181.1				
PCB-142		U	2	0.91	181.1				
PCB-143		U	2	0.91	181.1				
PCB-144	4970		2	0.91	181.1				
PCB-145		U	2	0.91	181.1				
PCB-146	37400		2	0.91	181.1				
PCB-147/149	180000		4	0.91	362.2				
PCB-148	1310		2	0.91	181.1				
PCB-150	634		2	0.91	181.1				
PCB-152	333		2	0.91	181.1				
PCB-153/168	122000		4	0.91	362.2				
PCB-154	5800		2	0.91	181.1				

SDG Number	E4RX9	
Lab Sample ID	1555019	
Client ID	**E4SM9**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.301	
theoretical aliquot	10	g
actual aliquot	15.8	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.91	181.1				
PCB-156/157	21600		4	0.91	362.2			0.00003	0.648
PCB-158	13800		2	0.91	181.1				
PCB-159	537		2	0.91	181.1				
PCB-160		U	2	0.91	181.1				
PCB-161		U	2	0.91	181.1				
PCB-162	852		2	0.91	181.1				
PCB-164	10400		2	0.91	181.1				
PCB-165	441		2	0.91	181.1				
PCB-167	6470		2	0.91	181.1			0.00003	0.1941
PCB-169		U	2	0.91	181.1	Hexa PCBs	874147	0.03	0
PCB-170	17800		2	0.91	181.1				
PCB-171/173	5710		4	0.91	362.2				
PCB-172	2910		2	0.91	181.1				
PCB-174	16500		2	0.91	181.1				
PCB-175	725		2	0.91	181.1				
PCB-176	2580		2	0.91	181.1				
PCB-177	14000		2	0.91	181.1				
PCB-178	6900		2	0.91	181.1				
PCB-179	8650		2	0.91	181.1				
PCB-180/193	32700		4	0.91	362.2				
PCB-181	322		2	0.91	181.1				
PCB-182	200		2	0.91	181.1				
PCB-183/185	9370		4	0.91	362.2				
PCB-184		U	2	0.91	181.1				
PCB-186		U	2	0.91	181.1				
PCB-187	23400		2	0.91	181.1				
PCB-188		U	2	0.91	181.1				
PCB-189	855		2	0.91	181.1			0.00003	0.02565
PCB-190	3300		2	0.91	181.1				
PCB-191	599		2	0.91	181.1				
PCB-192		U	2	0.91	181.1	Hepta PCBs	146521		
PCB-194	9540		2	0.91	181.1				
PCB-195	3000		2	0.91	181.1				
PCB-196	3720		2	0.91	181.1				
PCB-197/200	1210		4	0.91	362.2				
PCB-198/199	9140		4	0.91	362.2				
PCB-201	1070		2	0.91	181.1				
PCB-202	2220		2	0.91	181.1				
PCB-203	5320		2	0.91	181.1				

SDG Number	E4RX9	
Lab Sample ID	1555019	
Client ID	**E4SM9**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.301	
theoretical aliquot	10	g
actual aliquot	15.8	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.91	181.1				
PCB-205	533		2	0.91	181.1	Octa PCBss	35753		
PCB-206	6210		2	0.91	181.1				
PCB-207	533		2	0.91	181.1				
PCB-208	1100		2	0.91	181.1	Nona PCBs	7843		
PCB-209	786		2	0.91	181.1	Deca PCBs	786		
Total Mono PCBs		U	2	0.91	181.1				
Total Di PCBs	116000		2	0.91	181.1				
Total Tri PCBs	1340000		2	0.91	181.1				
Total Tetra PCBs	3920000		2	0.91	181.1				
Total Penta PCBs	2480000		2	0.91	181.1				
Total Hexa PCBs	874000		2	0.91	181.1				
Total Hepta PCBs	147000		2	0.91	181.1				
Total Octa PCBs	35800		2	0.91	181.1				
Total Nona PCBs	7850		2	0.91	181.1				
Total Deca PCBs	786		2	0.91	181.1				
Total PCB Congeners	8910000		2	0.91	181.1		8911792		
TEQ (WHO2005, ND=0)	17.4								17.38425

SDG Number	E4RX9	
Lab Sample ID	1555020	
Client ID	**E4SN0**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.426	
theoretical aliquot	10	g
actual aliquot	17.99	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	0.97	193.7				
PCB-2		U	2	0.97	193.7				
PCB-3		U	2	0.97	193.7	Mono PCBs	0		
PCB-4	11300		2	0.97	193.7				
PCB-5		U	2	0.97	193.7				
PCB-6	3680		2	0.97	193.7				
PCB-7	217		2	0.97	193.7				
PCB-8	7010		2	0.97	193.7				
PCB-9	383		2	0.97	193.7				
PCB-10	965		2	0.97	193.7				
PCB11		U	100	0.97	9684.0				
PCB-12/13	3240		4	0.97	387.4				
PCB-14		U	2	0.97	193.7				
PCB-15	74800	J	10	0.97	968.4	Di PCBs	101595		
PCB-16	53900		2	0.97	193.7				
PCB-17	72100		2	0.97	193.7				
PCB-18/30	134000		4	0.97	387.4				
PCB-19	26100		2	0.97	193.7				
PCB-20/28	250000		20	0.97	1936.8				
PCB-21/33	34800		20	0.97	1936.8				
PCB-22	40400		10	0.97	968.4				
PCB-23		U	2	0.97	193.7				
PCB-24		U	2	0.97	193.7				
PCB-25	21900		2	0.97	193.7				
PCB-26/29	51400		4	0.97	387.4				
PCB-27	18000		2	0.97	193.7				
PCB-31	163000		10	0.97	968.4				
PCB-32	44900		2	0.97	193.7				
PCB-34	971		2	0.97	193.7				
PCB-35	2630		2	0.97	193.7				
PCB-36		U	2	0.97	193.7				
PCB-37	97200		10	0.97	968.4				
PCB-38		U	2	0.97	193.7				
PCB-39		U	2	0.97	193.7	Tri PCBs	1011301		
PCB-40/71	111000		2	0.97	193.7				
PCB-41	18900		100	0.97	9684.0				
PCB-42	74800		2	0.97	193.7				
PCB-43	19200		2	0.97	193.7				
PCB-44/47/65	237000		6	0.97	581.0				
PCB-45/51	53200		40	0.97	3873.6				

SDG Number	E4RX9	
Lab Sample ID	1555020	
Client ID	**E4SN0**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.426	
theoretical aliquot	10	g
actual aliquot	17.99	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46	19300		2	0.97	193.7				
PCB-48	47200		2	0.97	193.7				
PCB-49/69	147000		4	0.97	387.4				
PCB-50/53	37700		4	0.97	387.4				
PCB-52	234000		2	0.97	193.7				
PCB-54	775		2	0.97	193.7				
PCB-55	5320		2	0.97	193.7				
PCB-56	101000		2	0.97	193.7				
PCB-57	1010		2	0.97	193.7				
PCB-58	523		2	0.97	193.7				
PCB-59/32/75	19800		6	0.97	581.0				
PCB-60	34000		2	0.97	193.7				
PCB-61/70/74/76	301000		8	0.97	774.7				
PCB-63	6360		2	0.97	193.7				
PCB-64	94400		2	0.97	193.7				
PCB-66	203000		10	0.97	968.4				
PCB-67	6010		2	0.97	193.7				
PCB-68	594		2	0.97	193.7				
PCB-72	1160		2	0.97	193.7				
PCB-73		U	2	0.97	193.7				
PCB-77	25700		2	0.97	193.7			0.0001	2.57
PCB-78	409		2	0.97	193.7				
PCB-79	1320		2	0.97	193.7				
PCB-80		U	2	0.97	193.7				
PCB-81	802		2	0.97	193.7	Tetra PCBs	1802483	0.0003	0.2406
PCB-82	17900		2	0.97	193.7				
PCB-83	4650		2	0.97	193.7				
PCB-84	29900		2	0.97	193.7				
PCB-85/116/117	21300		6	0.97	581.0				
PCB-86/87/97/109/119/1	64500		12	0.97	1162.1				
PCB-88/91	17500		4	0.97	387.4				
PCB-89	3080		2	0.97	193.7				
PCB-90/101/113	66200		6	0.97	581.0				
PCB-92	13000		2	0.97	193.7				
PCB-93/100	1680		4	0.97	387.4				
PCB-94	921		2	0.97	193.7				
PCB-95	57000		2	0.97	193.7				
PCB-96	1530		2	0.97	193.7				
PCB-98/102	5930		4	0.97	387.4				
PCB-99	40000		2	0.97	193.7				

SDG Number	E4RX9	
Lab Sample ID	1555020	
Client ID	**E4SN0**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.426	
theoretical aliquot	10	g
actual aliquot	17.99	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103	689		2	0.97	193.7				
PCB-104		U	2	0.97	193.7				
PCB-105	45500		2	0.97	193.7			0.00003	1.365
PCB-106		U	2	0.97	193.7				
PCB-107	4800		2	0.97	193.7				
PCB-108/124	2530		4	0.97	387.4				
PCB-110/115	88900		4	0.97	387.4				
PCB-111		U	2	0.97	193.7				
PCB-112		U	2	0.97	193.7				
PCB-114	2880		2	0.97	193.7			0.00003	0.0864
PCB-118	76300		2	0.97	193.7			0.00003	2.289
PCB-120		U	2	0.97	193.7				
PCB-121		U	2	0.97	193.7				
PCB-122	1330		2	0.97	193.7				
PCB-123	1990		2	0.97	193.7			0.00003	0.0597
PCB-126	479		2	0.97	193.7			0.1	47.9
PCB-127		U	2	0.97	193.7	Penta PCBs	570489		
PCB-128/166	4270		4	0.97	387.4				
PCB-129/138/163	25700		6	0.97	581.0				
PCB-130	1810		2	0.97	193.7				
PCB-131	459		2	0.97	193.7				
PCB-132	9130		2	0.97	193.7				
PCB-133	472		2	0.97	193.7				
PCB-134	1650		2	0.97	193.7				
PCB-135/151	7450		4	0.97	387.4				
PCB-136	3010		2	0.97	193.7				
PCB-137	1380		2	0.97	193.7				
PCB-139/140	567		4	0.97	387.4				
PCB-141	4740		2	0.97	193.7				
PCB-142		U	2	0.97	193.7				
PCB-143		U	2	0.97	193.7				
PCB-144	1070		2	0.97	193.7				
PCB-145		U	2	0.97	193.7				
PCB-146	3550		2	0.97	193.7				
PCB-147/149	17700		4	0.97	387.4				
PCB-148		U	2	0.97	193.7				
PCB-150		U	2	0.97	193.7				
PCB-152		U	2	0.97	193.7				
PCB-153/168	16800		4	0.97	387.4				
PCB-154	465		2	0.97	193.7				

SDG Number	E4RX9	
Lab Sample ID	1555020	
Client ID	**E4SN0**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.426	
theoretical aliquot	10	g
actual aliquot	17.99	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	0.97	193.7				
PCB-156/157	4620		4	0.97	387.4			0.00003	0.1386
PCB-158	2700		2	0.97	193.7				
PCB-159		U	2	0.97	193.7				
PCB-160		U	2	0.97	193.7				
PCB-161		U	2	0.97	193.7				
PCB-162		U	2	0.97	193.7				
PCB-164	1760		2	0.97	193.7				
PCB-165		U	2	0.97	193.7				
PCB-167	1330		2	0.97	193.7			0.00003	0.0399
PCB-169		U	2	0.97	193.7	Hexa PCBs	110633	0.03	0
PCB-170	3600		2	0.97	193.7				
PCB-171/173	1110		4	0.97	387.4				
PCB-172	677		2	0.97	193.7				
PCB-174	3980		2	0.97	193.7				
PCB-175		U	2	0.97	193.7				
PCB-176	482		2	0.97	193.7				
PCB-177	2340		2	0.97	193.7				
PCB-178	1030		2	0.97	193.7				
PCB-179	1790		2	0.97	193.7				
PCB-180/193	7920		4	0.97	387.4				
PCB-181		U	2	0.97	193.7				
PCB-182		U	2	0.97	193.7				
PCB-183/185	2260		4	0.97	387.4				
PCB-184		U	2	0.97	193.7				
PCB-186		U	2	0.97	193.7				
PCB-187	5030		2	0.97	193.7				
PCB-188		U	2	0.97	193.7				
PCB-189		U	2	0.97	193.7			0.00003	0
PCB-190	775		2	0.97	193.7				
PCB-191		U	2	0.97	193.7				
PCB-192		U	2	0.97	193.7	Hepta PCBs	30994		
PCB-194	1780		2	0.97	193.7				
PCB-195	706		2	0.97	193.7				
PCB-196	842		2	0.97	193.7				
PCB-197/200		U	4	0.97	387.4				
PCB-198/199	2140		4	0.97	387.4				
PCB-201	237		2	0.97	193.7				
PCB-202	496		2	0.97	193.7				
PCB-203	1220		2	0.97	193.7				

SDG Number	E4RX9	
Lab Sample ID	1555020	
Client ID	**E4SN0**	
Date Collected	15-Apr-10	
Date Received	7-Aug-10	
Matrix	SOIL	
moisture factor	0.426	
theoretical aliquot	10	g
actual aliquot	17.99	g
Prep Date	24-Aug-10	
Run Date	7-Oct-10	
Dilution	100	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	0.97	193.7				
PCB-205		U	2	0.97	193.7	Octa PCBss	7421		
PCB-206	746		2	0.97	193.7				
PCB-207		U	2	0.97	193.7				
PCB-208	212		2	0.97	193.7	Nona PCBs	958		
PCB-209		U	2	0.97	193.7	Deca PCBs	0		
Total Mono PCBs		U	2	0.97	193.7				
Total Di PCBs	102000		2	0.97	193.7				
Total Tri PCBs	1010000		2	0.97	193.7				
Total Tetra PCBs	1800000		2	0.97	193.7				
Total Penta PCBs	571000		2	0.97	193.7				
Total Hexa PCBs	111000		2	0.97	193.7				
Total Hepta PCBs	31000		2	0.97	193.7				
Total Octa PCBs	7420		2	0.97	193.7				
Total Nona PCBs	958		2	0.97	193.7				
Total Deca PCBs		U	2	0.97	193.7				
Total PCB Congeners	3630000		2	0.97	193.7		3635874		
TEQ (WHO2005, ND=0)	54.7								54.6892

SDG Number	E4RX9	
Lab Sample ID	12001666	
Client ID	MB-13252	
Date Collected	NA	
Date Received	NA	
Matrix	SOIL	
moisture factor	0	
theoretical aliquot	10	g
actual aliquot	10	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	1	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-1		U	2	1.00	2.0				
PCB-2		U	2	1.00	2.0				
PCB-3		U	2	1.00	2.0	Mono PCBs	0		
PCB-4		U	2	1.00	2.0				
PCB-5		U	2	1.00	2.0				
PCB-6		U	2	1.00	2.0				
PCB-7		U	2	1.00	2.0				
PCB-8		U	2	1.00	2.0				
PCB-9		U	2	1.00	2.0				
PCB-10		U	2	1.00	2.0				
PCB11		U	100	1.00	100.0				
PCB-12/13		U	4	1.00	4.0				
PCB-14		U	2	1.00	2.0				
PCB-15		U	10	1.00	10.0	Di PCBs	0		
PCB-16		U	2	1.00	2.0				
PCB-17		U	2	1.00	2.0				
PCB-18/30		U	4	1.00	4.0				
PCB-19		U	2	1.00	2.0				
PCB-20/28		U	20	1.00	20.0				
PCB-21/33		U	20	1.00	20.0				
PCB-22		U	10	1.00	10.0				
PCB-23		U	2	1.00	2.0				
PCB-24		U	2	1.00	2.0				
PCB-25		U	2	1.00	2.0				
PCB-26/29		U	4	1.00	4.0				
PCB-27		U	2	1.00	2.0				
PCB-31		U	10	1.00	10.0				
PCB-32		U	2	1.00	2.0				
PCB-34		U	2	1.00	2.0				
PCB-35		U	2	1.00	2.0				
PCB-36		U	2	1.00	2.0				
PCB-37		U	10	1.00	10.0				
PCB-38		U	2	1.00	2.0				
PCB-39		U	2	1.00	2.0	Tri PCBs	0		
PCB-40/71		U	2	1.00	2.0				
PCB-41		U	100	1.00	100.0				
PCB-42		U	2	1.00	2.0				
PCB-43		U	2	1.00	2.0				
PCB-44/47/65		U	6	1.00	6.0				
PCB-45/51		U	40	1.00	40.0				

SDG Number	E4RX9	
Lab Sample ID	12001666	
Client ID	MB-13252	
Date Collected	NA	
Date Received	NA	
Matrix	SOIL	
moisture factor	0	
theoretical aliquot	10	g
actual aliquot	10	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	1	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-46		U	2	1.00	2.0				
PCB-48		U	2	1.00	2.0				
PCB-49/69		U	4	1.00	4.0				
PCB-50/53		U	4	1.00	4.0				
PCB-52	2.35		2	1.00	2.0				
PCB-54		U	2	1.00	2.0				
PCB-55		U	2	1.00	2.0				
PCB-56		U	2	1.00	2.0				
PCB-57		U	2	1.00	2.0				
PCB-58		U	2	1.00	2.0				
PCB-59/32/75		U	6	1.00	6.0				
PCB-60		U	2	1.00	2.0				
PCB-61/70/74/76		U	8	1.00	8.0				
PCB-63		U	2	1.00	2.0				
PCB-64		U	2	1.00	2.0				
PCB-66		U	10	1.00	10.0				
PCB-67		U	2	1.00	2.0				
PCB-68		U	2	1.00	2.0				
PCB-72		U	2	1.00	2.0				
PCB-73		U	2	1.00	2.0				
PCB-77		U	2	1.00	2.0			0.0001	0
PCB-78		U	2	1.00	2.0				
PCB-79		U	2	1.00	2.0				
PCB-80		U	2	1.00	2.0				
PCB-81		U	2	1.00	2.0	Tetra PCBs	2.35	0.0003	0
PCB-82		U	2	1.00	2.0				
PCB-83		U	2	1.00	2.0				
PCB-84		U	2	1.00	2.0				
PCB-85/116/117		U	6	1.00	6.0				
PCB-86/87/97/109/119/125		U	12	1.00	12.0				
PCB-88/91		U	4	1.00	4.0				
PCB-89		U	2	1.00	2.0				
PCB-90/101/113		U	6	1.00	6.0				
PCB-92		U	2	1.00	2.0				
PCB-93/100		U	4	1.00	4.0				
PCB-94		U	2	1.00	2.0				
PCB-95		U	2	1.00	2.0				
PCB-96		U	2	1.00	2.0				
PCB-98/102		U	4	1.00	4.0				
PCB-99		U	2	1.00	2.0				

SDG Number	E4RX9	
Lab Sample ID	12001666	
Client ID	MB-13252	
Date Collected	NA	
Date Received	NA	
Matrix	SOIL	
moisture factor	0	
theoretical aliquot	10	g
actual aliquot	10	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	1	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-103		U	2	1.00	2.0				
PCB-104		U	2	1.00	2.0				
PCB-105		U	2	1.00	2.0			0.00003	0
PCB-106		U	2	1.00	2.0				
PCB-107		U	2	1.00	2.0				
PCB-108/124		U	4	1.00	4.0				
PCB-110/115		U	4	1.00	4.0				
PCB-111		U	2	1.00	2.0				
PCB-112		U	2	1.00	2.0				
PCB-114		U	2	1.00	2.0			0.00003	0
PCB-118		U	2	1.00	2.0			0.00003	0
PCB-120		U	2	1.00	2.0				
PCB-121		U	2	1.00	2.0				
PCB-122		U	2	1.00	2.0				
PCB-123		U	2	1.00	2.0			0.00003	0
PCB-126		U	2	1.00	2.0			0.1	0
PCB-127		U	2	1.00	2.0	Penta PCBs	0		
PCB-128/166		U	4	1.00	4.0				
PCB-129/138/163		U	6	1.00	6.0				
PCB-130		U	2	1.00	2.0				
PCB-131		U	2	1.00	2.0				
PCB-132		U	2	1.00	2.0				
PCB-133		U	2	1.00	2.0				
PCB-134		U	2	1.00	2.0				
PCB-135/151		U	4	1.00	4.0				
PCB-136		U	2	1.00	2.0				
PCB-137		U	2	1.00	2.0				
PCB-139/140		U	4	1.00	4.0				
PCB-141		U	2	1.00	2.0				
PCB-142		U	2	1.00	2.0				
PCB-143		U	2	1.00	2.0				
PCB-144		U	2	1.00	2.0				
PCB-145		U	2	1.00	2.0				
PCB-146		U	2	1.00	2.0				
PCB-147/149		U	4	1.00	4.0				
PCB-148		U	2	1.00	2.0				
PCB-150		U	2	1.00	2.0				
PCB-152		U	2	1.00	2.0				
PCB-153/168		U	4	1.00	4.0				
PCB-154		U	2	1.00	2.0				

SDG Number	E4RX9	
Lab Sample ID	12001666	
Client ID	MB-13252	
Date Collected	NA	
Date Received	NA	
Matrix	SOIL	
moisture factor	0	
theoretical aliquot	10	g
actual aliquot	10	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	1	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-155		U	2	1.00	2.0				
PCB-156/157		U	4	1.00	4.0			0.00003	0
PCB-158		U	2	1.00	2.0				
PCB-159		U	2	1.00	2.0				
PCB-160		U	2	1.00	2.0				
PCB-161		U	2	1.00	2.0				
PCB-162		U	2	1.00	2.0				
PCB-164		U	2	1.00	2.0				
PCB-165		U	2	1.00	2.0				
PCB-167		U	2	1.00	2.0			0.00003	0
PCB-169		U	2	1.00	2.0	Hexa PCBs	0	0.03	0
PCB-170		U	2	1.00	2.0				
PCB-171/173		U	4	1.00	4.0				
PCB-172		U	2	1.00	2.0				
PCB-174		U	2	1.00	2.0				
PCB-175		U	2	1.00	2.0				
PCB-176		U	2	1.00	2.0				
PCB-177		U	2	1.00	2.0				
PCB-178		U	2	1.00	2.0				
PCB-179		U	2	1.00	2.0				
PCB-180/193		U	4	1.00	4.0				
PCB-181		U	2	1.00	2.0				
PCB-182		U	2	1.00	2.0				
PCB-183/185		U	4	1.00	4.0				
PCB-184		U	2	1.00	2.0				
PCB-186		U	2	1.00	2.0				
PCB-187		U	2	1.00	2.0				
PCB-188		U	2	1.00	2.0				
PCB-189		U	2	1.00	2.0			0.00003	0
PCB-190		U	2	1.00	2.0				
PCB-191		U	2	1.00	2.0				
PCB-192		U	2	1.00	2.0	Hepta PCBs	0		
PCB-194		U	2	1.00	2.0				
PCB-195		U	2	1.00	2.0				
PCB-196		U	2	1.00	2.0				
PCB-197/200		U	4	1.00	4.0				
PCB-198/199		U	4	1.00	4.0				
PCB-201		U	2	1.00	2.0				
PCB-202		U	2	1.00	2.0				
PCB-203		U	2	1.00	2.0				

SDG Number	E4RX9	
Lab Sample ID	12001666	
Client ID	MB-13252	
Date Collected	NA	
Date Received	NA	
Matrix	SOIL	
moisture factor	0	
theoretical aliquot	10	g
actual aliquot	10	g
Prep Date	24-Aug-10	
Run Date	6-Sep-10	
Dilution	1	

Congener	Result	Flag	RL		PQL		Total Congeners	Multiplier	TEQ (WHO2005)
			pg/g		pg/g				
PCB-204		U	2	1.00	2.0				
PCB-205		U	2	1.00	2.0	Octa PCBss	0		
PCB-206		U	2	1.00	2.0				
PCB-207		U	2	1.00	2.0				
PCB-208		U	2	1.00	2.0	Nona PCBs	0		
PCB-209		U	2	1.00	2.0	Deca PCBs	0		
Total Mono PCBs		U	2	1.00	2.0				
Total Di PCBs		U	2	1.00	2.0				
Total Tri PCBs		U	2	1.00	2.0				
Total Tetra PCBs	2.35		2	1.00	2.0				
Total Penta PCBs		U	2	1.00	2.0				
Total Hexa PCBs		U	2	1.00	2.0				
Total Hepta PCBs		U	2	1.00	2.0				
Total Octa PCBs		U	2	1.00	2.0				
Total Nona PCBs		U	2	1.00	2.0				
Total Deca PCBs		U	2	1.00	2.0				
Total PCB Congeners	2.35		2	1.00	2.0		2.35		
TEQ (WHO2005, ND=0)	0								0

Appendix F
Data Quality Evaluation

2010 Data Quality Evaluation
Lincoln Park/Milwaukee River Channel Sediments Site—Milwaukee, Wisconsin
WA No. 064-RICO-2508 / Contract No. EP-S5-06-01

PREPARED FOR: Brenda Jones /USEPA, GLNPO
Louis Blume/USEPA, GLNPO

PREPARED BY: Heather Hodach/CH2M HILL

COPIES TO: Dan Plomb/CH2M HILL
Huck Raddemann/CH2M HILL
Adrienne Korpela/CH2M HILL

DATE: August 27, 2010

Introduction

The objective of the Data Quality Evaluation memorandum is to assess the data quality of analytical results for samples collected at the Lincoln Park/Milwaukee River Channel Sediment site, during February, March, and April 2010. Samples were collected and analyzed with the objective to verify existing data, fill identified data gaps, and collect site-specific information to support the evaluation of remedial alternatives and the subsequent development of a remedial design. Individual method requirements and guidelines from the *Quality Assurance Project Plan* (CH2M HILL, 2010), *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, 2008), and *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, 2004) were used in this assessment.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

The following are the analytical laboratory analyses for samples collected:

- 267 sediment samples from 88 locations (exclusive of field quality control [QC] samples) were analyzed for one or more of the following: polychlorinated biphenyl (PCB) Aroclors, pesticides, semivolatile organic compounds (SVOCs), metals, total organic carbon (TOC), and grain size.
- 27 field duplicate samples were collected at 25 locations for the same analyses as the sediment sample at the given location.

- 29 sediment samples from 23 locations were selected for PCB congener analysis. The congener data were sent for analysis in August 2010 and will be evaluated separately at a later date.
- Three equipment blanks were collected during the sampling events to evaluate field sampling and decontamination procedures.
- Waste characterization analysis (toxicity characteristic leaching procedure [TCLP]) samples were collected from each of the two 55-gallon waste drums. One sediment and one aqueous sample were collected.

The PCB Aroclor, PCB congener, metals, pesticide, and SVOC data were analyzed by the USEPA Contract Laboratory Program (CLP) and subsequently reviewed by CSC. Attachment 1 contains the case narratives prepared by CSC during data reviews. The findings of the reviews are summarized in the following paragraphs.

The TOC and grain size data were analyzed by the USEPA Central Regional Laboratory (CRL) and reviewed by CH2M HILL. See Attachment 2 for the TOC and grain size data summary.

Samples were collected and shipped by overnight carrier to the laboratories for analysis. Selected samples were analyzed for one or more of the analytes/methods in Table 1.

TABLE 1
Analytical Parameters

Parameter	Method	Laboratory
PCB Aroclors	SOM01.2 Modified	CLP
PCB Congeners	CBC01.2	CLP
SVOCs	SOM01.2 Modified	CLP
Pesticides	SOM01.2 Modified	CLP
Target Analyte List Metals	ILM05.4	CLP
Total Organic Carbon	SOP – AIG009 Rev#5.1	CRL
Grain Size	SOP – AIG038A Rev#00&Rev#02	CRL
Waste Characterization		
Total PCB Aroclors	SOM01.2 Modified	CLP
TCLP Volatile Organic Compounds	SOM01.2 Modified	CLP
TCLP SVOC	SOM01.2 Modified	CLP
TCLP Pesticides	SOM01.2 Modified	CLP
TCLP Metals	ILM05.4 Modified	CLP

The assessment of data included a review of the following:

- Chain-of-custody documentation

- Holding-time compliance
- Required QC samples at the specified frequencies
- Flagging for method blanks
- Laboratory control spiking samples
- Surrogate spike recoveries for organic analyses
- Analytical spike data
- Matrix spike/matrix spike duplicate samples on a site/location basis
- Equipment blank samples
- Field duplicate samples
- Trip blank samples

Findings

The following sections summarize the data validation findings and usability of the final reportable results. The sample numbers and locations do not include quality assurance/QC samples.

PCB Aroclor and PCB Congener Data

PCB Aroclor data were assessed for nine Aroclors from 267 sediment samples collected at 88 locations, resulting in 2,403 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the PCB Aroclor data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the method detection limit (MDL) and the reporting limit (RL).

Thirty eight of the PCB Aroclor results (1.6%) from 29 samples were rejected, which consisted of one or more of the following nine analytes: Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, Aroclor 1260, Aroclor 1262, and Aroclor 1268, and should not be used to make project decisions. Most of the data were rejected due to a percent difference (>100%) between the primary and confirmation columns. With a variation of >100%, the concentration could not be reliably established. Some parameters that were nondetects were rejected due to extremely low surrogate recoveries, which could result in the data being biased very low.

The PCB congener data were sent to the laboratory for analysis at the beginning of August 2010. The analytical results will be reviewed and reported at a later date.

Pesticide Data

Pesticide data were assessed for 21analytes from 267 sediment samples collected at 88 locations, resulting in 5,607 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the pesticide data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the MDL and the RL.

Three-hundred and fifty-one of the pesticide results (6.3%) from 127 samples were rejected, which consisted of one or more of the following 17 analytes: 4,4'-DDD, 4,4'-DDT, 4,4'-DDE, alpha-BHC, alpha-chlordane, beta-BHC, beta-chlordane, delta-BHC, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, gamma-BHC, heptachlor, heptachlor epoxide, and methoxychlor, and should not be used to make project decisions. Most of the data were rejected due to a percent difference (>100%) between the primary and confirmation columns. With a variation of >100%, the concentration could not be reliably established.

Semivolatile Data

Polycyclic aromatic hydrocarbon data were assessed for 17 analytes from 267 sediment samples collected at 88 locations resulting in 4,539 results. In addition, 68 of the samples from 44 locations were assessed for 50 semivolatile analytes resulting in 3,400 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the semivolatile data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the MDL and the RL.

None of the reported SVOC results were rejected. One hundred percent of the SVOC data, as qualified, can be used to make project decisions.

Metals Data

Metals data were assessed for 23 analytes from 267 sediment samples collected at 88 locations, resulting in 6,141 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the metals data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the MDL and the RL.

Nineteen of the metals results (0.3%) from 17 samples were rejected, which consisted of one or more of the following analytes: antimony, copper, and zinc, and should not be used to make project decisions. Most of the data were rejected due to a matrix spike recovery outside the expanded low criteria and/or a post-digestion spike less than the low limit, which could result in the data being biased very low. The copper and zinc results were rejected due to a sample in a field duplicate pair having >5 times the contract-required quantification limit and an absolute difference of >4 times the contract-required quantification limit, which could result in the data being biased very high.

TCLP Data

One sample was collected from each of the two 55-gallon waste drums: one sediment, one aqueous. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

Both sample results for PCB Aroclor 1254 were rejected and should not be used to make project decisions. The data were rejected due to a percent difference >100 percent between the primary and confirmation columns. With a variation of >100 percent, the

concentration could not be reliably established. Some parameters that were nondetects were rejected due to extremely low surrogate recoveries, which could result in the data being biased very low

Overall Assessment

The final activity in the data quality evaluation is an assessment of whether the data meets the data quality objectives. The goal of the assessment was to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision making process. The following summary highlights the data evaluation findings for the above-defined events:

1. The completeness objective of 90 percent was met for all method/analyte combinations.
2. The precision and accuracy of the data, as measured by field and laboratory QC indicators, indicate that the data quality objectives were met.

References

CH2M HILL. 2010. *Quality Assurance Project Plan, Lincoln Park/Milwaukee River Channel, Milwaukee, Wisconsin.* February.

USEPA. 2008. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. June.

USEPA. 2004. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*. October.

Attachment 1

Computer Sciences Corporation Narratives

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 4, 2010

SUBJECT: Review of Data
Received for Review on: 7 April 2010

FROM: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0

SDG Number: E4RS0

Number and Type of Samples: Sixteen (16) sediment samples

Sample Numbers: E4RS0 - E4RS2, E4RS4-E4RS9, E4RT2 - E4RT6, E4RX0 and E4RX1

Laboratory: ALS Laboratory Group (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Sixteen (16) sediment samples, labeled E4RS0 through E4RS2, E4RS4 through E4RS9, E4RT2 through E4RT6, E4RX0 and E4RX1, were shipped to ALS Laboratory Group (DataChem) located in Salt Lake City, Utah. All samples were collected on 2/25/2010 and were received intact on 2/27/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 8 ºC. No data have been qualified based on receipt temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Sample results were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 data validation SOPs.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually sediment samples.

Some samples in this SDG were originally reported with some sample results below the sample specific MDLs with a "J" flag. The EDD, Form 1s and other data summary forms for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s

There is a slight difference between the CRQL values reported on the Form 1s and the values reported in the EDD for several samples, due to rounding errors. In addition, the Forms 1, 3 and 10 for some samples report compound concentrations below the MDL. The EDD contains the correct values. Specific instances are detailed in the Additional Information section of this review narrative.

GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data based on these discrepancies.

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples E4RT5 and E4RT6 as field duplicates. No field blanks are associated with this SDG.

This report is ordered by fraction as follows: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "NJ", "UJ", "U", "J".

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

All semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for Benzo(b)fluoranthene and Benzo(k)fluoranthene. Detected Benzo(b)fluoranthene and Benzo(k)fluoranthene are qualified J. Nondetected Benzo(b)fluoranthene and Benzo(k) remain unchanged.

E4RS0, E4RS1, E4RS1MS, E4RS1MSD, E4RS2, E4RS4, E4RS5, E4RS6, E4RS7, E4RS8, E4RS9, E4RT2, E4RT3, E4RT4, E4RT5, E4RT6, E4RT6DL, E4RX0, E4RX1

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria for the compound Benzo(b)fluoranthene. Detected Benzo(b)fluoranthene are qualified J. Nondetected Benzo(b)fluoranthene are qualified UJ.

E4RS7, E4RT5, E4RT6, E4RT6DL, E4RX1

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table:

Semivolatile analytes	E4RT5 µg/Kg	E4RT6 µg/Kg	%RPDs
Naphthalene	ND	ND	NA
2-Methylnaphthalene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Acenaphthene	130	150	14
Fluorene	200	260	26
Phenanthrene	1100	1600	37
Anthracene	240	290	19
Fluoranthene	1500	1900	24
Pyrene	1400	2600	60
Benzo(a)anthracene	900	1200	29
Chrysene	850	1200	34
Benzo(b)fluoranthene	1100	1600	37
Benzo(k)fluoranthene	290	490	51
Benzo(a)pyrene	800	1000	22
Indeno(1,2,3-cd)pyrene	390	420	7.4
Dibenzo(a,h)anthracene	120	120	0
Benzo(g,h,i)perylene	420	510	19

Benzo (k) fluoranthene has a % RPD exceeding 50%. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds remain unchanged.

E4RS1 Benzo(k)fluoranthene
E4RS1MS Phenanthrene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS1MSD Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene
E4RS2 Fluorene, Anthracene
E4RS4 Anthracene, Benzo(k)fluoranthene
E4RS5 Phenanthrene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo (g,h,i)perylene
E4RS6 Anthracene
E4RS7 Acenaphthene, Fluorene, Anthracene, Benzo(k)fluoranthene
E4RS8 Fluoranthene

E4RS9 Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT2 Acenaphthene, Dibenzo(a,h)anthracene
E4RT4 Anthracene, Benzo(k)fluoranthene
E4RT5 Acenaphthene, Dibenzo(a,h)anthracene
E4RT6 Acenaphthene, Dibenzo(a,h)anthracene
E4RT6DL Acenaphthene, Fluorene, Anthracene
E4RX0 Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX1 Anthracene, Benzo(k)fluoranthene

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS4, E4RS5, ER4S7, E4RT6DL, E4RX1, E4RS1MS, E4RS1MSD

The following original semivolatile sample reported a concentration that exceeded the calibration range of the instrument and was flagged “E” by the laboratory. As per the NFG, the result was flagged “J”. A diluted sample analysis was performed as required. The results from the diluted sample should be used for result validation.

E4RT6 Pyrene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile SIM sample has an analyte concentration reported less than the CRQL. The associated method blank concentration is less than the CRQL. The detected compound is qualified U at the CRQL.

E4RT3 Benzo(k)fluoranthene

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

The semivolatile SIM matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Sample levels were greater than10 times the spiking level; detected compounds are qualified J.

E4RS1, E4RS1MS, E4RS1MSD Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are field duplicates according to the field sampling plan**.** Results are summarized in the following tables:

Semivolatile SIM analytes	**E4RT5** µg/Kg	**E4RT6** µg/Kg	**%RPDs**
Naphthalene	10	22	75
2-Methylnaphthalene	24	37J	43

Semivolatile SIM analytes	E4RT5 µg/Kg	E4RT6 µg/Kg	%RPDs
Acenaphthylene	5.7	6.3	10
Acenaphthene	50J	70J	33
Fluorene	73J	98J	29
Phenanthrene	320J	590J	59
Anthracene	73J	130J	56
Fluoranthene	400J	710J	56
Pyrene	860J	1200J	33
Benzo(a)anthracene	500J	650J	26
Chrysene	490J	600J	20
Benzo(b)fluoranthene	690J	1000J	37
Benzo(k)fluoranthene	190J	260J	31
Benzo(a)pyrene	500J	700J	33
Indeno(1,2,3-cd)pyrene	360J	580J	47
Dibenzo(a,h)anthracene	82J	130J	45
Benzo(g,h,i)perylene	290J	460J	45

Semivolatile SIM analytes	E4RT5DL µg/Kg	E4RT6DL µg/Kg	%RPDs
Naphthalene	ND	ND	NA
2-Methylnaphthalene	23J	33	36
Acenaphthylene	9.9J	10J	1.0
Acenaphthene	76	110	37
Fluorene	120	160	29
Phenanthrene	820J	1100J	29
Anthracene	160	210	27
Fluoranthene	1100J	1500J	31
Pyrene	1300J	1700J	27
Benzo(a)anthracene	690J	930J	30
Chrysene	700J	890J	24
Benzo(b)fluoranthene	870J	1100J	23
Benzo(k)fluoranthene	250	330J	28
Benzo(a)pyrene	630J	770J	20
Indeno(1,2,3-cd)pyrene	400J	490J	20
Dibenzo(a,h)anthracene	81	97	18
Benzo(g,h,i)perylene	350J	410J	16

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS1DL, E4RS8, E4RS8DL, E4RX0DL, E4RX1DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4RS0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS4	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS5	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS7	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS8	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4RS9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RT2	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT4	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT5	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT6	2-Methylnaphthalene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RX0	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX1	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed.

E4RS0DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS1DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS2DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS4DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS5DL	Fluoranthene

E4RS6DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS7DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT2DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT4DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT6DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX1DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(b)fluoranthene,

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4RS0	gamma-BHC (Lindane), Dieldrin, 4,4'-DDD
E4RS1	Endosulfan I
E4RS4	Endosulfan I, Dieldrin
E4RS6DL	Aldrin
E4RS7DL	alpha-BHC, beta-BHC, Dieldrin, Endrin ketone
E4RS8	beta-BHC, delta-BHC, gamma-BHC (Lindane), Dieldrin, Endosulfan II, Endrin aldehyde
E4RS9	gamma-BHC (Lindane), Endosulfan I, Dieldrin, alpha-Chlordane
E4RT2DL	alpha-BHC, beta-BHC, Aldrin
E4RT3	beta-BHC, Dieldrin, Endosulfan sulfate, Endrin aldehyde
E4RT4	beta-BHC
E4RT5	Aldrin, Endrin ketone
E4RT6DL	Aldrin
E4RX0	gamma-BHC (Lindane), Endosulfan I, Endosulfan II, Endrin ketone Endrin aldehyde
E4RX1	gamma-BHC (Lindane), Aldrin, Endosulfan I, Endrin ketone, Endrin aldehyde
E4RX1DL	Dieldrin

The following pesticide samples have percent differences between analyte results on the two GC columns in the range of 26-50%. Detected compounds are qualified J.

E4RS1	4,4'-DDE, Endrin aldehyde
E4RS1MSD	4,4'-DDE, gamma-Chlordane
E4RS2	Dieldrin, 4,4'-DDD
E4RS4	4,4'-DDE, 4,4'-DDT, Methoxychlor
E4RS5	4,4'-DDE, gamma-Chlordane
E4RS6	Endosulfan I, Dieldrin, 4,4'-DDD
E4RS6DL	4,4'-DDD
E4RS7	Methoxychlor
E4RS9	gamma-Chlordane
E4RT2	Endosulfan I, Methoxychlor, alpha-Chlordane
E4RT2DL	4,4'-DDE
E4RT3	4,4'-DDT
E4RT4	Dieldrin, 4,4'-DDE
E4RT5	Endosulfan I, 4,4'-DDE, 4,4'-DDD
E4RX0	Dieldrin, 4,4'-DDD, 4,4'-DDT
E4RX1	Heptachlor, Heptachlor epoxide
E4RX1DL	Heptachlor epoxide

The following pesticide samples have percent differences between analyte results on the two GC columns in the range of 51-100%. Detected compounds are qualified NJ.

E4RS0	gamma-Chlordane
E4RS1	Heptachlor epoxide, alpha-Chlordane, gamma-Chlordane
E4RS1MS	Heptachlor, Aldrin, alpha-Chlordane, gamma-Chlordane

E4RS1	Endrin, 4,4'-DDD, 4,4'-DDT, Methoxychlor
E4RS1MS	alpha-BHC, gamma-BHC (Lindane), Heptachlor epoxide, 4,4'-DDD, Methoxychlor
E4RS1MSD	Heptachlor epoxide, 4,4'-DDD
E4RS2	Heptachlor, Heptachlor epoxide, 4,4'-DDE, Endrin, 4,4'-DDT, gamma-Chlordane
E4RS4	Heptachlor, Heptachlor epoxide
E4RS5	Heptachlor epoxide, 4,4'-DDD
E4RS6	Heptachlor, Endrin, Endrin aldehyde
E4RS6DL	Endosulfan I, Endrin
E4RS7	beta-BHC, Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDD, 4,4'-DDT
E4RS7DL	Heptachlor, Heptachlor epoxide, 4,4'-DDD, 4,4'-DDT
E4RT2	gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, Endrin, Endosulfan II, 4,4'-DDD
E4RT2DL	gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDD
E4RT3	Heptachlor, Heptachlor epoxide, 4,4'-DDD
E4RT4	Heptachlor, Heptachlor epoxide, Methoxychlor, Endrin ketone
E4RT5	gamma-BHC (Lindane), Heptachlor epoxide
E4RT6	gamma-BHC (Lindane), Heptachlor epoxide, Endosulfan I, Endrin, Methoxychlor
E4RT6DL	gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide
E4RX0	beta-BHC

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS0, E4RS2, E4RS4, E4RS5, E4RS7, E4RS7DL, E4RS9, E4RT4, E4RT6, E4RT6DL, E4RX1, E4RX1DL

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. A diluted sample analysis was performed for all these samples, placing the concentrations within the calibration range. The results from the diluted sample should be used for result validation.

E4RS6 gamma-BHC (Lindane), Heptachlor, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT
E4RS7 4,4'-DDD
E4RT2 gamma-BHC (Lindane), Heptachlor, 4,4'-DDE, 4,4'-DDT
E4RT5 Heptachlor
E4RT6 gamma-BHC (Lindane), 4,4'-DDE, 4,4'-DDD, 4,4'-DDT
E4RX1 Heptachlor epoxide

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

In all cases, undiluted samples had acceptable surrogate recoveries on one or both columns. No data were qualified based on surrogate recovery.

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. All target Aroclors are affected. Detected and nondetected compounds remain unchanged.

E4RS2DL, E4RS6DL, E4RT2DL, E4RT6DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

The relative percent difference (RPD) of Aroclor-1260 between the matrix spike and matrix spike duplicate recoveries of Aroclor-1260 is outside criteria. Detected compounds are qualified J. Nondetected compounds remain unchanged.

The Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit on the RTXCLP2 column. All sample results for the compounds listed below reported from this column are affected. Detected compounds are qualified J. Nondetected compounds remain unchanged.

E4RS9 Aroclor-1016
E4RS1MSD, E4RS4, E4RS5, E4RS9, E4RX1 Aroclor-1260

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are field duplicates according to the field sampling plan**.** Results are summarized in the following table:

Aroclor Analytes	**E4RT5DL** µg/Kg	**E4RT6DL** µg/Kg	**%RPDs**
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	2400	2100	13
Aroclor-1254	ND	ND	
Aroclor-1260	ND	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results on the two GC columns in the range of 26-50%. Detected compounds are qualified J.

E4RS1 Aroclor-1260
E4RT2DL, E4RT5, E4RT5DL, E4RT6DL Aroclor-1248

The following Aroclor samples have percent differences between analyte results on the two GC columns in the range of 51-100%. Detected compounds are qualified NJ.

E4RS9 Aroclor-1260
E4RS1, E4RS5 Aroclor-1248

The following Aroclor samples have percent differences between analyte results on the two GC columns exceeding 100%. Detected compounds are qualified R.

E4RS4 Aroclor-1260
E4RS1MS, E4RS1MSD, E4RS4 Aroclor-1016

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS1, E4RS8, E4RS9, E4RT5, E4RT6, E4RX0, E4RX1

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". A diluted sample analysis was performed for all these samples, placing the concentrations within the calibration range. The results from the diluted sample should be used for result validation.

E4RS2 Aroclor-1248
E4RS6 Aroclor-1248
E4RS7 Aroclor-1248
E4RT2 Aroclor-1248
E4RT5 Aroclor-1248
E4RT6 Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 11, 2010

SUBJECT: Review of Data
Received for Review on: March 29, 2010

FROM: Julie Rest
Environmental Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4RS3

Number and Type of Samples: 16 Sediment Samples

Sample Numbers: E4RS3, E4RT0, E4RT1, E4RT7, E4RT8, E4RT9, E4RW0, E4RW1, E4RW2, E4RW3, E4RW4, E4RW5, E4RW6, E4RW7, E4RW8, E4RW9

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Sixteen (16) sediment samples labeled E4RS3, E4RT0, E4RT1, E4RT7 - E4RT9, E4RW0 – E4RW9 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All sixteen (16) samples were collected on 2/25/2010 and were received on 2/27/2010, intact. Samples exceeded the proper shipping temperature of 2 - 6 ºC, and were received at the facility at 8 ºC. No data have been qualified based on temperature. For samples E4RW1 – E4RW7, the recipient signature is missing from the traffic report; no sample results were qualified for this non-compliance.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4RT8 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4, as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a

particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified "J". Nondetected compounds are not qualified.

E4RS3, E4RT0, E4RT1, E4RT7, E4RT8, E4RT9, E4RW0, E4RW0DL, E4RW1, E4RW2, E4RW3, E4RW4, E4RW5, E4RW6, E4RW7, E4RW8, E4RW9
Benzo(b)fluoranthene
Benzo(k)fluoranthene

The following semivolatile samples are associated with an opening continuing calibration percent difference (%D) outside criteria. Detected compounds are qualified "J". Nondetected compounds are qualified "UJ"

E4RT8, E4RW0, E4RW2, E4RW7, E4RW8, E4RW9
2-Methylnaphthalene

Benzo(g,h,i)perylene in sample E4RW1 was flagged "J" during the automated flagging process for a %D in the closing calibration. Examination of the data showed that the %D was within the criteria. The "J" flag has been removed from the "B" and "Z" files.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile sample with a dilution factor greater than 5 has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4RW0DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4RT9 and E4RW0

Semivolatile compounds	E4RT9 µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Naphthalene	ND	1	440	10	
2-Methylnaphthalene	ND	1	550	10	
Acenaphthylene	ND	1	ND	10	
Acenaphthene	ND	1	3000	10	
Fluorene	ND	1	2800	10	
Phenanthrene	520	1	17000	10	190
Anthracene	120	1	5000	10	190
Fluoranthene	1100	1	22000	10	180
Pyrene	660	1	16000	10	180
Benzo(a)anthracene	480	1	10000	10	180
Chrysene	470	1	9300	10	180
Benzo(b)fluoranthene	590	1	13000	10	180
Benzo(k)fluoranthene	190	1	5500	10	190
Benzo(a)pyrene	380	1	11000	10	190
Indeno(1,2,3-cd)pyrene	190	1	4600	10	180
Dibenzo(a,h)anthracene	ND	1	1000	10	
Benzo(g,h,i)perylene	210	1	4800	10	180

For field duplicates E4RT9 and E4RW0, all detected compounds had RPD values above 50%. Note that the original analysis of E4RW0 was analyzed using a ten-fold dilution.

E4RW1 and E4RW2

Semivolatile compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	160	1	52	1	100
Anthracene	51	1	ND	1	
Fluoranthene	280	1	110	1	90
Pyrene	220	1	69	1	100
Benzo(a)anthracene	150	1	ND	1	
Chrysene	150	1	ND	1	
Benzo(b)fluoranthene	260	1	64	1	120

Semivolatile compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Benzo(k)fluoranthene	120	1	ND	1	
Benzo(a)pyrene	230	1	ND	1	
Indeno(1,2,3-cd)pyrene	170	1	ND	1	
Dibenzo(a,h)anthracene	110	1	ND	1	
Benzo(g,h,i)perylene	190	1	ND	1	

For field duplicate samples E4RW1 And E4RW2, compounds Phenanthrene, Fluoranthene, Pyrene, and Benzo(b)fluoranthene have RPD values above 50%.

E4RW3 and E4RW4

Semivolatile compounds	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	240	1	320	1	30
Anthracene	62	1	85	1	30
Fluoranthene	510	1	430	1	20
Pyrene	350	1	330	1	6
Benzo(a)anthracene	210	1	200	1	5
Chrysene	220	1	180	1	20
Benzo(b)fluoranthene	360	1	210	1	50
Benzo(k)fluoranthene	95	1	90	1	5
Benzo(a)pyrene	210	1	160	1	30
Indeno(1,2,3-cd)pyrene	110	1	67	1	50
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	130	1	72	1	60

For field duplicate samples E4RW3 and E4RW4, Benzo(g,h,i)perylene had an RPD value above 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified “J”.

E4RS3	Anthracene, Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene
E4RT1	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene,
E4RT7	Anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT9	Anthracene
E4RW0	Naphthalene, 2-Methylnaphthalene, Dibenzo(a,h)anthracene
E4RW1	Anthracene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene
E4RW2	Phenanthrene, Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4RW3	Anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW4	Anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW6	Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW7	Fluoranthene, Pyrene, Benzo(b)fluoranthene

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile sample reported a concentration that exceeded the calibrated range of the instrument and was flagged “E” by the laboratory. As per the NFG, this result is flagged “J”. The result from the diluted sample should be used for result validation.

E4RW0	Fluoranthene

The nondetected results reported at the CRQL level for the following compounds in the samples below are incorrect in the EDD. These results were reported correctly on the Form 1s. The EDD has been updated to include the nondetected results at the correct CRQLs.

E4RT0	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Anthracene, Dibenzo(a,h)anthracene
E4RW0DL	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Dibenzo(a,h)anthracene
E4RW5	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Dibenzo(a,h)anthracene

Semivolatiles-SIM compounds	E4RT9DL µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Fluoranthene	720	10	9200	10	170
Pyrene	580	10	8600	10	170
Benzo(a)anthracene	390	10	7300	10	180
Chrysene	340	10	5000	10	170
Benzo(b)fluoranthene	620	10	5600	10	160
Benzo(k)fluoranthene	170	10	1900	10	170
Benzo(a)pyrene	400	10	4200	10	170
Indeno(1,2,3-cd)pyrene	290	10	2900	10	160
Dibenzo(a,h)anthracene	50	10	560	10	170
Benzo(g,h,i)perylene	220	10	2200	10	160

For field duplicate pair E4RT9 and E4RW0, all detected compounds except Acenaphthylene had RPD values above 50%. Note that sample E4RW0 was originally analyzed using a ten-fold dilution and that most of the detected analyte results exceeded the calibrated instrument range. No further semivolatiles-SIM dilution analysis was performed for sample E4RW0.

E4RW1 and E4RW2

Semivolatiles-SIM compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Naphthalene	5.7	1	4.5	1	24
2-Methylnaphthalene	2.7	1	1.6	1	51
Acenaphthylene	1	1	0.8	1	28
Acenaphthene	8	1	2.1	1	120
Fluorene	9.6	1	2.7	1	110
Phenanthrene	97	1	34	1	96
Anthracene	32	1	11	1	98
Fluoranthene	170	1	82	1	70
Pyrene	140	1	63	1	76
Benzo(a)anthracene	110	1	50	1	75
Chrysene	84	1	42	1	67
Benzo(b)fluoranthene	140	1	60	1	80
Benzo(k)fluoranthene	32	1	15	1	72
Benzo(a)pyrene	93	1	41	1	78
Indeno(1,2,3-cd)pyrene	91	1	35	1	89
Dibenzo(a,h)anthracene	14	1	5.5	1	87
Benzo(g,h,i)perylene	52	1	20	1	89

E4RW1DL and E4RW2DL

Semivolatiles-SIM compounds	E4RW1DL µg/kg	DF	E4RW2DL µg/kg	DF	%RPD
Naphthalene	ND	10	ND	5	
2-Methylnaphthalene	ND	10	ND	5	
Acenaphthylene	ND	10	ND	5	

Semivolatiles-SIM compounds	E4RW1DL µg/kg	DF	E4RW2DL µg/kg	DF	%RPD
Acenaphthene	10	10	ND	5	
Fluorene	12	10	ND	5	
Phenanthrene	110	10	35	5	100
Anthracene	31	10	11	5	95
Fluoranthene	190	10	81	5	80
Pyrene	160	10	66	5	83
Benzo(a)anthracene	98	10	43	5	78
Chrysene	85	10	42	5	68
Benzo(b)fluoranthene	120	10	61	5	65
Benzo(k)fluoranthene	48	10	19	5	87
Benzo(a)pyrene	89	10	43	5	70
Indeno(1,2,3-cd)pyrene	59	10	26	5	78
Dibenzo(a,h)anthracene	10	10	4.7	5	72
Benzo(g,h,i)perylene	46	10	22	5	71

For field duplicate pair E4RW1 and E4RW2, all compounds except Naphthalene and Acenaphthylene had RPD values above 50%. Note that most detected results in the neat analyses for these samples exceeded the calibrated instrument range. Diluted analyses were performed. The RPDs are also above than 50% for all detected compounds in the diluted analyses.

E4RW3 and E4RW4

Semivolatiles-SIM compounds	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Naphthalene	6.1	1	6.6	1	7.9
2-Methylnaphthalene	2.6	1	5.5	1	72
Acenaphthylene	5	1	4.5	1	11
Acenaphthene	14	1	17	1	19
Fluorene	13	1	20	1	42
Phenanthrene	140	1	180	1	25
Anthracene	38	1	61	1	47
Fluoranthene	280	1	280	1	0
Pyrene	240	1	240	1	0
Benzo(a)anthracene	170	1	180	1	5.7
Chrysene	150	1	140	1	6.9
Benzo(b)fluoranthene	200	1	160	1	22
Benzo(k)fluoranthene	51	1	38	1	29
Benzo(a)pyrene	120	1	110	1	8.7
Indeno(1,2,3-cd)pyrene	95	1	96	1	1
Dibenzo(a,h)anthracene	20	1	16	1	22
Benzo(g,h,i)perylene	74	1	54	1	31

E4RW3DL and E4RW4DL

Semivolatiles-SIM compounds	E4RW3DL µg/kg	DF	E4RW4DL µg/kg	DF	%RPD
Naphthalene	ND	10		10	
2-Methylnaphthalene	ND	10		10	
Acenaphthylene	6.6	10	5.7	10	15
Acenaphthene	18	10	21	10	15
Fluorene	16	10	25	10	44
Phenanthrene	160	10	180	10	12
Anthracene	39	10	56	10	36
Fluoranthene	340	10	290	10	16
Pyrene	250	10	200	10	22
Benzo(a)anthracene	140	10	130	10	7.4
Chrysene	130	10	120	10	8
Benzo(b)fluoranthene	210	10	160	10	27
Benzo(k)fluoranthene	64	10	45	10	35
Benzo(a)pyrene	140	10	110	10	24
Indeno(1,2,3-cd)pyrene	92	10	64	10	36
Dibenzo(a,h)anthracene	17	10	13	10	27
Benzo(g,h,i)perylene	77	10	53	10	37

For field samples E4RW3 and E4RW4, compounds 2-Methylnaphthalene, Fluorene, and Anthracene had RPD values that exceeded 50%. All RPDs are less than 50% in the diluted analyses.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that the semivolatiles-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatiles-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

E4RS3DL	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RT0	Acenaphthylene
E4RT0DL	Acenaphthene, Fluorene, Anthracene
E4RT1DL E4RT7DL	Acenaphthylene
E4RT8	2-Methylnaphthalene, Anthracene, Benzo(k)fluoranthene

E4RT9DL	Acenaphthylene, Acenaphthene,
E4RW0 E4RW1	Acenaphthylene
E4RW1DL	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RW2	2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene,
ER4W2DL	Anthracene, Dibenzo(a,h)anthracene
E4RW3	2-Methylnaphthylene
E4RW3DL	Acenaphthylene, Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RW4DL	Acenaphthylene, Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RW5	2-Methylnaphthylene
E4RW5DL	Acenaphthene, Fluorene
E4RW6	Acenaphthylene
E4RW6DL	Acenaphthene, Fluorene, Anthracene, Dibenzo(a,h)anthracene
E4RW7	2-Methylnaphthylene, Acenaphthene, Fluorene
E4RW7DL	Acenaphthene, Anthracene, Dibenzo(a,h)anthracene
E4RW8	2-Methylnaphthalene, Anthracene, Benzo(k)fluoranthene, Dibenzo(a,h) anthracene
E4RW9	Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatiles-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

E4RS3	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RT0	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT1	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT7	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT9	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RW1	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW2	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4RW3, E4RW4	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW5	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene.
E4RW6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW7	Fluoranthene, Pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene

The following semivolatiles-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed.

E4RT0DL	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4RT1DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RT7DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene,
E4RT9DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene,
E4RW0	Naphthalene, 2-Methylnaphthalene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RW3DL E4RW4DL	Fluoranthene
E4RW5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene

The following semivolatile SIM samples have compound concentrations below the MDL reported on the Form 1s. Detected compounds were qualified U and reported at the CRQL. The results are reported correctly in the EDD.

E4RT1DL E4RT7DL E4RW4DL	Naphthalene, 2-Methylnaphthalene
E4RS3DL	Naphthalene, 2-Methylnaphthalene, Acenaphthylene
E4RT0DL E4RT9DL E4RW1DL E4RW3DL E4RW6DL	Naphthalene
E4RW2DL	Naphthalene, Acenaphthene, Fluorene
E4RW5DL	Naphthalene, Acenaphthylene
E4RW7DL	Naphthalene, Fluorene

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *initial* instrument blank concentration is less than the CRQL. Detected compounds are qualified "U". Nondetected compounds remain unchanged. Reported sample concentrations have been elevated to the CRQL.

E4RT8, E4RW1, E4RW7, E4RW8, E4RW9	4,4'-DDT
E4RS3, E4RT1DL, E4RT8, E4RW1, E4RW5, E4RW7, E4RW8, E4RW9	Methoxychlor
E4RT1DL, E4RT8, E4RT9, E4RW0, E4RW7	Endrin aldehyde

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the CRQL. Detected compounds are qualified "U" and the sample concentrations have been elevated to the CRQL. Nondetected compounds are not qualified.

E4RT8, E4RW1, E4RW8, E4RW9	beta-BHC
E4RT8, E4RW1, E4RW7, E4RW8, E4RW9	4,4'-DDT
E4RW5, E4RW6	alpha-Chlordane
E4RS3, E4RT1, E4RT1DL, E4RT7, E4RT8, E4RW1, E4RW4 - E4RW8	Methoxychlor
E4RW9	4,4'-DDD
E4RT1DL, E4RW3 E4RW4, E4RW5	Endrin aldehyde
E4RT0, E4RT8, E4RW0 – E4RW6, E4RW8	Heptachlor

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Samples E4RS3, E4RT0, E4RT1, E4RT7, E4RT8, E4RT9, E4RW0, E4RW1, E4RW2, E4RW3, E4RW4, E4RW6, E4RW7, E4RW8, and E4RW9 had acceptable surrogate recoveries on one or both columns. No data for these samples was qualified based on surrogate recovery.

However, a high surrogate recovery was obtained on one column for samples E4RT0, E4RW3, and E4RW6. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. As a result, for samples E4RT0, E4RW3, and E4RW6, the "J" flags applied during the automated check process have been removed for the affected compounds.

E4RT0	alpha-chlordane, Dieldrin
E4RW3	4,4'-DDE, Endrin ketone
E4RW6	4,4'-DDD, 4,4'-DDE

Pesticide sample E4RW5 had surrogate recoveries greater than the 200% on both columns. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4RT8, the pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit on the RTXCLP2 column. All sample results for the following compounds which were reported from the RTXCLP2 column are affected. Detected compounds reported from this column are qualified "J". Nondetected compounds remain unchanged

gamma-BHC, Heptachlor, Aldrin, Dieldrin

For sample E4RT8, the pesticide MSD had a percent recovery for Endrin that was greater than the upper acceptance limit on both columns. All samples results for Endrin are affected. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

For sample E4RT8, the pesticide MSD had a percent recovery for 4,4'-DDT that was greater than the upper acceptance limit on the RTXCLP column. All samples results for 4,4'-DDT which were reported from the RTXCLP column are affected. Detected compounds reported from this column are qualified "J". Nondetected compounds remain unchanged.

In addition, the relative percent difference (RPD) between the MS and MSD is outside criteria for Heptachlor and Endrin. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4RT9 and E4RW0

Pesticide compound	E4RT9 µg/kg	DF	E4RW0 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	0.14	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.27	1	0.14	1	63
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	0.25	1	
4,4'-DDE	1.1	1	1.6	1	37
Endrin		1	0.27	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	1	1	1.2	1	18
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.77	1	1.2	1	44
Methoxychlor		1		1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane		1	0.66	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4RT9 and E4RW0, Heptachlor epoxide had an RPD value greater than 50%. The Endrin, Methoxychlor, and gamma-chlordane results for sample E4RT9; and the Methoxychlor result for sample E4RW0 were associated with an “R” flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

E4RW1 and E4RW2

Pesticide compound	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	0.12	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	0.12	1	0.15	1	22
Aldrin	ND	1	ND	1	

Pesticide compound	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Heptachlor epoxide		1		1	
Endosulfan I	ND	1	ND	1	
Dieldrin	0.1	1	ND	1	
4,4'-DDE	0.5	1		1	
Endrin	0.24	1	2	1	160
Endosulfan II	0.24	1	ND	1	
4,4'-DDD	0.76	1	1.1	1	37
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.24	1		1	
Methoxychlor	1.2	1		1	
Endrin ketone	0.24	1	0.3	1	22
Endrin aldehyde	ND	1	0.45	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	1.3	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4RW1 and E4RW2, Endrin, 4,4'-DDT, and Methoxychlor had RPD values greater than 50%. Results for Heptachlor epoxide in sample E4RW1; and for Heptachlor epoxide, 4,4'-DDE, 4,4'-DDT, and Methoxychlor in sample E4RW2 were associated with an "R" flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

E4RW3 and E4RW4

Pesticide compound	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	0.15	1	0.13	1	14
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1	0.39	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	0.36	1	0.26	1	32
4,4'-DDE	1.6	1	1.2	1	29
Endrin	ND	1		1	
Endosulfan II	0.3	1	0.26	1	14
4,4'-DDD	3	1	2.2	1	31
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.64	1	0.27	1	82
Methoxychlor		1	1.3	1	
Endrin ketone	0.42	1	ND	1	

Pesticide compound	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Endrin aldehyde	0.3	1	0.26	1	14
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	1.3	1	0.17	1	150
Toxaphene	ND	1	ND	1	

For field duplicate samples E4RW3 and E4RW4, 4,4'-DDT and gamma-Chlordane had RPD values that were greater than 50%. Results for Heptachlor epoxide and Methoxychlor in sample E4RW3; and for Endrin in sample E4RW4 were associated with an "R" flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

E4RT8	Heptachlor epoxide
E4RW7	4,4'-DDE
E4RW0, E4RW1	Dieldrin
E4RW9	Dieldrin, 4,4'-DDE

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J".

E4RS3	4,4'-DDT, 4,4'-DDE
E4RT1	Heptachlor, Dieldrin, 4,4'-DDE
E4RT1DL	Dieldrin
E4RT7	Endrin, 4,4'-DDT
E4RT8	Heptachlor, Heptachlor epoxide
E4RT9	Heptachlor epoxide, 4,4'-DDE
E4RW2	gamma-chlordane

E4RW3	4,4'-DDD
E4RW8	4,4'-DDD, 4,4'-DDE, Methoxychlor

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ".

E4RS3	Endrin
E4RT0	4,4'-DDE, 4,4'-DDT
E4RT7	Heptachlor, 4,4'-DDE
E4RT9	4,4'-DDD
E4RW0	gamma-Chlordane
E4RW2	Endrin, 4,4'-DDD, Endrin aldehyde
E4RW3	Dieldrin, gamma-Chlordane, 4,4'-DDT
E4RW4	Heptachlor epoxide, 4,4'-DDT
E4RW5	Gamma-chlordane
E4RW6	Dieldrin, gamma-Chlordane
E4RW7	Heptachlor epoxide

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

E4RS3	Heptachlor epoxide, Endosulfan II, Methoxychlor,
E4RT0	Heptachlor
E4RT1	Endosulfan II, Methoxychlor
E4RT1DL	Heptachlor epoxide, Endrin, Endrin aldehyde, Methoxychlor
E4RT7	Endosulfan II, Methoxychlor, Endrin aldehyde
E4RT8	Alpha-BHC, beta-BHC, 4,4'-DDT, Endrin ketone, Methoxychlor
E4RW0	Heptachlor, Heptachlor epoxide, Endrin
E4RW1	beta-BHC, Heptachlor, Endrin, Endosulfan II, Methoxychlor, Endrin ketone
E4RW2	Heptachlor, Endrin ketone

E4RW3	Heptachlor, Endosulfan II, Endrin aldehyde
E4RW4	Heptachlor, Dieldrin, Endosulfan II, Methoxychlor, Endrin aldehyde
E4RW5	Heptachlor, Endosulfan II, Methoxychlor, Endrin aldehyde, alpha-Chlordane
E4RW6	Heptachlor, Endrin, Endosulfan II, Methoxychlor, Endrin ketone, alpha-Chlordane,
E4RW7	4,4'-DDT, Dieldrin, Methoxychlor, Endrin ketone
E4RW8	beta-BHC, Heptachlor epoxide, Endrin, Endrin ketone, gamma-Chlordane
E4RW9	beta-BHC, Heptachlor epoxide, 4,4'-DDD, 4,4'-DDT, gamma-Chlordane

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R".

E4RS3	Heptachlor
E4RT0	Heptachlor epoxide, Endrin, 4,4'-DDD, Methoxychlor
E4RT1	Heptachlor epoxide, Endrin, Endrin aldehyde
E4RT1DL	4,4'-DDD
E4RT7	Alpha-BHC, Heptachlor epoxide
E4RT9	Endrin, Methoxychlor, gamma-Chlordane
E4RW0	Methoxychlor
E4RW1	Heptachlor epoxide
E4RW2	4,4'-DDE, 4,4'-DDT, Heptachlor epoxide, Methoxychlor
E4RW3	Heptachlor epoxide, Methoxychlor
E4RW4	Endrin, gamma-Chlordane
E4RW5	Dieldrin, Endosulfan sulfate, Endrin ketone, Heptachlor epoxide
E4RW6	Heptachlor epoxide

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide sample had reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The result from the diluted sample should be used for result validation.

E4RT1 4,4'-DDE

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples due to rounding errors, and do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

Alpha-chlordane and dieldrin in sample E4RW9 was reported as a detected result at the CRQL in the original "Z" file. Examination of the raw data showed that the value was a nondetected result. The "U" flag was added to the sample result.

E4RS3, E4RT0, E4RT1, E4RT1DL, E4RW2, E4RW6, E4RW7, ER4W9

The following pesticide samples were assigned the unique qualifier flags "U" and "J" during the automated check process. Based on review findings, the flag was adjusted to "U" in the "B" and "Z" files.

E4RT0, E4RT8, E4RW3, E4RW5, E4RW6	Heptachlor
E4RT1DL, E4RW0, E4RW1, E4RW6, E4RW8	Endrin
E4RT8, E4RW1, E4RW7 – E4RW9	4,4'-DDT
E4RT8MS	4,4'-DDE
E4RT8MSD	beta-BHC
E4RW3, E4RW5, E4RW6,	Endosulfan II
E4RW3, E4RW5	Endrin aldehyde
E4RW5, E4RW6	alpha-chlordane
E4RW6	Endrin ketone
E4RW5, E4RW6, E4RW8	Methoxychlor

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

Samples E4RS3, E4RT0, E4RT1, E4RT1DL, E4RT7, E4RT8, E4RT9, E4RW0, E4RW1, E4RW2, E4RW3, E4RW4, E4RW5, E4RW6, E4RW7, E4RW8, and E4RW9 had acceptable surrogate recoveries on one or both columns. No data for these samples was qualified based on surrogate recovery.

However, a high surrogate recovery was obtained on one column for samples E4RT0, E4RT1, E4RT9, E4RW0, E4RW2 - E4RW5. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. As a result, the "J" flags applied during the automated check process have been removed for the following compounds.

E4RT0, E4RT9 , E4RW4, E4RW5	Aroclor-1260
E4RW5	Aroclor-1016

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4RT9 AND E4RW0

Aroclor compounds	E4RT9 µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Aroclor-1016	5.7	1	5.3	1	7.3
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	5.7	1	5.7	1	0
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4RW1 and E4RW2

Aroclor compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Aroclor-1016	2.7	1	7.6	1	95.1
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	2.1	1		1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For field duplicates E4RW1 and E4RW2, Aroclor-1016 had an RPD value above 50%. The result for Aroclor-1260 in sample E4RW2 was associated with an “R” flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

E4RW3 and E4RW4

Aroclor compounds	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Aroclor-1016	9.9	1	8.7	1	12.9
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	6.4	1	5.9	1	8.1
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

E4RT8, E4RW1, E4RW7, E4RW8, E4RW9 Aroclor-1260

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

E4RT8, E4RW3 Aroclor-1260

E4RS3, E4RW1 Aroclor-1016

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

E4RW0, E4RW6 Aroclor-1260

E4RT9, E4RW0, E4RW2, E4RW3, E4RW4 Aroclor-1016

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below the CRQL. Detected compounds are qualified "U". Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4RT8, E4RW7, E4RW8, E4RW9 Aroclor-1016

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R".

E4RW2 Aroclor-1260
E4RW6 Aroclor-1016

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4RT7	Aroclor-1016
E4RT1	Aroclor-1016, Aroclor-1260

The reported CRQLs listed on laboratory Form 1s are incorrect for the following samples, due to rounding errors, and do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS3, ER4T0, ER4T1, ER4T1DL, E4RW2, E4RW6, E4RW7, E4RW9

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: **August 3, 2010**

SUBJECT: **Revised Review Narrative Report**
Review of Data
Received for Review on: 16 April 2010

FROM: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

This data review narrative supersedes the narrative sent on June 14, 2010 for the review of data in SDG E4RX2. The changes made to this narrative include clarifications added to the Semivolatile-SIM and Pesticide sections of this narrative. The changes are highlighted in bold face type. The "reportable results" field in the 'Z" file has been updated to reflect the sample dilutions and reanalyses detailed in this narrative.

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0

SDG Number: E4RX2

Number and Type of Samples: Thirteen (13) soil samples

Sample Numbers: E4RX2 - E4RX9, and E4RY0-E4RY4

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
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Dan Plomb, CH2M Hill
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SDG Summary

Introduction: Thirteen (13) sediment samples, labeled E4RX2 through E4RX9, and E4RY0-through E4RY4 were shipped to ALS Laboratory Group located in Salt Lake City, Utah. All samples were collected on 2/24/2010 and 2/25/2010. All samples were received on 2/27/2010 intact. Samples exceeded the proper shipping temperature range of 2 – 6 ºC. Samples were received at the facility at 8 ºC. No data have been qualified based on temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The "U" values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

No sample was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses. The laboratory chose E4RY4 as the QC sample.

Using the field dup identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples that no samples from this SDG are field duplicates. No field blanks are associated with this SDG.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RY0, E4RY1, E4RY2, E4RY3, E4RY4, E4RY4MS, E4RY4MSD

Benzo(b)fluoranthene
Benzo(k)fluoranthene

4. BLANKS

The following semivolatile samples have reported analyte concentrations less than the CRQL. The associated method blank concentration of the analyte is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL.

Benzo(g,h,i)perylene:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Indeno(1,2,3-cd)pyrene:	E4RX2, E4RX3, E4RX4, E4RX6, E4RX7, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Benzo(b)fluoranthene:	E4RX2, E4RX3, E4RX4, E4RX7, E4RY0, E4RY4MS, E4RY4MSD
Benzo(k)fluoranthene:	E4RX2, E4RX3, E4RX4, E4RX7, E4RX9, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Benzo(a)pyrene:	E4RX2, E4RX3, E4RX4, E4RX7, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Dibenzo(a,h)anthracene:	E4RX2, E4RX3, E4RX4, E4RX6, E4RX7, E4RX8, E4RX9, E4RY0, E4RY1, E4RY2, E4RY3, E4RY4, E4RY4MS, E4RY4MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile sample has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RY1 Anthracene-d_{10} (affected compounds Anthracene, Phenanthrene)

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

The CRQLs specified in Modification Reference Number: 1888.0 were not achieved for sample E4RX7, due to limited sample volume. The CRQL is two times greater than requested, because 25 grams rather than 50 grams of sample was extracted.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4RX8, E4RX9, E4RY3 - Anthracene
E4RX7, E4RY0 - Pyrene
E4RX7, E4RY4 - Benzo(g,h,i)perylene
E4RX7, E4RY0 - Benzo(b)fluoranthene
E4RX7, E4RY0 - Fluoranthene
E4RX9 - Benzo (k) fluoranthene
E4RY4 - Chrysene
E4RX7, E4RY4 - Benzo(a)pyrene
E4RY3 - Dibenzo(a,h)anthracene
E4RY4 - Benzo(a)anthracene
E4RY4 - Phenanthrene
E4RY3 - Fluorene

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

No dilutions for semivolatiles are associated with this SDG. Due to suspected rounding differences, the reported CRQLs listed on laboratory Form 1s do not agree with the B-file Spreadsheet results.
E4RX7, E4RX9, E4RY0, E4RY2

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL.

Benzo(g,h,i)perylene:	E4RX4, E4RX5, E4RX6
Indeno(1,2,3-cd)pyrene:	E4RX4, E4RX5, E4RX6
Benzo(b)fluoranthene:	E4RX5, E4RX6
Benzo(a)pyrene:	E4RX5, E4RX6

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Acenaphthene spike recoveries and %RPD met criteria. Pyrene in the matrix/matrix spike duplicate samples had negative percent recovery because spiking levels of this compound were significantly lower than the levels of pyrene found in the unspiked sample. Results were not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatile SIM.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The CRQLs specified in Modification Reference Number: 1888.0 were not achieved for sample E4RX7 due to limited sample volume. The CRQL is two times greater than requested as 25 grams rather than 50 grams of sample was extracted.

The following semivolatile samples have compound concentrations below the MDL on the originally submitted Form 1s. Refer to the resubmitted corrected Form 1s when evaluating data. The EDD is correct.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX7DL, E4RX8DL, E4RX9DL, E4RY0, E4RY0DL, E4RY1DL, E4RY2DL, E4RY3DL, E4RY4DL, E4RY4MS, E4RY4MSD

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX7DL, E4RX8DL, E4RX9DL, E4RY0, E4RY0DL, E4RY1, E4RY1DL, E4RY3DL, E4RY4, E4RY4DL, E4RY4MS, E4RY4MSD

Anthracene:	E4RX2, E4RX3, E4RX7, E4RY0DL, E4RY1DL, E4RY4DL, E4RY4MS, E4RY4MSD
Pyrene;	E4RX5, E4RX6
Benzo(g,h,i)perylene:	E4RX4, E4RX5, E4RX6
Indeno(1,2,3-cd)pyrene:	E4RX4, E4RX5, E4RX6
Benzo(b)fluoranthene:	E4RX5, E4RX6
Fluoranthene:	E4RX5, E4RX6
Benzo(k)fluoranthene:	E4RX4
Acenaphthylene:	E4RY1, E4RY3DL, E4RY4
Chrysene:	E4RX5, E4RX6
Benzo(a)pyrene:	E4RX5, E4RX6
Dibenzo(a,h)anthracene:	E4RX2, E4RX3, E4RX7DL, E4RY0DL, E4RY4DL, E4RY4MS, E4RY4MSD
Benzo(a)anthracene:	E4RX4, E4RX5, E4RX6
Acenaphthene:	E4RX8DL, E4RX9DL, E4RY0, E4RY1DL, E4RY4
Phenanthrene:	E4RX5, E4RX6
Fluorene:	E4RX2, E4RX3, E4RX7, E4RX9DL, E4RY0DL, E4RY1DL
2-Methylnaphthalene:	E4RY4

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RX4, E4RX7DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4RX7	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RX9	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY0	Phenanthrene, Fluoranthene, Pyrene, Benzo(b)fluoranthene,
E4RY1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY3	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY4	**Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene**

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. **Results for the following samples provide qualified, but usable data, and should be used in result validation.**

E4RX8DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4RX9DL	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4RY1DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4RY2DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene

E4RY3DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference for Decachlorobiphenyl exceeding criteria. All detected compounds are qualified J. All nondetected compounds are qualified UJ.

E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

4. BLANKS

The following pesticide samples have Endrin aldehyde concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4, E4RY4MS, E4RY4MSD

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide:	E4RY3DL
Endosulfan sulfate:	E4RX4
Endosulfan II:	E4RX8, E4RX9, E4RX9DL, E4RY0
Dieldrin:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY0, E4RY1
4,4'-DDD:	E4RY4MS
4,4'-DDE:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7,
Endrin aldehyde:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY1, E4RY4, E4RY4MS, E4RY4MSD

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide:	E4RX2, E4RX5, E4RX6, E4RY3DL,
Endosulfan sulfate:	E4RX4,
Endosulfan II:	E4RX8, E4RX9, E4RX9DL, E4RY0
4,4'-DDT:	E4RY4
gamma-Chlordane:	E4RX2, E4RX3, E4RX4,
Dieldrin:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY0, E4RY1
Endrin:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4
Methoxychlor:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7
4,4'-DDD:	E4RY0, E4RY4MS
4,4'-DDE:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7
Endrin aldehyde:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY1, E4RY4, E4RY4MS, E4RY4MSD
Heptachlor:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7
Endosulfan I:	E4RX7

6. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

In all cases, undiluted samples had acceptable surrogate recoveries on one or both columns. No data was qualified based on high surrogate recovery on one column.

The following pesticide samples have surrogate percent recoveries that are greater than 200%. The high surrogate recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The "J" flags applied to samples E4RY2 and E4RY3 during the automated check process would have been removed for all detected compounds, but the J flags have been retained for other reasons detailed in this report.

E4RY2 and E4RY3

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4RX9DL, E4RY3DL

The following pesticide samples have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected compounds are qualified J. Nondetected compounds are not qualified. The high surrogate recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The "J" flags applied to samples E4RX8 and E4RX9 during the automated check process would have been removed for all detected compounds, but the J flags have been retained for other reasons detailed in this report.

E4RX8, E4RX9

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

Not applicable for Pesticides.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The CRQLs specified in Modification Reference Number: 1886.0 were not achieved for sample E4RX7 due to limited sample volume. The CRQL is two times greater than requested as 30 grams rather than 50 grams of sample was extracted.

The following pesticide samples have compound concentrations below the MDL on the originally submitted Form 1. Refer to the resubmitted corrected Form 1 for data evaluation. The EDD is correct.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX9DL, E4RY3DL

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4RX2, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY0, E4RY1

beta-BHC	E4RX5, E4RX6
4,4’-DDD	E4RX5, E4RX6
4,4’-DDT	E4RX2, E4RX7
Aldrin	E4RY0
alpha-Chlordane	E4RX9DL

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Aldrin	E4RY0, E4RY4MSD
beta-BHC	E4RX6
Endosulfan II	E4RX2

4,4'-DDT	E4RX7, E4RY1, E4RY4MSD
alpha-Chlordane	E4RX8
gamma-Chlordane	E4RX4, E4RY0, E4RY1
Endrin ketone	E4RX4, E4RX6, E4RY2
Dieldrin	E4RX6, E4RX8, E4RY2, E4RY4MS, E4RY4MSD
Endrin	E4RX8, E4RY1, E4RY3, E4RY4MS, E4RY4MSD
4,4'-DDD	E4RX5, E4RX6, E4RX8, E4RX9DL, E4RY4, E4RY4MS, E4RY4MSD
4,4'-DDE	E4RX8, E4RY3, E4RY4MSD
Endosulfan I	E4RX9

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

E4RX3, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY2, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide	E4RX3, E4RX9, E4RX9DL, E4RY0
delta-BHC	E4RX7
4,4'-DDT	E4RY4MS
gamma-BHC (Lindane)	E4RX8, E4RY2, E4RY4MS, E4RY4MSD
4,4'-DDD	E4RX9, E4RY2
4,4'-DDE	E4RY3DL, E4RY4

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Reported sample concentrations have been elevated to the CRQL. Detected compounds are qualified U.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide	E4RX2, E4RX5, E4RX6, E4RY3DL
Endosulfan sulfate	E4RY0
Aldrin	E4RX2, E4RX3, E4RX5, E4RY4
alpha-BHC	E4RX9, E4RY1, E4RY4, E4RY4MS
beta-BHC	E4RX3, E4RY0, E4RY1
delta-BHC	E4RX2
Endosulfan II	E4RX3, E4RX5, E4RX8, E4RX9, E4RY0, E4RY2, E4RY3, E4RY4, E4RY4MSD
4,4'-DDT	E4RX4, E4RX5
alpha-Chlordane	E4RY3DL
gamma-Chlordane	E4RX2, E4RX3
Endrin ketone	E4RX2, E4RX3, E4RX5, E4RX8, E4RY0, E4RY1, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD
gamma-BHC (Lindane)	E4RX2, E4RY0, E4RY1, E4RY4
Dieldrin	E4RX2, E4RX4, E4RX5, E4RX7, E4RX9DL, E4RY1, E4RY3DL, E4RY4
Endrin	E4RX7, E4RX9
Methoxychlor	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

4,4'-DDD	E4RX2, E4RX3, E4RX4, E4RY0
4,4'-DDE	E4RX2, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4MS
Endrin aldehyde	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4, E4RY4MS, E4RY4MSD
Heptachlor	E4RX7, E4RX9, E4RY1
Endosulfan I	E4RY3DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

E4RX4, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide	E4RX4, E4RX7, E4RX8, E4RY1, E4RY2, E4RY3, E4RY4, E4RY4MS, E4RY4MSD
4,4'-DDT	E4RX8, E4RX9, E4RX9DL, E4RY2, E4RY3, E4RY3DL
alpha-Chlordane	E4RX9, E4RY2, E4RY3
gamma-Chlordane	E4RX7, E4RX9, E4RY2, E4RY3, E4RY4, E4RY4MSD
Dieldrin	E4RY3
4,4'-DDD	E4RX7, E4RY1, E4RY3, E4RY3DL
4,4'-DDE	E4RX9, E4RX9DL, E4RY1
Endrin aldehyde	E4RY0
Heptachlor	E4RX8, E4RY2
Endosulfan I	E4RX8, E4RY2, E4RY3

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RX7, E4RX8, E4RX9, E4RY0, E4RY1

Pesticide sample E4RX9 reported a concentration for 4,4'-DDD that exceeded the calibrated range of the instrument. The result was flagged "E" by the laboratory and, as per the NFG, is flagged estimated, "J". The result from diluted sample E4RX9DL should be used for result validation.

Pesticide sample E4RY3 had an R-flagged result for 4,4'-DDD and 4,4'-DDT in both the neat analysis and the dilution. Consequently, no results are available for 4,4'-DDD or 4,4'-DDT for this sample. The "reportable results" in the "Z" file remain the results from the neat analysis.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor samples have surrogate percent recoveries that are greater than 200%. The high surrogate recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected and nondetected compounds are not qualified.

E4RX9RE, E4RY2, E4RY2RE, E4RY3RE

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4RY2REDL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected and nondetected compounds are not qualified

E4RX9, E4RY1, E4RY3

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4RX9REDL, E4RY3REDL

The following undiluted Aroclor samples have surrogate percent recoveries less than 10%. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4RY1

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) of Aroclor-1016 between the following Aroclor matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. Only the unspiked sample, MS and MSD are affected.

E4RY4, E4RY4MS, E4RY4MSD

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries of Aroclor-1016 that are greater than the upper acceptance. The high spike recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention times for that Aroclor. Since the spike recovery was acceptable on the other column, the extraction procedure is not suspect. Detected and nondetected Aroclor-1016 results are not qualified for high recovery, but are qualified for %RPD.

E4RY4, E4RY4MS, E4RY4MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The CRQLs specified in Modification Reference Number: 1887.0 were not achieved for sample E4RX7 due to limited sample volume. The CRQL is two times greater than requested as 30 grams rather than 50 grams of sample was extracted.

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

E4RX2, E4RX8RE, E4RY2RE, E4RY2REDL, E4RY4MS, E4RY4MSD

Aroclor-1260	E4RX2
Aroclor-1248	E4RX8RE, E4RY2RE, E4RY2REDL
Aroclor-1016	E4RY4MS, E4RY4MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

E4RX7, E4RX9, E4RY3RE, E4RY3REDL

Aroclor-1260 E4RX7
Aroclor-1254 E4RX9
Aroclor-1248 E4RY3RE, E4RY3REDL

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1254 E4RX9RE, E4RX9REDL, E4RY2RE, E4RY2REDL, E4RY3RE, E4RY3REDL

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4RX4, E4RX5, E4RX6, E4RX9, E4RY0, E4RY1

Samples E4RX8, E4RX9, E4RY2 and E4RY3 were analyzed and reported twice as undiluted analyses. During the first analysis, the laboratory determined the presence of an Aroclor for which a valid calibration was not in place. As a result, the “S” flag was applied by the laboratory and the sample was reanalyzed with a valid calibration. This analysis has a “RE” suffix. The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample (suffix DL) should be used for result validation.

E4RX8, E4RX8RE, E4RX9, E4RX9RE, E4RY2, E4RY2RE, E4RY3, E4RY3RE

However, in the case of Aroclor-1254, Samples E4RX9RE, E4RX9REDL, E4RY2RE, E4RY2REDL, E4RY3RE, and E4RY3REDL have all been flagged “R” (rejected, unusable) as the percent differences between column results exceeds 100%. Results for Aroclor-1254 from the original analysis of E4RX9, E4RY2 and E4RY3 provide qualified, but usable data.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 21, 2010

Subject: Review of Data
Received for Review on April 1, 2010

From: Caryn Wojtowicz
Senior Chemist

To: Data User GLNPO

We have reviewed the data for the following case

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN 1886.0, 1887.0, 1888.0 SDG Number E4RY5

Number and Type of Samples: Twenty (20) sediment samples

Sample Numbers: E4RY5-E4RY7, E4RZ7-E4RZ9, E4RS0-E4S03, E4S05, E4S07, E4S08, E4SB9, E4SC0, E4SC1, E4SC3, E4SC8, E4SD9 AND E4SE0

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction Twenty (20) sediment samples, labeled E4RY5 through E4RY7, E4RZ7 through E4RZ9, E4RS0 through E4S03, E4S05, E4S07, E4S08, E4SB9, E4SC0, E4SC1, E4SC3, E4SC8, E4SD9 and E4SE0 were shipped to ALS Laboratory Group located in Salt Lake City, Utah. The SDG consisted of two shipments of samples. The first shipment of samples was collected on 2/26/2010 and was received at the laboratory on 03/02/2010, intact at 9 ºC. The second shipment was collected on 03/04/2010 and received on 03/06/2010 intact at 5 ºC. Samples received 03/02/2010 exceeded the proper shipping temperature range of 2 – 6 ºC. No data have been qualified based on temperature.

Sample Analysis and Data Review All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually ”sediment” samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the “J” flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of “J” if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator “J” flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the “result value” in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file “quantitation limit” are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The “U” values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the “J” flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4S07 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Using the field dup identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples that Samples E4S07 and E4S08 are field duplicates. No field blanks are associated with this SDG.

This report is ordered by fraction in the following order Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S01, E4S02, E4S03, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08
Benzo(b)fluoranthene
Benzo(k)fluoranthene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table

Semivolatile analytes	**E4S07** µg/Kg	**E4S08** µg/Kg	**%RPD**
Naphthalene	ND	ND	NA
2-Methylnaphthalene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Acenaphthene	ND	ND	NA
Fluorene	ND	ND	NA
Phenanthrene	190	ND	#

Semivolatile analytes	E4S07 µg/Kg	E4S08 µg/Kg	%RPD
Anthracene	ND	ND	NA
Fluoranthene	480	100	131
Pyrene	530	94	140
Benzo(a)anthracene	240	ND	#
Chrysene	250	ND	#
Benzo(b)fluoranthene	360	72	133
Benzo(k)fluoranthene	160	ND	#
Benzo(a)pyrene	270	ND	#
Indeno(1,2,3-cd)pyrene	180	ND	#
Dibenzo(a,h)anthracene	ND	ND	NA
Benzo(g,h,i)perylene	110	ND	#

ND= Not Detected, NA= Not Applicable, #= Not Calculable

Fluoranthene, Pyrene and Benzo(b)fluoranthene have RPDs exceeding 50%. For several other compounds, RPDs cannot be calculated because the compound was present in the MS, but not detected in the MSD. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4RY5, E4S03, E4S07MS, E4SC8, E4SE0
Pyrene	E4S05, E4S08
Benzo(g,h,i)perylene	E4RY5, E4RY6, E4RZ7, E4RZ8, E4RZ9, E4S03, E4S07, E4S07MS, E4S07MSD
Indeno(1,2,3-cd)pyrene	E4RY5, E4RY6, E4RZ7, E4S03, E4S07, E4S07MSD
Benzo(b)fluoranthene	E4RZ8, E4S05, E4S08
Fluoranthene	E4S05, E4S08
Benzo(k)fluoranthene	E4RY5, E4RY6, E4S03, E4S07, E4S07MSD
Chrysene	E4RY6, E4RZ7, E4RZ8, E4RZ9
Benzo(a)pyrene	E4RZ7, E4RZ8, E4RZ9
Dibenzo(a,h)anthracene	E4SB9, E4SE0
Benzo(a)anthracene	E4RY6, E4RZ7, E4RZ8, E4RZ9
Acenaphthene	E4S02
Phenanthrene	E4RZ7, E4RZ8, E4RZ9, E4S07
Fluorene	E4S02
2-Methylnaphthalene	E4SC8

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RZ8, E4S02, E4S07MS, E4SE0

No dilutions for semivolatiles are associated with this SDG.

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile SIM samples are associated with a method blank (SBLK99) in which Indeno(1,2,3-cd)pyrene was at levels greater than the MDL but less than the CRQL. For samples in which Indeno(1,2,3-cd)pyrene is detected above the MDL but below the CRQL, reported sample concentrations have been elevated to the CRQL and qualified U. For samples in which Indeno(1,2,3-cd)pyrene is detected above the CRQL results are not qualified.

E4SB9, E4SC0, E4SC0DL, E4SC1, E4SC3, E4SC8, E4SC8DL, E4SD9, E4SD9DL, E4SE0, E4SE0DL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Samples E4RZ7DL and E4S08DL with dilution factors less than or equal to 5 have deuterated monitoring compound 2-Methylnaphthalene-d_{10} recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Affected compounds are

2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, Phenanthrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The RPD between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S07, E4S07MS, E4S07MSD Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table

Semivolatile analytes	E4S07 µg/Kg	E4S08 µg/Kg	%RPD
Naphthalene	ND	ND	NA
2-Methylnaphthalene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Acenaphthene	12	ND	#
Fluorene	12	ND	#
Phenanthrene	150	26	141
Anthracene	29	5	141
Fluoranthene	410	79	135
Pyrene	340	66	135
Benzo(a)anthracene	190	37	135
Chrysene	190	41	129
Benzo(b)fluoranthene	280	60	129
Benzo(k)fluoranthene	70	16	126
Benzo(a)pyrene	180	41	126
Indeno(1,2,3-cd)pyrene	150	38	119
Dibenzo(a,h)anthracene	28	7.2	118
Benzo(g,h,i)perylene	91	26	111

ND= Not Detected, NA= Not Applicable, #= Not Calculable

With the exception of Naphthalene, 2-Methylnaphthalene and Acenaphthylene, all RPDs either exceed 50%, or cannot be calculated because the compound was present in the MS, but not detected in the MSD. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4RY6DL, E4RY7, E4RZ8DL, E4S05DL, E4S08DL, E4SC0DL, E4SC1, E4SC3, E4SD9DL
Pyrene	E4S01
Benzo(g,h,i)perylene	E4RY7, E4S01
Indeno(1,2,3-cd)pyrene	E4S00, E4S01
Benzo(b)fluoranthene	E4S01
Fluoranthene;	E4S01
Benzo(k)fluoranthene	E4RY7, E4S00, E4S05DL, E4S08DL

Acenaphthylene	E4RY5, E4RY5DL, E4RY6, E4RZ8, E4RZ9, E4S02, E4S02DL, E4S03, E4S03DL, E4S07, E4S07MSD, E4SC0DL, E4SC8DL, E4SD9, E4SE0DL
Chrysene	E4S01
Benzo(a)pyrene	E4S00, E4S01
Dibenzo(a,h)anthracene	E4RY6DL, E4RY7, E4RZ7DL, E4RZ8DL, E4S05DL, E4S08DL, E4SC1, E4SC3
Benzo(a)anthracene	E4S00, E4S01
Acenaphthene	E4RY5DL, E4RY6DL, E4RZ7, E4RZ9DL, E4S05, E4S07DL, E4S08, E4SB9, E4SC8DL, E4SD9DL, E4SE0DL
Phenanthrene	E4S00, E4S01
Fluorene	E4RY6DL, E4RY7, E4RZ7, E4RZ9DL, E4S05, E4S05DL, E4S07DL, E4S08, E4SB9, E4SC0DL, E4SC1, E4SC8DL, E4SD9DL, E4SE0DL
Naphthalene	E4RZ9, E4SC3, E4SC8DL
2-Methylnaphthalene	E4RY7, E4RZ9, E4S02DL, E4S03, E4SC1, E4SC3, E4SC8DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RY5, E4S00, E4S05DL, E4S07, E4S08DL, E4SB9, E4SD9DL, E4SE0DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4RY5	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RY6	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RZ7	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RZ8	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RZ9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S02	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S03	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S05	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4S07	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S08	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene,
E4SB9	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SC0	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SC8	Naphthalene, 2-Methylnaphthalene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SC9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SE0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4RY5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4RY6DL	Fluoranthene
E4RZ9DL	Fluoranthene, Pyrene

E4S02DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S03DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4S07DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene
E4SC0DL	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4SC8DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4SC9DL	Fluoranthene, Pyrene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene
E4SE0DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with CCVs for several compounds with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected as Decachlorobiphenyl (surrogate) was one of the compounds failing to meet criteria.

E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S01, E4S02, E4S03, E4S03DL, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08, E4SC0DL, E4SD9, E4SE0

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4SC0DL
Endosulfan II	E4RY7, E4RZ7, E4S05

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4SC0DL
Endosulfan II	E4RY6, E4RY7, E4RZ7, E4S05, E4S07, E4SB9, E4SC0, E4SC1, E4SC3, E4SE0
4,4'-DDT	E4RY7, E4RZ7, E4RZ9, E4S05

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SC3 has one surrogate percent recovery greater than 150%, but less than or equal to 200%, on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The “J” flags applied to samples E4SC3 during the automated check process have been removed for all detected compounds, unless the flag has been applied for another reason.

The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10% on one or both columns. All target analytes are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Automated flags have been

overridden if a compound has been reported from the GC column having acceptable recovery, unless the flag has been applied for another reason.

E4RY7, E4RZ8, E4S07, E4SC0, E4SC3, E4SC8, E4SE0

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The RPD between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4S07MS, E4S07MSD
Heptachlor	E4S07MS, E4S07MSD

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.

Aldrin	E4S07MS, E4S07MSD
4,4'-DDT	E4S07MS, E4S07MSD

The RPD between pesticide analyte results is less than the lower acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.

gamma-BHC (Lindane)	E4S07MS, E4S07MSD

The RPD between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4S07MS, E4S07MSD
gamma-BHC (Lindane)	E4S07MS, E4S07MSD
Dieldrin	E4S07MS, E4S07MSD
Endrin	E4S07MS, E4S07MSD
Heptachlor	E4S07MS, E4S07MSD

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than or equal to the lower expanded criteria limit but less than the lower primary criteria limit Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Heptachlor	E4S07MS

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are less than the lower expanded criteria limit Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4S07MS, E4S07MSD
gamma-BHC (Lindane)	E4S07MS, E4S07MSD
Heptachlor	E4S07MS, E4S07MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table.

Pesticide analytes	**E4S07** µg/Kg	**E4S08** µg/Kg	**%RPD**
alpha-BHC	ND	ND	NA
beta-BHC	0.19	0.2	5.1
delta-BHC	ND	ND	NA
gamma-BHC(Lindane)		ND	
Heptachlor	1.6	0.78	68.9
Aldrin	ND	ND	NA
Heptachlor epoxide			
Endosulfan I	ND	ND	NA
Dieldrin	1.6	1.3	20.7
4,4'-DDE	3.5	2.5	33.3
Endrin	0.96	0.79	19.4
Endosulfan II	0.38	ND	#
4,4'-DDD	ND	ND	NA
Endosulfan sulfate	ND	ND	NA
4,4'-DDT	ND		
Methoxychlor	1.9	2	5.1
Endrin ketone	0.38	ND	#
Endrin aldehyde	ND	ND	NA
alpha-Chlordane	ND	0.33	#
gamma-Chlordane	ND	ND	NA
Toxaphene	ND	ND	NA

ND = Not Detected, NA = Not Applicable, # = Not Calculable

Results for gamma-BHC(Lindane), Heptachlor epoxide, and 4,4'-DDT were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs.

RPD exceeded 50% for Heptachlor. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aldrin E4S07MS, E4S07MSD

alpha-BHC	E4SC3
alpha-Chlordane	E4S07MS, E4S07MSD
Endrin ketone	E4SC0DL
Dieldrin	E4S07
4,4'-DDD	E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ9, E4S02, E4S03, E4SC0, E4SC1
4,4'-DDE	E4S02, E4S07, E4SB9, E4SD9, PLCSS3
Endrin aldehyde	E4RZ8, E4S07MS, E4S07MSD
Heptachlor	E4SC1
Endosulfan I	E4SC0

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

4,4'-DDT	E4S07MSD, E4SC0, E4SC0DL
alpha-Chlordane	E4S08
gamma-Chlordane	E4SC0
gamma-BHC (Lindane)	E4S07MS, E4S07MSD
Endrin	E4S03, E4S07, E4S08, E4SC0, E4SE0
4,4'-DDE	E4RY5, E4RY6, E4RZ9, E4S03, E4S03DL, E4SC8
Endrin aldehyde	E4RZ9
Heptachlor	E4S07, E4S07MS

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4RY7, E4S00, E4S01, E4S05, E4SC1, E4SC3, E4SC8
alpha-BHC	E4SC1
beta-BHC	E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S03DL, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08, E4SC0DL, E4SC3
Endosulfan II	E4RY6, E4S03, E4S07, E4SB9, E4SC0, E4SE0
4,4'-DDT	E4RZ7, E4RZ9, E4SC1
alpha-Chlordane	E4RZ8, E4SC0DL
Endrin ketone	E4S07, E4SB9, E4SE0
Dieldrin	E4SC0DL, E4SC1, E4SC3
Endrin	E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S03DL, E4S05, E4SD9
Methoxychlor	E4RY6, E4RZ7, E4RZ9, E4S02, E4S03, E4S07, E4S08, E4SB9, E4SC0, E4SC8, E4SD9, E4SE0
4,4'-DDD	E4S03DL
4,4'-DDE	E4RY7, E4S05, E4SC1, E4SC3
Endrin aldehyde	E4S00, E4S01, E4S05, E4SE0
Heptachlor	E4RZ7, E4SC0DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4RY5, E4RY6, E4RZ7, E4RZ8, E4RZ9, E4S02, E4S03, E4S03DL, E4S07, E4S07MS, E4S07MSD, E4S08, E4SC0, E4SC0DL, E4SD9, E4SE0
beta-BHC	E4S02, E4S03

4,4'-DDT	E4RY5, E4RY6, E4RZ8, E4S08, E4SB9, E4SD9, E4SE0
gamma-BHC (Lindane)	E4RZ8, E4S03, E4S03DL, E4S07
Dieldrin	E4SC0
Endrin	E4S02, E4SB9, E4SC8
4,4'-DDD	E4SE0
4,4'-DDE	E4RZ7, E4SC0DL
Heptachlor	E4RY5, E4RY6, E4RZ8, E4RZ9, E4S02, E4S03, E4S03DL, E4S07MSD, E4S08, E4SB9, E4SC0, E4SD9, E4SE0
Endosulfan I	E4SB9

11. SYSTEM PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a PEM compounds is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected.

E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S01, E4S02, E4S03, E4S03DL, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08, E4SB9, E4SC0, E4SC0DL, E4SC1, E4SC3, E4SC8, E4SD9, E4SE0

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4S03	Heptachlor
E4SC0	4,4’-DDD

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RZ7, E4RZ8, E4S00, E4S01, E4S02, E4SB9, E4SD9, E4SE0

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following Aroclor samples have no associated sulfur cleanup blank. Detected and nondetected compounds are not qualified.

E4RZ8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor sample has surrogate percent recoveries that are greater than 200% on both columns. Detected compounds are qualified J. Nondetected compounds are not qualified. All target compounds are affected.

E4S07MS

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S02DL, E4S03DL, E4SC0, E4SC0DL, E4SE0

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The “J” flags applied to samples these samples during the automated check process have been removed for all detected compounds, unless the flag has been applied for another reason.

E4S02, E4S03, E4S07MSD, E4S08, E4SD9

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4RZ8DL, E4S02DL, E4SB9

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following Aroclor matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1260 E4S07MS, E4S07MSD
Aroclor-1016 E4S07MS, E4S07MSD

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Detected compounds are qualified J. Nondetected compounds are not qualified. Although not reported as present, Aroclor-1248 is present in the MS/MSD samples in addition to the spiking compounds (Aroclor-1016 and Aroclor-1260) and may have attributed to the high recovery of the spike compounds.

Aroclor-1260 E4S07MS, E4S07MSD
Aroclor-1016 E4S07MS, E4S07MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table.

Aroclor Analytes	**E4S07DL** µg/Kg	**E4S08DL** µg/Kg	**%RPD**
Aroclor-1016	ND	ND	NA
Aroclor-1221	ND	ND	NA
Aroclor-1232	ND	ND	NA
Aroclor-1242	ND	ND	NA
Aroclor-1248	190	110	53.3
Aroclor-1254	ND	ND	NA
Aroclor-1260	80	ND	#
Aroclor-1262	ND	ND	NA
Aroclor-1268	ND	ND	NA

ND= Not Detected, NA= Not Applicable, #= Not Calculable

The RPD for Aroclor-1248 exceeds 50%. The RPD for Aroclor-1260 cannot be calculated because the compound was present in the MS, but not detected in the MSD. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Samples E4SB9 and E4SE0 are only reported as ten-fold dilutions, which place the detected Aroclor-1248 results within the calibration range. Analyses of a ten-times more concentrated aliquot of these samples were not performed because the laboratory was granted a waiver from this requirement by SMO.

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260	E4S08
Aroclor-1248	E4RY6DL
Aroclor-1016	E4S07MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1260	E4RZ7
Aroclor-1248	E4RY6

The following Aroclor sample has percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1248	E4S05

The following Aroclor sample has percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1248	E4RZ7

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4S00, E4SB9, E4SD9

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample analysis should be used for result validation.

E4RY6, E4RZ8, E4S02, E4S03, E4S07, E4S08, E4SC0

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 18, 2010

Subject: Review of Data
Received for Review on: April 14, 2010

From: Julie Rest
Environmental Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4RY8

Number and Type of Samples: 20 Sediment Samples

Sample Numbers: E4RY8, E4RY9, E4RZ0, E4RZ1 – E4RZ6, E4S06, E4S09, E4S10, E4S49 – E4S52, E4S59, E4S77 – E4S79

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Sample Receipt: Twenty (20) sediment samples labeled E4RY8, E4RY9, E4RZ0 – E4RZ6, E4S06, E4S09, E4S10, E4S49 – E4S52, E4S59, E4S77, and E4S79 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. Samples E4RY8, E4RY9, E4RZ0 –E4RZ6, E4S06, E4S09, and E4S10 were collected on 2/26/2010 and were received on 3/2/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 8 ºC. Samples E4S49 – E4S52, E4S59, E4S77, E4S78 and E4S79 were collected on 3/2/2010 and were received on 3/4/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 7 ºC. No data have been qualified based on receipt temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4RZ1 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4RZ3 and E4RZ4, and E4S78 and E4S79, as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for benzo(b)fluoranthene and benzo(k)fluoranthene. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S09, E4S10, E4S49, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79

The following semivolatile samples are associated with an opening CCV percent difference (%D) outside criteria for 2-Methylnaphthalene. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4RY8, E4RZ1, E4RZ1MSD, E4RZ5DL

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Sample E4RZ3 has a deuterated monitoring compound recovery above the upper limit of the criteria window. Affected compounds Anthracene and Phenanthrene are qualified “J” in sample E4RZ3.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RZ3 and E4RZ4, and E4S78 and E4S79 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4RZ3 and E4RZ4

Semivolatile compounds	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	61	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	650	1	350	1	60
Anthracene	210	1	100	1	71
Fluoranthene	1500	1	860	1	54
Pyrene	1300	1	1100	1	17
Benzo(a)anthracene	530	1	600	1	12
Chrysene	820	1	630	1	26
Benzo(b)fluoranthene	700	1	720	1	2.8
Benzo(k)fluoranthene	300	1	250	1	18
Benzo(a)pyrene	580	1	620	1	6.7
Indeno(1,2,3-cd)pyrene	290	1	290	1	0
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	170	1	180	1	5.7

For field duplicates E4RZ3 and E4RZ4, RPD values for Phenanthrene, Anthracene, and Fluoranthene were above 50%.

E4S78 and E4S79

Semivolatile compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	ND	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicate samples E4S78 and E4S79, RPDs could not be calculated because both sets of results were nondetects.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4RY8, E4RZ4, E4S09
Pyrene	E4S50
Benzo (g,h,i) perylene	E4RZ0, E4RZ2, E4RZ3, E4RZ5DL, E4S06, E4S09, E4S59
Indeno (1,2,3-cd) pyrene	E4RZ2, E4RZ5DL, E4S06, E4S59
Benzo (b) fluoranthene	E4RZ0, E4S49, E4S50
Fluoranthene	E4S50
Benzo (k) fluoranthene	E4RZ2, E4RZ5DL, E4S06, E4S09, E4S59
Acenaphthylene	E4RZ5DL
Chrysene	E4RZ0, E4S49, E4S59
Benzo (a) pyrene	E4RZ0, E4S49, E4S50, E4S59
Dibenzo (a,h) anthracene	E4RY9, E4RZ5
Benzo (a) anthracene	E4RZ0, E4S06, E4S49, E4S59
Acenaphthene	E4RY9, E4RZ3, E4RZ5DL
Phenanthrene	E4RZ0, E4S06, E4S49, E4S59

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4RZ5 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene, Phenanthrene, and Pyrene, and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Benzo(b)fluoranthene E4S79

Indeno(1,2,3-cd)pyrene E4S78, E4S79

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the MS and MSD prepared for semivolatile-SIM sample E4RZ1 were above criteria for Acenaphthene and Pyrene. All sample results for Acenaphthene and Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4RZ3 and E4RZ4, and E4S78 and E4S79 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4RZ3 and E4RZ4

Semivolatile-SIM compounds	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
Naphthalene	12	1	5.4	1	76
2-Methylnaphthalene	6.8	1	3.8	1	57
Acenaphthylene	3.8	1	3.8	1	0

Semivolatile-SIM compounds	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
Acenaphthene	32	1	12	1	91
Fluorene	33	1	13	1	87
Phenanthrene	330	1	220	1	40
Anthracene	75	1	59	1	24
Fluoranthene	590	1	470	1	23
Pyrene	930	1	700	1	28
Benzo(a)anthracene	460	1	440	1	4.4
Chrysene	460	1	390	1	17
Benzo(b)fluoranthene	590	1	520	1	13
Benzo(k)fluoranthene	140	1	120	1	15
Benzo(a)pyrene	380	1	360	1	5.4
Indeno(1,2,3-cd)pyrene	330	1	280	1	16
Dibenzo(a,h)anthracene	65	1	60	1	8
Benzo(g,h,i)perylene	130	1	120	1	8

For field duplicate pair E4RZ3 and E4RZ4, Naphthalene, 2-Methylnaphthalene, Acenaphthene, and Fluorene had RPD values above 50%.

E4RZ3DL and E4RZ4DL

Semivolatile-SIM compounds	E4RZ3DL µg/kg	DF	E4RZ4DL µg/kg	DF	%RPD
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	ND	10	ND	10	
Acenaphthene	42	10	3.6	10	95
Fluorene	43	10	4.5	10	82
Phenanthrene	420	10	49	10	47
Anthracene	82	10	9.1	10	20
Fluoranthene	940	10	80	10	28
Pyrene	810	10	66	10	25
Benzo(a)anthracene	450	10	38	10	2.2
Chrysene	460	10	40	10	14
Benzo(b)fluoranthene	600	10	59	10	12
Benzo(k)fluoranthene	150	10	17	10	6.9
Benzo(a)pyrene	420	10	39	10	4.9
Indeno(1,2,3-cd)pyrene	340	10	27	10	9.2
Dibenzo(a,h)anthracene	66	10	5.8	10	3.1
Benzo(g,h,i)perylene	150	10	22	10	0

For the dilute analysis of field duplicate pair E4RZ3DL and E4RZ4DL, Acenaphthene and Fluorene had RPD values above 50%.

E4S78 and E4S79

Semivolatile-SIM compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	1.8	1	0.72	1	86
Anthracene	ND	1	ND	1	
Fluoranthene	3.2	1	0.81	1	120
Pyrene	3.6	1	1.4	1	88
Benzo(a)anthracene	1.6	1	ND	1	
Chrysene	2.1	1	0.88	1	82
Benzo(b)fluoranthene	2.8	1	2.2	1	24
Benzo(k)fluoranthene	0.84	1	ND	1	
Benzo(a)pyrene	2	1	0.61	1	110
Indeno(1,2,3-cd)pyrene	2.3	1	2.2	1	4.4
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	1.7	1	1.1	1	43

For field duplicate pair E4S78 and E4S79, the RPD calculated for Phenanthrene, Fluoranthene, Chrysene, Pyrene, and benzo(a)pyrene were above 50% .

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified “J”. Nondetected compounds are not qualified.

Anthracene	E4RZ0DL, E4RZ1, E4RZ2DL, E4RZ6, E4S06DL, E4S10, E4S49DL, E4S50DL, E4S59DL
Pyrene	E4S79
Benzo (g,h,i) perylene	E4RZ1MS, E4RZ1MSD, E4S50DL, E4S78, E4S79
Indeno (1,2,3-cd) pyrene	E4RZ1, E4RZ1MS, E4RZ1MSD, SBLK09
Benzo (b) fluoranthene	E4RZ1MSD

Fluoranthene	E4S52, E4S79
Benzo (k) fluoranthene	E4RZ0DL, E4RZ1, E4RZ1MS, E4RZ6, E4S50DL, E4S51, E4S52, E4S77, E4S78
Acenaphthylene	E4RY8, E4RY9DL, E4RZ0, E4RZ2, E4RZ3, E4S06, E4S49, E4S50, E4S59
Chrysene	E4RZ1MS, E4RZ1MSD, E4S51, E4S77, E4S78, E4S79
Benzo (a) pyrene	E4RZ1, E4RZ1MS, E4RZ1MSD, E4S78, E4S79
Dibenzo (a,h) anthracene	E4RZ0DL, E4RZ1MSD, E4RZ2DL, E4RZ6, E4S06DL, E4S10, E4S49DL, E4S50DL, E4S52, E4S59DL, E4S77
Benzo (a) anthracene	E4RZ1, E4RZ1MS, E4RZ1MSD, E4S51, E4S52, E4S77, E4S78
Acenaphthene	E4RY8DL, E4RZ0DL, E4RZ2DL, E4RZ4DL, E4S09DL, E4S10, E4S50, E4S59
Phenanthrene	E4RZ1MSD, E4S51, E4S52, E4S77, E4S78, E4S79
Fluorene	E4RY8DL, E4RZ0DL, E4RZ2DL, E4RZ4DL, E4RZ6, E4S10, E4S50, E4S59
Naphthalene	E4RZ2
2-Methylnaphthalene	E4RZ2

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

Acenaphthene	E4RY9, E4RZ5
Acenaphthylene	E4RZ5
Anthracene	E4RY8, E4RY9, E4RZ3, E4RZ4, E4RZ5, E4S09
Benzo(a)anthracene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Benzo(a)pyrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59

Benzo(b)fluoranthene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Benzo(g,h,i)perylene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Benzo(k)fluoranthene	E4RY8, E4RY9, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Chrysene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Dibenzo(a,h)anthracene	E4RY8, E4RY9, E4RZ3, E4RZ4, E4RZ5, E4S09
Fluoranthene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Fluorene	E4RY9, E4RY25
Indeno(1,2,3-cd)pyrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Naphthalene	E4RZ5
Phenanthrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Pyrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed and these diluted results should be used in the result validation.

Anthracene	E4RZ5DL
Benzo(a)anthracene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Benzo(a)pyrene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Benzo(b)fluoranthene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL, E4S09DL
Benzo(g,h,i)perylene	E4RY9DL
Benzo(k)fluoranthene	E4RZ5DL
Chrysene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Fluoranthene	E4RY8DL, E4RY9DL, E4RZ2DL, E4RZ3DL, E4RZ4DL, E4RZ5DL, E4S09DL

Fluorene	E4RZ5DL
Indeno(1,2,3-cd)pyrene	E4RY8DL, E4RY9DL, E4RZ5DL
Naphthalene	E4RZ5DL
Phenanthrene	E4RY85DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Pyrene	E4RY8DL, E4RY9DL, E4RZ2DL, E4RZ3DL, E4RZ4DL, E4RZ5DL E4S09DL

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. . Detected compounds are qualified J. Nondetected compounds are qualified UJ. Despite the CCV issue, the Decachlorobiphenyl recoveries in the associated samples, except for diluted E4RZ5, met the acceptance criteria.

E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4RZ6, E4S06, E4S09, E4S10, E4S49, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4RZ5DL
Endosulfan II	E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ3, E4RZ4, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S09, E4S10
alpha-Chlordane	E4S49, E4S52
Endrin ketone	E4RY8DL, E4RZ5DL
gamma-BHC (Lindane)	E4RZ1, E4RZ2, E4RZ6, E4S06, E4S10
Dieldrin	E4S52, E4S59
Endrin	E4RY8DL, E4RZ1, E4RZ5DL, E4RZ6, E4S06, E4S10, E4S50, E4S51
Methoxychlor	E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ6, E4S06, E4S10
4,4'-DDD	E4RY8DL, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
4,4'-DDE	E4RY8DL, E4S51

Endrin aldehyde	E4RY8, E4RY8DL, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ5DL, E4S10, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
Endosulfan I	E4RY8DL, E4RZ5DL, E4S49, E4S50, E4S59

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan sulfate	E4S49, E4S51, E4S52, E4S77, E4S78, E4S79
beta-BHC	E4RZ5DL, E4S77, E4S78, E4S79
delta-BHC	E4S51, E4S52, E4S77, E4S78, E4S79
Endosulfan II	E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ3, E4RZ4, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S09, E4S10, E4S51, E4S52, E4S79
4,4'-DDT	E4S49, E4S50, E4S51, E4S52, E4S77, E4S78, E4S79
alpha-Chlordane	E4S49, E4S52
Endrin ketone	E4RY8DL, E4RZ5DL, E4S51, E4S52, E4S59, E4S77, E4S79
gamma-BHC (Lindane)	E4RZ1, E4RZ2, E4RZ6, E4S06, E4S10
Dieldrin	E4S52, E4S59
Endrin	E4RY8, E4RY8DL, E4RZ0, E4RZ1, E4RZ2, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S10, E4S49, E4S50, E4S51, E4S59
Methoxychlor	E4RY8, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ4, E4RZ6, E4S06, E4S09, E4S10
4,4'-DDD	E4RY8DL, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ6, E4S10, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
4,4'-DDE	E4RY8DL, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ6, E4S06, E4S10, E4S51
Endrin aldehyde	E4RY8, E4RY8DL, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ5DL, E4RZ6, E4S10, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
Endosulfan I	E4RY8DL, E4RZ2, E4RZ5DL, E4S06, E4S49, E4S50, E4S59

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery.

However, diluted pesticide sample E4RZ5DL with a dilution factor greater than 5 had surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RZ3 and E4RZ4, and E4S78 and E4S79 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4RZ3 and E4RZ4

Pesticide compound	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	1.1	1		1	
Heptachlor	ND	1		1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1	ND	1	
Endosulfan I	0.68	1		1	
Dieldrin	3	1	2.2	1	31
4,4'-DDE	4	1	2.2	1	58
Endrin		1	0.6	1	
Endosulfan II	0.39	1	0.33	1	17
4,4'-DDD		1	3.8	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	6	1	3.3	1	58
Methoxychlor		1	1.7	1	
Endrin ketone	0.39	1	ND	1	
Endrin aldehyde		1	1.9	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

Results for gamma-BHC(Lindane), Heptachlor, Heptachlor epoxide, Endosulfan I, Endrin, Methoxychlor, and Endrin aldehyde were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs.

For field duplicate samples E4RZ3 and E4RZ4, where calculated, RPD values were less than 50 %, with the exception of 4,4'-DDT and 4,4'-DDE.

E4S78 and E4S79

Pesticide compound	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	0.12	1	0.11	1	8.7
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	0.02	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	ND	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.24	1	ND	1	
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4S78 and E4S79, beta-BHC had an RPD value less than 50%.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following compounds were reported at a concentration below the MDL in the samples listed below. The results are qualified "U" and elevated to the CRQL. The results are considered to be nondetects at the CRQL.

4,4'-DDT	E4S10
Endosulfan sulfate	E4S10
Heptachlor epoxide	E4S77.E4S78

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

beta-BHC	E4S10
Heptachlor	E4S59
Heptachlor epoxide	E4S79

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J".

Heptachlor epoxide	E4S77, E4S79
beta-BHC	E4RZ1MS, E4S51
Endosulfan II	E4RZ1
4,4'-DDT	E4S78
Endrin ketone	E4RZ1MSD
gamma-BHC (Lindane)	E4RY9, E4RZ1MS, E4RZ1MSD, E4RZ3
Dieldrin	E4S59
Methoxychlor	E4RY9
4,4'-DDD	E4RY9, E4RZ4, E4RZ6, E4S10, E4S49
4,4'-DDE	E4RZ1MSD, E4RZ3, E4S09, E4S49
Endrin aldehyde	E4RZ1MSD, E4RZ6
Heptachlor	E4RZ1MSD, E4S59
Endosulfan I	E4RZ3, E4RZ5

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

4,4'-DDT	E4RY9, E4RZ2, E4RZ4, E4RZ5DL, E4S06, E4S59
Endrin	E4RZ4

4,4'-DDD	E4RZ0, E4RZ5, E4RZ5DL
4,4'-DDE	E4RY9, E4RZ2, E4RZ4, E4RZ5, E4RZ5DL, E4S50, E4S59
Endrin aldehyde	E4RZ5, E4S06
Endosulfan I	E4S09

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4RY8DL, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ5DL, E4RZ6, E4S06, E4S10, E4S50, E4S51, E4S52
Endosulfan sulfate	E4RZ1
alpha-BHC	E4S59
beta-BHC	E4RZ1MSD, E4RZ5DL, E4RZ6, E4S77, E4S78, E4S79
Endosulfan II	E4RY8, E4RY9, E4RZ0, E4RZ1MSD, E4RZ3, E4RZ4, E4RZ5, E4RZ6, E4S06, E4S09, E4S51
4,4'-DDT	E4RZ1, E4RZ6, E4S50
alpha-Chlordane	E4S52
Endrin ketone	E4RY9, E4RZ3, E4S09, E4S59
gamma-BHC (Lindane)	E4RZ1, E4RZ6, E4S06, E4S52
Dieldrin	E4S52
Endrin	E4RY8, E4RY8DL, E4RZ0, E4RZ2, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S49, E4S50, E4S59
Methoxychlor	E4RY8, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ4, E4RZ5DL, E4S06, E4S09, E4S49, E4S50, E4S52, E4S59
4,4'-DDD	E4RZ1, E4RZ1MS, E4RZ1MSD, E4S50, E4S51
4,4'-DDE	E4RZ1MS, E4S06, E4S10, E4S51
Endrin aldehyde	E4RY8, E4RZ0, E4RZ1, E4RZ1MS
Heptachlor	E4RZ6, E4S10, E4S51

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4RY8, E4RZ0, E4RZ3, E4RZ5, E4S09
beta-BHC	E4RZ2
delta-BHC	E4S06, E4S49
4,4'-DDT	E4RZ0, E4RZ5
gamma-BHC (Lindane)	E4RZ4, E4S09
Endrin	E4RY9, E4RZ3, E4S09
Methoxychlor	E4RZ3, E4RZ5
4,4'-DDD	E4RY8, E4RZ3, E4S09
4,4'-DDE	E4RY8, E4RZ0
Endrin aldehyde	E4RY9, E4RZ2, E4RZ3, E4S09
Heptachlor	E4RZ4, E4RZ5, E4RZ5DL, E4S09
Endosulfan I	E4RZ0, E4RZ4

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns, with the exception of diluted sample E4RY9DL. No sample results were qualified based on surrogate recovery. However, a surrogate recovery between 150 – 200 % was obtained on only one column for samples E4RY8, E4RY9, E4RZ3, E4RZ4, and E4S49. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4RY9DL, E4RZ3DL, E4RZ4DL, E4S09DL

Diluted Aroclor sample E4RY9DL, with a dilution factor greater than 5, has surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4RZ1, the Aroclor MS and MSD sample has a percent recovery greater than the upper acceptance limit on RTX-CLP2 column for Aroclor-1016. In addition, the relative percent difference (RPD) between the MS and MSD for Aroclor-1016 was above criteria on both columns. All samples are affected. Detected results are qualified “J”. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SZ3 and E4SZ4, and E4S78 and E4S79 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4SZ3 and E4SZ4

Aroclor compounds	E4SZ3 µg/kg	DF	E4SZ4 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	240	1	180	1	29
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4SZ3DL and E4SZ4DL

Aroclor compounds	E4SZ3DL µg/kg	DF	E4SZ4DL µg/kg	DF	%RPD
Aroclor-1016	ND	10	ND	10	
Aroclor-1221	ND	10	ND	10	
Aroclor-1232	ND	10	ND	10	
Aroclor-1242	ND	10	ND	10	
Aroclor-1248	290	10	240	10	19
Aroclor-1254	ND	10	ND	10	
Aroclor-1260	ND	10	ND	10	
Aroclor-1262	ND	10	ND	10	
Aroclor-1268	ND	10	ND	10	

For the neat and diluted analysis of field duplicate samples E4SZ3 and E4SZ4, RPD values were not calculated when both values were nondetects. The RPD for Aroclor-1248 was below 50%.

E4S78 and E4S79

Aroclor compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Aroclor-1016	ND		ND		
Aroclor-1221	ND		ND		
Aroclor-1232	ND		ND		
Aroclor-1242	ND		ND		
Aroclor-1248	ND		ND		
Aroclor-1254	ND		ND		
Aroclor-1260	ND		ND		

Aroclor compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Aroclor-1262	ND		ND		
Aroclor-1268	ND		ND		

For field duplicate samples E4S78 and E4S79, RPD values were not calculated because both results were nondetects.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

Aroclor-1260 E4RZ6, E4S10, E4S51

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4RZ2, E4RZ6, E4S51

Aroclor-1248 E4RY8, E4S09DL

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1260 E4S59

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4S52

For the MS and MSD prepared for sample E4RZ1, Aroclor-1016 had a percent difference between the results on the two GC columns exceeding 100%. Detected Aroclor-1016 results in the MS and MSD are qualified "R".

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

E4RY9, E4RZ0, E4RZ3 – E4RZ5, E4S09	Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 11, 2010

Subject: Review of Data
Received for Review on: April 14, 2010

From: Julie Rest
Environmental Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S11

Number and Type of Samples: 19 Sediment Samples

Sample Numbers: E4RS11 – E4S18, E4S25 – E4S27, E4S34 – E4S36, E4S38 – E4S42

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Sample Receipt: Nineteen (19) sediment samples labeled E4S11 – E4S18, E4S25 – E4S27, E4S34 – E4S36, and E4S38 – E4S42 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All nineteen samples were collected on 3/1/2010 and were received on 3/3/2010, intact, at 6 ºC. No data have been qualified based on temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4S35 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4S14 and E4S15, and E4S39 and E4S40, as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for benzo(b)fluoranthene and benzo(k)fluoranthene. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S11, E4S12, E4S13, E4S14, E4S15, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S35MS, E4S35MSD, E4S36, E4S38, E4S39, E4S40, E4S41, E4S42

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria for benzo(b)fluoranthene. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S11, E4S14, E4S15, E4S16, E4S18, E4S25, E4S26, E4S27, E4S34, E4S38, E4S39, E4S40, E4S41, E4S42

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Sample E4S41 has a deuterated monitoring compound recovery slightly above the upper limit of the criteria window. Since affected compounds, Anthracene and Phenanthrene were not detected in sample E4S41, the data are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pyrene had low recoveries in the MS/MSD prepared for sample E4S35 and the relative percent difference (RPD) between the MS and MSD exceeded criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S14 and E4S15, and E4S39 and E4S40 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4S14 and E4S15

Semivolatile compounds	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	53	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicates E4S14 and E4S15, the RPD values were not calculated because either one or both of the values was zero.

E4S39 and E4S40

Semivolatile compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	99	1	78	1	24
Anthracene	ND	1	ND	1	
Fluoranthene	160	1	120	1	29
Pyrene	120	1	97	1	21
Benzo(a)anthracene	52	1	54	1	3.8
Chrysene	74	1	ND	1	
Benzo(b)fluoranthene	82	1	81	1	1.2
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	55	1	49	1	12
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	

Semivolatile compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicate samples E4S39 and E4S40, where the RPD could be calculated, the values were below 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S12, E4S17, E4S36
Pyrene	E4S18, E4S25, E4S27, E4S39, E4S40
Benzo(g,h,i)perylene	E4S11, E4S16, E4S18, E4S25, E4S26, E4S34, E4S35MS, E4S35MSD, E4S38
Indeno(1,2,3-cd)pyrene	E4S11, E4S16, E4S26, E4S34, E4S35MS
Benzo(b)fluoranthene	E4S25, E4S35MSD, E4S39, E4S40
Fluoranthene	E4S14, E4S25, E4S27, E4S35MSD, E4S40
Benzo(k)fluoranthene	E4S36
Chrysene	E4S18, E4S26, E4S34, E4S35MS, E4S39
Benzo(a)pyrene	E4S16, E4S18, E4S25, E4S34, E4S35MSD, E4S38, E4S39, E4S40
Dibenzo(a,h)anthracene	E4S12, E4S13, E4S17, E4S35
Benzo(a)anthracene	E4S11, E4S16, E4S18, E4S25, E4S34, E4S35MSD, E4S38, E4S39, E4S40
Acenaphthene	E4S13, E4S36
Phenanthrene	E4S11, E4S16, E4S18, E4S26, E4S27, E4S34, E4S35MSD, E4S39, E4S40
Fluorene	E4S13, E4S36

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Benzo(g,h,i)perylene E4S14DL, E4S27DL, E4S42

Indeno(1,2,3-cd)pyrene E4S27DL, E4S42

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

An MS/MSD was prepared for sample E4S35. The results for spiking compounds acenaphthene and pyrene reported in the MS/MSD were approximately ten times lower than the amount detected for these compounds in the unspiked sample, resulting is negative recoveries, which have no physical meaning. The differences may have resulted from matrix interference, high levels of the compounds in the unspiked sample, or variable sediment consistency. Both compounds required dilution in the unspiked sample. No dilutions were performed for the MS/MSD. No other samples are qualified based on the MS/MSD. Results for acenaphthene and pyrene in Sample E4S35 are reported from the sample dilution.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4S14 and E4S15, and E4S39 and E4S40 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4S14 and E4S15

Semivolatile-SIM compounds	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	1.5	1	ND	1	
Fluorene	1.7	1	0.63	1	92
Phenanthrene	19	1	6.6	1	97
Anthracene	4	1	1.3	1	100
Fluoranthene	33	1	13	1	87
Pyrene	26	1	11	1	81
Benzo(a)anthracene	14	1	5.8	1	83
Chrysene	15	1	6.1	1	84
Benzo(b)fluoranthene	21	1	9.2	1	78
Benzo(k)fluoranthene	6.3	1	2.7	1	80
Benzo(a)pyrene	14	1	6.5	1	73
Indeno(1,2,3-cd)pyrene	9.5	1	5	1	62
Dibenzo(a,h)anthracene	2	1	1	1	67
Benzo(g,h,i)perylene	7.5	1	4.1	1	59

For field duplicate pair E4S14 and E4S15, all detected compounds had RPD values above 50%.

E4S39 and E4S40

Semivolatile-SIM compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	0.66	1	ND	1	
Acenaphthene	4.6	1	3.6	1	24
Fluorene	5.4	1	4.5	1	18
Phenanthrene	57	1	49	1	15
Anthracene	9	1	9.1	1	1.1
Fluoranthene	91	1	80	1	13
Pyrene	73	1	66	1	10
Benzo(a)anthracene	41	1	38	1	7.6
Chrysene	44	1	40	1	9.5
Benzo(b)fluoranthene	67	1	59	1	13
Benzo(k)fluoranthene	20	1	17	1	16
Benzo(a)pyrene	43	1	39	1	9.8
Indeno(1,2,3-cd)pyrene	32	1	27	1	17
Dibenzo(a,h)anthracene	6.6	1	5.8	1	13
Benzo(g,h,i)perylene	25	1	22	1	13

E4S39DL and E4S40DL

Semivolatile-SIM compounds	E4S39DL µg/kg	DF	E4S40DL µg/kg	DF	%RPD
Naphthalene	ND	5	ND	5	
2-Methylnaphthalene	ND	5	ND	5	
Acenaphthylene	ND	5	ND	5	
Acenaphthene	5.8	5	4.8	5	19
Fluorene	7.3	5	5.8	5	23
Phenanthrene	62	5	51	5	20
Anthracene	10	5	9.5	5	5.1
Fluoranthene	100	5	88	5	13
Pyrene	73	5	62	5	16
Benzo(a)anthracene	39	5	35	5	11
Chrysene	45	5	39	5	14
Benzo(b)fluoranthene	55	5	51	5	7.5
Benzo(k)fluoranthene	17	5	15	5	13
Benzo(a)pyrene	39	5	37	5	5.3
Indeno(1,2,3-cd)pyrene	30	5	29	5	3.4
Dibenzo(a,h)anthracene	5.8	5	5.6	5	3.5
Benzo(g,h,i)perylene	26	5	25	5	3.9

For field duplicate pair E4S39DL and E4S40DL, all calculated RPD values were below 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4S14DL, E4S15, E4S18DL, E4S25DL, E4S26DL, E4S34DL, E4S39DL, E4S40DL, E4S41
Benzo(g,h,i)perylene	E4S14DL, E4S27DL, E4S42
Indeno(1,2,3-cd)pyrene	E4S27DL, E4S42, SBLK41
Benzo(b)fluoranthene	SBLK41
Fluoranthene	E4S42

Benzo(k)fluoranthene	E4S14DL, E4S27DL, E4S41, E4S42
Acenaphthylene	E4S11, E4S17DL, E4S18, E4S26, E4S35, E4S36, E4S38, E4S39
Benzo(a)pyrene	E4S42
Dibenzo(a,h)anthracene	E4S14, E4S14DL, E4S15, E4S18DL, E4S25DL, E4S26DL, E4S27, E4S36DL, E4S38DL, E4S39DL, E4S40DL, E4S41
Benzo (a) anthracene	E4S42
Acenaphthene	E4S11DL, E4S12DL, E4S14, E4S16, E4S17DL, E4S18, E4S25, E4S26DL, E4S27DL, E4S34, E4S38DL, E4S39DL, E4S40DL
Phenanthrene	E4S42
Fluorene	E4S11DL, E4S12DL, E4S14, E4S15, E4S16DL, E4S18DL, E4S25, E4S26DL, E4S27DL, E4S34DL, E4S35MS, E4S35MSD, E4S39DL, E4S40DL, E4S41
Naphthalene	E4S11, E4S27
2-Methylnaphthalene	E4S27, E4S35DL, E4S36

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

Acenaphthene	E4S13, E4S35
Anthracene	E4S12, E4S13, E4S17, E4S35, E4S36
Benzo(a)anthracene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Benzo(a)pyrene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Benzo(b)fluoranthene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Benzo(g,h,i)perylene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38

Benzo(k)fluoranthene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S26, E4S34, E4S35, E4S36, E4S38
Chrysene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Dibenzo(a,h)anthracene	E4S12, E4S13, E4S17, E4S35, E4S36,
Fluoranthene	E4S11, E4S12, E4S13, E4S14, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Fluorene	E4S13, E4S35
Indeno(1,2,3-cd)pyrene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Naphthalene	E4S35
Phenanthrene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Pyrene	E4S11, E4S12, E4S13, E4S14, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed and these diluted results should be used in the result validation.

Anthracene	E4S35DL
Benzo(a)anthracene	E4S11DL, E4S12DL, E4S13DL, E4S17DL, E4S35DL
Benzo(a)pyrene	E4S11DL, E4S12DL, E4S13DL, E4S17DL, E4S35DL
Benzo(b)fluoranthene	E4S11DL, E4S12DL, E4S13DL, E4S16DL, E4S17DL, E4S34DL, E4S35DL, E4S36DL, E4S38DL
Benzo(g,h,i)perylene	E4S12DL, E4S17DL, E4S35DL
Chrysene	E4S11DL, E4S12DL, E4S13DL, E4S17DL, E4S35DL
Fluoranthene	E4S11DL, E4S12DL, E4S13DL, E4S16DL, E4S17DL, E4S18DL, E4S26DL, E4S34DL, E4S35DL, E4S36DL, E4S38DL
Indeno(1,2,3-cd)pyrene	E4S12DL, E4S13DL, E4S17DL, E4S35DL
Phenanthrene	E4S12DL, E4S13DL, E4S17DL, E4S36DL
Pyrene	E4S11DL, E4S12DL, E4S13DL, E4S16DL, E4S17DL, E4S34DL, E4S35DL, E4S36DL, E4S38DL

For the MS/MSD prepared for sample E4S35, the following compounds reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed

Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *initial* instrument blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan II	E4S34, E4S35, E4S40, E4S41, E4S42
Endrin	E4S14, E4S15, E4S16, E4S25, E4S38, E4S39, E4S40, E4S41
Endrin aldehyde	E4S15, E4S16, E4S38, PLCSS1

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan II	E4S17, E4S27, E4S34, E4S35, E4S40, E4S41, E4S42
4,4'-DDT	E4S34, E4S41, E4S42
Endrin	E4S12, E4S14, E4S15, E4S16, E4S17, E4S25, E4S26, E4S35, E4S38, E4S39, E4S40, E4S41
4,4'-DDD	E4S34, E4S41, E4S42
Endrin aldehyde	E4S15, E4S16, E4S25, E4S26, E4S27, E4S34, E4S38, E4S41

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery. However, a high surrogate recovery was obtained on one column for samples E4S13 and E4S17. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. As a result, for samples E4S13

and E4S17, the "J" flags applied during the automated check process have been removed for the following compounds.

E4S13 4,4'-DDE, Endrin, 4,4'-DDD

E4S17 4,4'-DDD

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4S35, the pesticide MS and/or MSD samples have percent recoveries that are greater than the upper acceptance limit on the RTXCLP2 column for gamma-BHC and Heptachlor. All samples in the SDG are affected. However, since the results for gamma-BHC and Heptachlor were reported from the RTXCLP column for all samples in this SDG, the data are not qualified.

On the other column, RTX-CLP, the relative percent difference (RPD) between the MS and MSD is outside of criteria for 4,4'-DDT. All samples are affected. Detected compounds are qualified "J".

E4S11 – E4S18, E4S25 – E4S27, E4S34, E4S35, E4S36, E4S38 – E4S42

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S14 and E4S15, and E4SRW1 and E4RW2, E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4S14 and E4S15

Pesticide compound	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	0.12	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	0.21	1	0.16	1	27
Endrin	0.24	1	0.23	1	4.3
Endosulfan II	ND	1	ND	1	
4,4'-DDD	0.21	1	0.14	1	40
Endosulfan sulfate	0.24	1	ND	1	
4,4'-DDT	0.24	1	0.23	1	4.3
Methoxychlor	1.2	1	ND	1	

Pesticide compound	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	0.12	1	0.17	1	35
Toxaphene	ND	1	ND	1	

For field duplicate samples E4S14 AND E4S15, where calculated, RPD values were less than 50%.

E4S39 and E4S40

Pesticide compound	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.17	1	0.24	1	34
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	0.11	1	
4,4'-DDE	0.68	1	1	1	38
Endrin	0.26	1	ND	1	
Endosulfan II	ND	1	0.24	1	
4,4'-DDD	0.66	1	1	1	41
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.29	1	0.44	1	41
Methoxychlor	1.3	1	0.2	1	150
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	0.28	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4S39 and E4S40, one compound, Methoxychlor, had an RPD value greater than 50%.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Methoxychlor was reported at a concentration below the MDL in sample E4S15. This result is qualified "U" and elevated to the CRQL. The result for Methoxychlor in sample E4S15 is considered a nondetect at the level of the CRQL. The following compounds were flagged "UJ" during the automated check process. These compounds were affected by blank contamination and/or percent difference between the two columns outside of criteria, resulting in the "U" flag. The flags for these compounds have been adjusted to "U" in the "B" and "Z" data files.

4,4'-DDT	E4S42
Endrin	E4S17, E4S35
Endosulfan II	E4S17
Endrin ketone	E4S17

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

4,4'-DDD	E4S14, E4S41
4,4'-DDE	E4S14, E4S15
4,4'-DDT	E4S16
alpha-chlordane	E4S35MS, E4S35MSD
Heptachlor	E4S25

The following pesticide samples have percent differences between the results on the two GC columns in the range of 26-50%. Detected compounds are qualified "J".

Heptachlor epoxide	E4S12, E4S39, E4S40
Aldrin	E4S35MS
4,4'-DDT	E4S12, E4S17, E4S35MS, E4S38, E4S39
alpha-Chlordane	E4S18
gamma-BHC (Lindane)	E4S35MSD
Dieldrin	E4S13, E4S17, E4S40
Endrin	E4S27
Methoxychlor	E4S15, E4S18, E4S35, E4S40
4,4'-DDD	E4S15, E4S18, E4S38, E4S39, E4S42

4,4'-DDE	E4S12, E4S25, E4S26, E4S27, E4S34, E4S35MS, E4S35MSD, E4S38, E4S40, E4S41
Heptachlor	E4S12, E4S35MS

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

Heptachlor epoxide	E4S25
4,4'-DDT	E4S35
alpha-Chlordane	E4S17
gamma-Chlordane	E4S13
gamma-BHC (Lindane)	E4S35MS
Endrin	E4S11
4,4'-DDD	E4S35
4,4'-DDE	E4S17
Endrin aldehyde	E4S17
Heptachlor	E4S13

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4S15, E4S16, E4S27, E4S34, E4S41
Endosulfan sulfate	E4S11
alpha-BHC	E4S16
beta-BHC	E4S41, E4S42
Endosulfan II	E4S17, E4S35, E4S40, E4S42
4,4'-DDT	E4S14, E4S15, E4S25, E4S34, E4S41, E4S42
alpha-Chlordane	E4S11
gamma-Chlordane	E4S14
Endrin ketone	E4S12, E4S17, E4S27, E4S35, E4S35MSD, PLCSS1
gamma-BHC (Lindane)	E4S41, E4S42

Dieldrin	E4S18
Endrin	E4S12, E4S14, E4S15, E4S16, E4S17, E4S25, E4S26, E4S35, E4S38, PLCSS1
Methoxychlor	E4S11, E4S12, E4S14, E4S16, E4S25, E4S26, E4S27, E4S34, E4S35MS, E4S35MSD, E4S38, E4S39, E4S41
4,4'-DDD	E4S41, E4S42
4,4'-DDE	E4S16
Endrin aldehyde	E4S16, E4S25, E4S26, E4S27, E4S34, E4S38, E4S41, PLCSS1
Heptachlor	E4S18

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4S13, E4S17, E4S18, E4S26, E4S35, E4S35MS, E4S35MSD, E4S36, E4S38
delta-BHC	E4S25
4,4'-DDT	E4S26, E4S36
alpha-Chlordane	E4S13
gamma-Chlordane	E4S16, E4S17, E4S18, E4S27
gamma-BHC (Lindane)	E4S13
Endrin	E4S34, E4S36
Methoxychlor	E4S13, E4S17, E4S36
4,4'-DDD	E4S26, E4S36, E4S40
Endrin aldehyde	E4S36
Heptachlor	E4S17, E4S36

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery. However, a surrogate recovery between 150 – 200 % was obtained on only one column for samples E4S12, E4S13 and E4S17. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

Diluted Aroclor sample E4S13DL, with a dilution factor greater than 5, has surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Diluted Aroclor samples E4S13DL and E4S17DL, with dilution factors greater than 5, have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4S35, the Aroclor MSD sample has a percent recovery greater than the upper acceptance limit on the RTX-CLP2 column for Aroclor-1016. All samples are affected. Detected compounds are qualified J. Nondetected compounds remain unchanged.

For the same MS/MSD, Aroclor-1260 had a percent recovery less than the lower acceptance limit on both columns in the MS. All samples are affected. Detected compounds are qualified J. Nondetected compounds are qualified “UJ”.

The relative percent difference (RPD) between the MS and MSD recoveries of Aroclor-1016 and Aroclor-1260 are also outside of criteria for MS/MSD E4S35. All samples are affected. Detected compounds are qualified J. Nondetected compounds remain unchanged.

Since neither spiking compound met the recovery criteria on at least one column, and both had RPD values that exceeded criteria, all Aroclor compounds were qualified “J” based on MS/MSD recoveries and RPD as follows:

Aroclor-1248 E4S11, E4S34, E4S36, E4S36DL

Aroclor-1260 E4S11, E4S18, E4S26, E4S40

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S14 and E4S15, and E4S39 and E4S40 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4S14 and E4S15

Aroclor compounds	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4S39 and E4S40

Aroclor compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Aroclor-1016	ND		ND		
Aroclor-1221	ND		ND		
Aroclor-1232	ND		ND		
Aroclor-1242	ND		ND		
Aroclor-1248	ND		4.6		
Aroclor-1254	ND		ND		
Aroclor-1260	3.8		3.3		14
Aroclor-1262	ND		ND		
Aroclor-1268	ND		ND		

For field duplicate samples E4S14 and E4S15, and E4S39 and E4S40, RPD values were not calculated when both results were nondetects. The RPD value calculated for Aroclor-1260 was acceptable.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

Aroclor-1248 E4S41

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4S17DL, E4S34, E4S35, E4S35MS, E4S36, E4S38, E4S39

Aroclor-1248 E4S13DL, E4S38, E4S40

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1260 E4S12, E4S13, E4S13DL, E4S35MSD

Aroclor-1248 E4S13

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4S16, E4S25

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

E4S13	Aroclor-1248, Aroclor-1260
E4S17	Aroclor-1260
E4S36	Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 24, 2010

SUBJECT: Review of Data
Received for Review on: April 7, 2010

FROM: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0 SDG Number: E4S19

Number and Type of Samples: Seventeen (17) soil samples

Sample Numbers: E4S19-E4S24, E4S29-E4S33, E4S43, E4S44, E4S46, E4S48, E4SA0, AND E4SB2

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Seventeen (17) sediment samples, labeled E4S19-E4S24, E4S29-E4S33, E4S43, E4S44, E4S46, E4S48, E4SA0, and E4SB2, were shipped to ALS Laboratory Group located in Salt Lake City, Utah. The samples were collected from 03/01/2010 through 03/03/2010 and were received at the laboratory on 03/03/2010 and 03/06/2010 intact at 5 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The "U" values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4S20 was designated by the samplers to be used for laboratory QC, i.e., MS/MSD analyses.

There are no field duplicates or field blanks associated with this SDG.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S19, E4S20, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S31, E4S32, E4S33, E4S43, E4S44, E4S46, E4S48

Benzo(b)fluoranthene
Benzo(k)fluoranthene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene-d_{10} E4S20MS, E4S21

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S20, E4S33, E4S43, E4S44, E4SB2
Benzo(g,h,i)perylene	E4S20, E4S30, E4S33
Indeno(1,2,3-cd pyrene	E4S30, E4S33
Benzo(b)fluoranthene	E4S20MS, E4S20MSD
Fluoranthene	E4S20MS, E4S20MSD, E4S46
Benzo(k)fluoranthene	E4S30, E4S33
Dibenzo(a,h)anthracene	E4S31, E4S32, E4SA0
Benzo(a)anthracene	E4S30
Acenaphthene	E4S32, E4S33
Phenanthrene	E4S20MSD, E4S30
Fluorene	E4S32, E4S33, E4SB2
Naphthalene	E4SA0DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S31, E4S43, E4SA0DL, E4SB2

The following semivolatile sample reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SA0 Phenanthrene, Fluoranthene, Pyrene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S30, E4S31: Indeno(1,2,3-cd)pyrene

4. BLANKS

The following semivolatile SIM samples are associated with a method blank (SBLK99) in which Indeno(1,2,3-cd)pyrene was at levels greater than the MDL but less than the CRQL. For samples in which Indeno(1,2,3-cd)pyrene is detected above the MDL but below the CRQL, reported sample concentrations have been elevated to the CRQL and qualified U. For samples in which Indeno(1,2,3-cd)pyrene is detected above the CRQL results are not qualified.

E4SA0, E4SB2, E4SB2DL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile sample with dilution factors greater than 5 has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4SA0 Fluoranthene-d_{10}

Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S20, E4S20MS, E4S20MSD Acenaphthene

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatile SIM.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S19, E4S20, E4S20DL, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S30DL, E4S31DL, E4S32DL, E4S33, E4S33DL, E4S43DL, E4S44DL, E4S46, E4S46DL, E4S48, E4SA0, E4SB2DL

Anthracene	E4S20MS, E4S20MSD, E4S30DL, E4S31DL, E4S46DL, E4S48
Pyrene	E4S22, E4S24
Benzo(g,h,i)perylene	E4S19, E4S21, E4S24
Indeno(1,2,3-cd)pyrene	E4S19, E4S21, E4S24
Benzo(b)fluoranthene	E4S19, E4S22, E4S24
Fluoranthene;	E4S22, E4S24
Benzo(k)fluoranthene	E4S19, E4S21, E4S29, E4S46DL, E4S48
Acenaphthylene	E4S30, E4S32DL, E4S33, E4S43DL, E4S44DL, E4SA0
Chrysene	E4S19, E4S21, E4S22, E4S23
Benzo(a)pyrene	E4S19, E4S21, E4S24
Dibenzo(a,h)anthracene	E4S20MS, E4S20MSD, E4S29, E4S30DL, E4S33DL, E4S46, E4S46DL, E4S48
Benzo(a)anthracene	E4S19, E4S21, E4S24, E4S48
Acenaphthene	E4S20DL, E4S29, E4S30, E4S31DL, E4S33DL, E4S43DL, E4S44DL, E4S46, E4SB2DL
Phenanthrene	E4S20DL, E4S29, E4S30, E4S31DL, E4S33DL, E4S43DL, E4S44DL, E4S46, E4SB2DL
Fluorene	E4S20DL, E4S20MS, E4S20MSD, E4S29, E4S31DL, E4S44DL, E4S46, E4S46DL
Naphthalene	E4S29, E4S46
2-Methylnaphthalene	E4S20, E4S29, E4S30, E4S46, E4SB2DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S19, E4S20MS, E4S23, E4S43DL, E4S44DL, E4S46DL, E4S48, E4SB2DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4S20	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S30	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S31	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S32	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S33	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S43	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S44	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S46	Fluoranthene, Pyrene
E4SA0	2-Methylnaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SB2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4S20DL	Fluoranthene, Pyrene
E4S31DL	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S32DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S33DL	Phenanthrene, Fluoranthene, Pyrene
E4S43DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S44DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene
E4SB2DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

The laboratory reported that the samples were "dirty," resulting in failure of some compounds to achieve continuing calibration criteria. Elevated baselines were observed in several samples.

3. CALIBRATION

The following pesticide samples are associated with CCVs for several compounds with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected as Decachlorobiphenyl (surrogate) was one of the compounds failing to meet criteria.

E4S19, E4S20, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S31, E4S32, E4S32DL, E4S33, E4S33DL, E4S43, E4S44, E4S46, E4S48, E4SA0

4. BLANKS

The following pesticide samples have 4,4'-DDT analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration of 4,4'-DDT is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4S19, E4S21, E4S22, E4S24, E4S29

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4S19, E4S20MS, E4S21, E4S22, E4S23, E4S29, E4S32DL, E4S48
4,4'-DDT	E4S19, E4S21, E4S22, E4S24, E4S29, E4S33DL, E4S46

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4SA0, E4SA0DL

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S32DL, E4S33DL, E4SA0DL

The following diluted pesticide samples have surrogate percent recoveries of less than 10%. The diluted samples exceeded dilution factor of 5. Detected and nondetected compounds are not qualified.

E4SA0

The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10%. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S20, E4S24, E4S29, E4S33, E4S44, E4S46, E4S48, E4SB2

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S20, E4S20MS, E4S20MSD

Aldrin, 4,4'-DDT, gamma-BHC (Lindane), Dieldrin, Endrin, Heptachlor

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not applicable to Pesticides.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Pesticide compounds were properly identified with the exception of target compound hits exceeding the calibrated range in the undiluted sample which upon dilution proved not to be present in the samples.

E4S32	gamma-BHC (Lindane), 4,4'-DDD
E4SA0	Heptachlor

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4S20, E4S21, E4S44
Aldrin	E4S20MSD
alpha-BHC	E4S46
beta-BHC	E4S20MS, E4S20MSD, E4S22, E4S29
4,4'-DDT	E4S44, E4S46

alpha-Chlordane	E4S32, E4SB2
gamma-BHC (Lindane)	E4S20MSD, E4S32
Dieldrin	E4S20MS, E4SB2
Endrin	E4S31, E4S32, E4S32DL
4,4'-DDD	E4S20MSD, E4S33, E4S33DL, E4S43
4,4'-DDE	E4S30, E4S32, E4S32DL, E4S33
Heptachlor	E4S20MS, E4S20MSD
Endosulfan I	E4SA0DL

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Heptachlor epoxide	E4S23, E4S31, E4S43
Aldrin	E4S33, E4S33DL, E4SA0, E4SA0DL
4,4'-DDT	E4S20, E4S43
alpha-Chlordane	E4S33, E4S43
gamma-Chlordane	E4S44, E4SB2
gamma-BHC (Lindane)	E4S20MS, E4SA0
Dieldrin	E4S20
Endrin	E4S43, E4SA0, E4SB2
Methoxychlor	E4S43
4,4'-DDE	E4S33DL, E4SA0, E4SB2
Heptachlor	E4S46, E4SA0

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4S22, E4S29, E4S48, E4SA0DL
Endosulfan sulfate	E4SA0DL
Aldrin	E4S22
beta-BHC	E4S19, E4S21, E4S23, E4S32DL
Endosulfan II	E4S32, E4S32DL, E4SA0
4,4'-DDT	E4S21, E4S24, E4S33DL
alpha-Chlordane	E4S20MS, E4S20MSD, E4S32DL
gamma-Chlordane	E4S29
Endrin ketone	E4S31, E4S32, E4S46, E4SB2
gamma-BHC (Lindane)	E4S21, E4S46
Dieldrin	E4S19, E4S24, E4S29
Endrin	E4S20, E4S21, E4S29, E4S30, E4S46, E4SA0DL
Methoxychlor	E4S20, E4S20MS, E4S20MSD, E4S30, E4S31, E4S44, E4SB2
4,4'-DDD	E4S19, E4S21, E4S24
4,4'-DDE	E4S21, E4S46, E4S48, E4SA0DL
Endrin aldehyde	E4S21, E4S43, E4SA0
Heptachlor	E4S33DL
Endosulfan I	E4S33DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4S20MS, E4S20MSD, E4S24, E4S32, E4S32DL, E4S33, E4SB2
beta-BHC	E4S20, E4S43, E4S46

delta-BHC	E4S30
4,4'-DDT	E4S30, E4S31, E4S33, E4SB2
gamma-Chlordane	E4S20
gamma-BHC (Lindane)	E4SA0DL
Endrin	E4S33, E4S44
4,4'-DDD	E4S32
Endrin aldehyde	E4S32DL, E4S33
Heptachlor:	E4S31, E4S32, E4S32DL, E4S33, E4S44, E4SB2

11. SYSTEM PERFORMANCE

All the pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a PEM compounds is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. As Decachlorobiphenyl was one of the compounds failing to meet criteria, all compounds are affected.

E4S19, E4S20, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S31, E4S32, E4S32DL, E4S33, E4S33DL, E4S43, E4S44, E4S46, E4S48, E4SA0, E4SA0DL, E4SB2

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4S32	Heptachlor, Dieldrin, 4,4’-DDE, 4,4’-DDD
E4S33	4,4’-DDD
E4SA0	Heptachlor

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4S19, E4S20MS, E4S20MSD, E4S22, E4S29, E4S30, E4S44, E4SA0, E4SA0DL, E4SB2

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor samples have surrogate percent recoveries that are greater than 200% All compounds are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S43, E4S44

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S31DL, E4S32DL, E4SA0, E4SA0DL

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries that are greater than 200%. All compounds are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S43DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. All compounds are affected. Detected compounds are qualified J. Nondetected compounds are not qualified. In the case of sample E4S32, the “J” flag applied in the automated check process was overridden for Aroclor-1248 as that result was reported from the column having acceptable surrogate recovery.

E4S30, E4S31, E4S32

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S32DL

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S33DL

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries less than 10%. Detected and nondetected compounds are not qualified.

E4SA0DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1016 E4S20MS, E4S20MSD

The Aroclor matrix/matrix spike duplicate samples (E4S20MS, E4S20MSD) have percent recoveries and relative percent difference between analyte results that are less than the lower expanded criteria limit for Aroclor-1260. In this instance the matrix spike recoveries are negative; these negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. No sample results have been qualified due to negative recoveries or RPDs.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260 E4S31, E4S32, E4S43DL
Aroclor-1016 E4S20MS, E4S20MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1260 E4S20, E4S30, E4S33DL, E4S43

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1260 E4S33

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S30, E4S44, E4SA0, E4SAODL, E4SB2

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample analysis should be used for result validation.

E4S31, E4S32, E4S33, E4S43, E4SA0

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 1, 2010

Subject: Review of Data
Received for Review on: April 1, 2010

From: Caryn Wojtowicz
Senior Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0 SDG Number: E4S53

Number and Type of Samples: Twenty (20) soil samples

Sample Numbers: E4S53-E4S56, E4S62, E4S73 – E4S76, E4S80, E4S81, E4S83 – E4S88, E4S91, E4S98, and E4S99

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Twenty (20) sediment samples, labeled E4S53-E4S56, E4S62, E4S73 – E4S76, E4S80, E4S81, E4S83 – E4S8º8, E4S91, E4S98, and E4S99, were shipped to ALS Laboratory Group located in Salt Lake City, Utah. The samples were collected on 03/02/2010 and 03/03/2010. They were received at the laboratory on 03/04/2010 and 03/06/2010 intact at 7 ºC and 5 ºC, respectively.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The "U" values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4S75 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Two samples, E4S80 and E4S81 had elevated pH, greater than 9. The laboratory was instructed to proceed with analysis following pH adjustment to the appropriate range. No notation indicating any pH adjustments were made was noted in the data package.

There are no field duplicates or field blanks associated with this SDG.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (% RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S53, E4S54, E4S55, E4S56, E4S62, E4S73, E4S74, E4S75, E4S75MS, E4S75MSD, E4S76

Benzo(b)fluoranthene and Benzo(k)fluoranthene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile sample E4S87 has two deuterated monitoring compound recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo (a) pyrene-d_{12}, affected compounds; Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene

Fluorene-d_{10}, affected compounds: Carbazole, Dibenzofuran, Fluorene

Semivolatile sample E4S99DL with dilution factors less than or equal to 5 has one deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Acenaphthylene-d_8, affected compounds: 2-Chloronaphthalene, 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Naphthalene

Semivolatile sample E4S56L has deuterated one monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene-d_{10}, affected compounds: Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

As the percent recoveries for Acenaphthene were acceptable in both the MS and MSD, and the % RPD was just slightly above the criteria, only the original, MS and MSD samples are affected.

E4S75, E4S75MS, E4S75MSD: Acenaphthene

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S80, E4S87, E4S88DL, E4S99DL
Pyrene	E4S74
Benzo(g,h,i)perylene	E4S53, E4S55, E4S73, E4S80, E4S81, E4S83, E4S84, E4S85, E4S91
Indeno(1,2,3-cd)pyrene	E4S73, E4S80, E4S81, E4S83, E4S85
Benzo(b)fluoranthene	E4S55, E4S74, E4S91
Fluoranthene	E4S55, E4S74, E4S91
Benzo(k)fluoranthene	E4S53, E4S80, E4S81, E4S83, E4S84, E4S85
Chrysene	E4S80, E4S81, E4S83, E4S85
Benzo(a)pyrene	E4S74, E4S80, E4S81, E4S85
Dibenzo(a,h)anthracene	E4S88DL, E4S99DL
Benzo(a)anthracene	E4S73, E4S74, E4S80, E4S81, E4S85
Acenaphthene	E4S87, E4S88DL, E4S98, E4S99DL
Phenanthrene	E4S73, E4S83, E4S84, E4S85
Fluorene	E4S54, E4S87, E4S88DL, E4S98, E4S99DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form 1s for the following samples do not agree with the B-file Spreadsheet results.

E4S53, E4S73, E4S75MSD, E4S86, E4S88DL, E4S99DL

The following semivolatile samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4S88 Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4S99 Fluoranthene, Pyrene, Benzo(b)fluoranthene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Indeno(1,2,3-cd)pyrene	E4S56DL, E4S75, E4S75MS, E4S75MSD
Benzo(a)pyrene	E4S56DL, E4S75, E4S75MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile sample with dilution factors greater than 5 has deuterated monitoring compound recovery below the lower limit of the criteria window. Detected and nondetected compounds are not qualified.

E4S73DL, E4S84DL	2-Methylnaphthalene-d_{10}, affected compounds: Naphthalene, 2-Methyl naphthalene, Acenaphthene, Acenaphthylene, Fluorene, Phenanthrene, Anthracene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatile-SIM.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S53DL, E4S55DL, E4S56DL, E4S62, E4S73DL, E4S76, E4S84DL, E4S86
Pyrene	E4S75
Benzo(g,h,i)perylene	E4S56DL, E4S75, E4S75MS, E4S75MSD
Indeno(1,2,3-cd)pyrene	E4S56DL, E4S75, E4S75MS, E4S75MSD
Benzo(b)fluoranthene	E4S75, E4S75MS, E4S75MSD
Fluoranthene	E4S75, E4S75MS, E4S75MSD
Benzo(k)fluoranthene	E4S56DL, E4S86, E4S91DL
Acenaphthylene	E4S53, E4S54DL, E4S55, E4S56, E4S73, E4S80, E4S81, E4S83, E4S84, E4S85, E4S87, E4S88, E4S98, E4S99
Chrysene	E4S56DL, E4S75, E4S75MS
Benzo(a)pyrene	E4S56DL, E4S75, E4S75MSD, E4S91DL
Dibenzo(a,h)anthracene	E4S53DL, E4S55DL, E4S56, E4S62, E4S73DL, E4S74DL, E4S76, E4S80DL, E4S81DL, E4S83DL, E4S84DL, E4S85DL, E4S86, E4S91DL
Benzo(a)anthracene	E4S56DL, E4S75, E4S91DL
Acenaphthene	E4S54DL, E4S55, E4S56, E4S62, E4S74, E4S76, E4S80DL, E4S83, E4S84DL, E4S85DL, E4S91
Phenanthrene	E4S75
Fluorene	E4S55, E4S56DL, E4S62, E4S74, E4S76, E4S80DL, E4S81DL, E4S85DL, E4S86, E4S91DL
Naphthalene	E4S53, E4S99
2-Methylnaphthalene	E4S55, E4S56, E4S73, E4S81, E4S83, E4S84, E4S99

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results for the following samples:

E4S53, E4S53DL, E4S55DL, E4S75MSD, E4S86, E4S87

Dilution analysis was not required for the following SIM samples because the levels of target compounds were greater than the CRQL for the full-scan semivolatile analysis: E4S87, E4S88, E4S98, E4S99

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4S53	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S54	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S55	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene
E4S56	Phenanthrene, Fluoranthene,
E4S73	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S74	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene,
E4S81	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S83	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S84	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S85	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S85	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S86	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S91	Phenanthrene, Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene

E4S98	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S99	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4S54DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S84DL	Fluoranthene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

The laboratory reported that the samples were "dirty," resulting in failure of some compounds to achieve continuing calibration criteria. Elevated baselines were observed in several samples.

3. CALIBRATION

The following pesticide samples are associated with CCVs for several compounds with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected because Decachlorobiphenyl (a surrogate) was one of the compounds failing to meet criteria.

E4S85DL, E4S88DL, E4S99

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan sulfate	E4S56, E4S75, E4S75MS, E4S75MSD
beta-BHC	E4S55, E4S75, E4S75MSD, E4S88DL
Endrin aldehyde	E4S56, E4S62
Endosulfan I	E4S53, E4S55, E4S74, E4S75MS, E4S75MSD

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan sulfate	E4S56, E4S75, E4S75MS, E4S75MSD
beta-BHC	E4S55, E4S75, E4S75MSD, E4S76, E4S88DL
Endosulfan II	E4S84, E4S85, E4S86, E4S87, E4S88, E4S91, E4S98
4,4'-DDT	E4S85DL
4,4'-DDE	E4S85DL
Endrin aldehyde	E4S56, E4S62
Endosulfan I	E4S53, E4S55, E4S74, E4S75MS, E4S75MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4S91 has a surrogate percent recovery that is greater than 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden unless applied for another reason.

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S85DL, E4S88DL, E4S99DL

The following pesticide samples have surrogate percent recoveries greater than 150% but less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden unless applied for another reason.

E4S85, E4S88, E4S98, E4S99

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S88DL, E4S99DL

The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10%. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected.

E4S87, E4S88

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S75, E4S75MS, E4S75MSD
Aldrin, 4,4'-DDT, gamma-BHC (Lindane), Dieldrin, Endrin, Heptachlor

The result for beta-BHC was rejected in sample E4S75MSD for reasons detailed later in this review. Therefore, that value was not used to calculate an RPD.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not applicable for Pesticides.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4S56
Aldrin	E4S75MSD
beta-BHC	E4S75, E4S75MSD, E4S81
4,4'-DDT	E4S91, E4S99DL
alpha-Chlordane	E4S54, E4S87
gamma-Chlordane	E4S81, E4S83, E4S84
gamma-BHC (Lindane)	E4S75MS, E4S75MSD, E4S99, E4S99DL
Dieldrin	E4S55, E4S74, E4S75MSD, E4S83
Endrin	E4S84
4,4'-DDD	E4S53, E4S62, E4S74, E4S75MSD, E4S81, E4S86
4,4'-DDE	E4S62, E4S83, E4S84, E4S88, E4S88DL, E4S91
Heptachlor:	E4S55, E4S75MS, E4S75MSD

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Heptachlor epoxide	E4S83, E4S87
delta-BHC	E4S53
Endosulfan II	E4S73
4,4'-DDT	E4S53, E4S54, E4S73, E4S88, E4S88DL
alpha-Chlordane	E4S73, E4S88, E4S99, E4S99DL
gamma-Chlordane	E4S80, E4S85, E4S88
Dieldrin	E4S54, E4S80, E4S81
Endrin	E4S83, E4S88, E4S99
4,4'-DDE	E4S53, E4S85, E4S87
Heptachlor	E4S99
Endosulfan I	E4S98

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4S55, E4S62, E4S75MSD, E4S76, E4S80, E4S81, E4S85DL, E4S86
beta-BHC	E4S55, E4S76, E4S88DL, E4S91
Endosulfan II	E4S74, E4S75MSD, E4S84, E4S85, E4S87, E4S88, E4S98, E4S99
4,4'-DDT	E4S62, E4S76, E4S81, E4S85DL, E4S86
alpha-Chlordane	E4S55, E4S74, E4S75MS, E4S75MSD
Endrin ketone	E4S73, E4S75MSD, E4S76, E4S83, E4S84, E4S85, E4S87, E4S88, E4S98
Dieldrin	E4S76

Endrin	E4S53, E4S55, E4S74, E4S80, E4S81, E4S85DL, E4S86, E4S88DL, E4S91, E4S99DL
Methoxychlor	E4S53, E4S55, E4S80, E4S81, E4S83, E4S84, E4S85, E4S87, E4S98, E4S99, E4S99DL
4,4'-DDD	E4S75MS
4,4'-DDE	E4S75MS, E4S75MSD, E4S85DL, E4S86
Endrin aldehyde	E4S83, E4S85, E4S88, E4S99
Heptachlor	E4S54, E4S80, E4S81, E4S83, E4S85DL
Endosulfan I	E4S75MS, E4S88DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4S53, E4S54, E4S74, E4S84, E4S85, E4S88, E4S88DL
alpha-BHC	E4S87
beta-BHC	E4S74, E4S75MS
4,4'-DDT	E4S55, E4S80, E4S83, E4S84, E4S85, E4S87, E4S98
gamma-BHC (Lindane)	E4S74
Dieldrin	E4S73
Endrin	E4S54, E4S85, E4S87, E4S98
Methoxychlor	E4S54, E4S88
4,4'-DDD	E4S84, E4S87, E4S99DL
4,4'-DDE	E4S73, E4S99DL
Heptachlor	E4S73, E4S74, E4S84, E4S85, E4S88, E4S98, E4S99DL
Endosulfan I	E4S99DL

11. SYSTEM PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a PEM compounds is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Because Decachlorobiphenyl, a surrogate, was one of the compounds failing to meet criteria, all compounds are affected.

E4S80, E4S81, E4S83, E4S84, E4S85, E4S85DL, E4S86, E4S87, E4S88, E4S88DL, E4S91, E4S98, E4S99, E4S99DL

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4S85	4,4’-DDD
E4S88	4,4’-DDE, 4,4’-DDD, gamma-Chlordane
E4S99	4,4’-DDE, Heptachlor

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S53, E4S55, E4S62, E4S75, E4S83, E4S86, E4S91

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor samples have surrogate percent recoveries that are greater than 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden unless applied for another reason.

E4S54, E4S91

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S54DL, E4S84, E4S85, E4S88, E4S99, E4S99DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The "J" flag applied in the automated check process was overridden unless applied for another reason. Detected compounds are nondetected compounds are not qualified.

E4S53, E4S86, E4S87

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S88, E4S98, E4S99DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The automated report incorrectly calculated percent recoveries of Aroclor-1016 and Aroclor-1260. Spike compound Aroclor-1016 recovery in Sample E4S75MSD slightly exceeds the upper acceptance limit on

one column. All other spike recoveries and % RPD are within criteria. The "J" flag applied in the automated check process was overridden unless applied for another reason.

E4S75, E4S75MS, E4S75MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260 E4S53, E4S54DL

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1260 E4S55
Aroclor-1016 E4S75MS, E4S75MSD

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1260 E4S80, E4S81, E4S87

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4S53, E4S87

Several samples were initially analyzed at a ten-fold dilution. Mistakenly, the laboratory analyzed Sample E4S99 at an additional dilution, when in fact its original 10X analysis yielded results near, but not

exceeding the upper calibrated range. The dilution analysis of this sample was not required. Allowance was granted by SMO not to analyze a ten-fold more concentrated sample.

The following Aroclor sample reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample analysis should be used for result validation.

E4S54	Aroclor-1260

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 30, 2010

Subject: Review of Data
Received for Review on: April 26, 2010

From: Julie Rest
Environmental Chemist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S57

Number and Type of Samples: 19 Sediment Samples

Sample Numbers: E4S57, E4S58, E4S60, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE3, E4SE5, E4SE7, E4SE8

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Nineteen (19) sediment samples labeled E4S57, E4S58, E4S60, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE3, E4SE5, E4SE7, and E4SE8 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. Samples E4S57, E4S58, E4S60, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, and E4S72 were collected on 3/2/2010 and were received on 3/4/2010. Samples E4SE1, E4SE3, E4SE5, E4SE7, and E4SE8 were collected on 3/4/2010 and were received on 3/6/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 9 ºC. No data have been qualified based on receipt temperature. Sample E4S57 had a pH of 9.16, outside of the allowable limits. GLNPO staff instructed the laboratory to adjust the pH and proceed with the analysis of the sample.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag in the EDD. As detailed later in this narrative, sample results reported below the reporting detection limit have been elevated to the quantitation limit and qualified "U" in the "B" and "Z" files.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4S60 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4S65 and E4S66 as the field duplicate pair.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for benzo(b)fluoranthene and benzo(k)fluoranthene. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S57, E4S58, E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene	E4S63, E4S68, E4S70, E4S71, E4S72, E4SE5, E4SE7
Benzo(g,h,i)perylene	E4S63, E4S68, E4S70, E4S71, E4S72
Indeno(1,2,3-cd)pyrene	E4S63, E4S68, E4S70, E4S71, E4S72

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile sample E4SE1, with a dilution factor less than or equal to 5, had a deuterated monitoring compound recovery for Anthracene-d_{10} that was above the upper limit of the criteria window. Sample results for Anthracene and Phenanthrene are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

Semivolatile sample E4S57 had a deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Sample results for Benzo(a)anthracene, Chrysene, Fluoranthene, and Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S65 and E4S66 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4S65 and E4S66

Semivolatile compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	ND	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicates E4S65 and E4S66, RPDs were not calculated because all target compound results were nondetects.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original semivolatile analysis for sample E4SE1 was performed using a 5-fold dilution. No neat analysis was performed for this sample. The quantitation limits reflect the dilution factor.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene E4S60MS, E4S64, E4SE1, E4SE3, E4SE7

Pyrene	E4S61, E4S63
Benzo(g,h,i)perylene	E4S60, E4S60MS, E4S60MSD, E4S63, E4S64, E4S67, E4S68, E4S70, E4S71
Indeno(1,2,3-cd)pyrene	E4S60MS, E4S60MSD, E4S64, E4S70
Benzo(b)fluoranthene	E4S61, E4S63, E4S67, E4S68, E4S69, E4S71
Fluoranthene	E4S63, E4S69
Benzo(k)fluoranthene	E4S60, E4S60MS, E4S60MSD, E4S64, E4S70, E4SE3
Chrysene	E4S60, E4S63, E4S67, E4S68, E4S69
Benzo(a)pyrene	E4S61, E4S63, E4S67, E4S68, E4S69, E4S71
Dibenzo(a,h)anthracene	E4SE1, E4SE7
Benzo(a)anthracene	E4S61, E4S63, E4S67, E4S68, E4S70, E4S71
Acenaphthene	E4SE1, E4SE5DL, E4SE7
Phenanthrene	E4S61, E4S63, E4S67, E4S69, E4S71
Fluorene	E4SE1, E4SE5, E4SE5DL, E4SE7

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4SE5 reported concentrations that exceeded the calibrated range of the instrument for Pyrene. These results were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The original analysis of semivolatile-SIM sample E4SE1, with a dilution factor greater than or equal to 5, had a deuterated monitoring compound recovery for Fluoranthene-d_{10}, above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

Semivolatile-SIM samples E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S67, and E4S68, with a dilution factor greater than or equal to 5, had a deuterated monitoring compound recovery for 2-Methylnaphthalene-d_{10}, below the lower limit of the criteria window. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pyrene was recovered in the MS/MSD prepared for sample E4S60 at levels above the upper acceptance limit. The problem seems to be limited to the MS/MSD and may be due to the high amounts of Pyrene in the unspiked sample. No MS/MSD failures were reported in the SVOA full scan analyses. Therefore, only sample E4S60 is affected. The result for Pyrene in sample E4S60 is qualified "J".

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4S65 and E4S66 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4S65 and E4S66

Semivolatile-SIM compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	

Semivolatile-SIM compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Acenaphthene	ND	1	ND	1	
Fluorene	0.56	1	ND	1	
Phenanthrene	4	1	4.1	1	2.5
Anthracene	1.2	1	1.2	1	0
Fluoranthene	7.1	1	10	1	34
Pyrene	8	1	14	1	55
Benzo(a)anthracene	3.7	1	6.5	1	55
Chrysene	3.5	1	6.8	1	64
Benzo(b)fluoranthene	2.3	1	7.4	1	110
Benzo(k)fluoranthene	0.76	1	1.8	1	81
Benzo(a)pyrene	2.2	1	7.1	1	110
Indeno(1,2,3-cd)pyrene	1.6	1	4.1	1	88
Dibenzo(a,h)anthracene	ND	1	0.75	1	
Benzo(g,h,i)perylene	2.1	1	5.4	1	88

For field duplicates E4S65 and E4S66, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, and Benzo(g,h,i)perylene had RPD values above 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original semivolatile-SIM analysis for samples E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S67-E4S71, E4SE1, E4SE3, E4SE5, E4SE7 was performed using a 10-fold dilution. No neat analyses were performed for these samples. The quantitation limits reflect the dilution factor.

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4S58, E4S61, E4S63, E4S65–E4S71, E4SE8
Acenaphthene	E4S60, E4S64, E4S69, E4SE3, E4SE8
Acenaphthylene	E4SE1, E4SE5, E4SE7
Benzo(a)anthracene	E4S57, E4S72

Indeno(1,2,3-cd)pyrene	E4S57, E4S65, E4S69, E4S72
Benzo(k)fluoranthene	E4S58, E4S61, E4S63, E4S65, E4S66 – E4S69
Dibenzo(a,h)anthracene	E4S58, ES460, ES460MS, E4S60MSD, E4S61, E4S63, E4S64, E4S66, E4S67, E4S68, E4S70, E4S71, E4SE3, E4SE8
Fluorene	E4S60, E4S64, E4S65, E4S70, E4S71, E4SE3, E4SE8
Chrysene	E4SE57, E4S72
Fluoranthene	E4S57, E4S72
Benzo(a)pyrene	E4S57, E4S65, E4S69, E4S72
Benzo(b)fluoranthene	E4S57, E4S65, E4S72
Benzo(g,h,i)perylene	E4S57, E4S65, E4S69
Naphthalene	E4SE8
Phenanthrene	E4S57, E4S72
Pyrene	E4S72

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. Although the original analysis for some of these samples may have included a dilution, no further dilutions were performed.

Anthracene	E4SE1
Benzo(a)anthracene	E4SE1, E4SE5, E4SE7
Indeno(1,2,3-cd)pyrene	E4SE1, E4SE5, E4SE7
Benzo(k)fluoranthene	E4SE1, E4SE5
Chrysene	E4SE1, E4SE5, E4SE7
Fluoranthene	E4S60MS, E4S60MSD, E4S64, E4S70, E4SE1, E4SE3, E4SE5, E4SE7
Benzo(a)pyrene	E4SE1, E4SE5, E4SE7

Benzo(b)fluoranthene	E4SE1, E4SE5, E4SE7
Benzo(g,h,i)perylene	E4SE1, E4SE5, E4SE7
Phenanthrene	E4S60MS, E4SE1, E4SE5
Pyrene	E4S60MS, E4S60MSD, E4S64, E4SE1, E4SE5, E4SE7

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for surrogate compound Decachlorobiphenyl is outside criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S57, E4S58, E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference for surrogate compound Decachlorobiphenyl, and for several target compounds that exceeded criteria in one or more CCVs. All samples are affected. Detected target compounds are qualified J. Nondetected compounds are qualified UJ.

E4S57, E4S58, E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is also less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endrin aldehyde	E4S57, E4S58, E4S60, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S72

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank and continuing instrument blank concentrations are also less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

gamma-Chlordane	E4S57, E4S58, E4S65, E4S72
4,4'-DDE	E4S65, E4S69, E4S71, E4S72, E4SE1DL, E4SE8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SE7 had a surrogate percent recovery that was outside the lower limit of the criteria window, but greater than 10% on the RTXCLP column. All target analytes are affected. Detected compounds reported from this column are qualified "J". Nondetected compounds are qualified "UJ". .

Surrogate recoveries between 150 – 200 %, and greater than 200% were obtained on only one column for sample E4SE1. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

Diluted pesticide sample E4SE1DL and E4SE7DL, with a dilution factor greater than 5 had all surrogate percent recoveries greater than 150% and some greater than 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The Pesticide MS prepared for sample E4S60 had a percent recovery below the acceptance criteria for Endrin on both columns. All samples are affected. Sample results for Endrin are qualified "J". Nondetected results are qualified "UJ".

The Pesticide MS prepared for sample E4S60 had a percent recovery below the acceptance criteria for 4,4'-DDT and the MSD was recovered above the acceptance criteria for 4,4'-DDT on the RTXCLP2 column. However the Heptachlor results in the MS/MSD were rejected for reasons noted elsewhere in this narrative and, therefore, no 4,4'-DDT results have been qualified for MS/MSD recovery.

Pesticide MS/MSD E4S60 had RPD values outside of criteria for Dieldrin, and Endrin on both columns. All samples are affected. Sample results for Dieldrin, and Endrin are qualified "J". Nondetected results are not qualified.

Pesticide MS/MSD E4S60 had RPD values outside of criteria for Heptachlor on both columns. However the Heptachlor results in the MS/MSD were rejected for reasons noted elsewhere in this narrative and therefore, no Heptachlor results have been qualified for MS/MSD recovery.

The Pesticide MS/MSD prepared for sample E4S60 had percent recoveries above the acceptance criteria for gamma-BHC (Lindane), and RPD values outside of criteria for Aldrin on the RTXCLP2 column. All samples are affected. Sample results for Aldrin, and gamma-BHC (Lindane) that are reported from this column are qualified "J". Nondetected results are not qualified.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S65 and E4S66 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

The result for beta-BHC was rejected in sample E4S66 for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs

E4S65 and E4S66

Pesticide compound	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	0.11	1		1	
delta-BHC	ND	1	ND	1	
gamma-BHC (Lindane)	ND	1	ND	1	
Heptachlor	0.12	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.12	1	0.14	1	15
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	0.23	1	ND	1	
Endrin	ND	1	0.23	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	0.23	1	0.23	1	0
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.23	1	ND	1	
Methoxychlor	ND	1	1.6	1	
Endrin ketone	ND	1	0.23	1	
Endrin aldehyde	0.23	1	0.23	1	0
alpha-Chlordane	ND	1	0.14	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicates E4S65 and E4S66, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples RPD values were less than 50 %.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original pesticide analysis for sample E4SE1 was performed using a 10-fold dilution. No neat pesticide analysis was performed for this sample. The reported quantitation limits reflect the dilution factor.

The following non-detected sample results were reported correctly on Form 1s, but were either reported below the reporting detection limit or were flagged incorrectly in the EDD. The results have been elevated to the quantitation limit and are flagged “U”, unless affected by another qualifier.

E4S58 4,4’-DDD, beta-BHC, Endosulfan II, Heptachlor epoxide

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

alpha-BHC	E4S68, E4S69
alpha-Chlordane	E4SE7DL
Aldrin	E4S68
beta-BHC	E4S57, E4S58, E4S60, E4S63 - E4S65, E4S72, E4SE8
delta-BHC	E4S69, E4S72
Dieldrin	E4S57, E4S61, E4S63, E4S68, E4S71
Endrin	E4S63, E4S64, E4S66, E4S67, E4S71, E4SE1DL, E4SE3, E4SE7
Endrin aldehyde	E4S57, E4S58, E4S60, E4S64 - E4S70, E4S72, E4SE7
Endrin ketone	E4S63, E4S66, E4S70, E4SE5, E4SE7
gamma-BHC (Lindane)	E4SE8
gamma-Chlordane	E4S57, E4S58
4,4'-DDD	E4S65 – E4S69, E4S71, E4SE8
4,4'-DDE	E4S65, E4S69, E4S71, E4SE8
4,4'-DDT	E4S65 – E4S69, E4S71, E4SE8
Heptachlor	E4S57, E4S64, E4S65, E4S67 – E4S69, E4S71, E4S72
Endosulfan I	E4S68, E4SE8
Endosulfan II	E4S60, E4S60MS, E4S60MSD, E4S68, E4SE1, E4SE3, E4SE5, E4SE7, E4SE8
Heptachlor epoxide	E4S57, E4S63 – E4S65, E4S67, E4S68, E4S70 – E4S72, E4SE8
Methoxychlor	E4S63, E4S64, E4SE3, E4SE5, E4SE7, E4SE7DL

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4S61
beta-BHC	E4S65, E4S69, E4S71
delta-BHC	E4S69

4,4'-DDT	E4S61
alpha-Chlordane	E4S60, E4SE7
gamma-Chlordane	E4S58
Dieldrin	E4S61, E4S67, E4S68
Endrin	E4S60MS, E4S60MSD
Methoxychlor	E4S66
4,4'-DDD	E4S63, E4S70, E4SE7, E4SE8
4,4'-DDE	E4S60, E4S60MS, E4S60MSD, E4S71, E4SE1
Endrin aldehyde	E4S72, E4SE3
Heptachlor	E4S72

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

Aldrin	E4S60MS, E4S60MSD
4,4'-DDT	E4S70
Alpha-Chlordane	E4S66
gamma-BHC (Lindane)	E4S60MS, E4S60MSD
Endrin	E4S60, E4S70
4,4'-DDD	E4S61, E4S74
4,4'-DDE	E4S64, E4S70, E4SE5

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4S63, E4S64, E4S65, E4S67, E4S68, E4S70, E4S71, E4S72, E4SE1DL, E4SE8
Aldrin	E4S68
alpha-BHC	E4S69
beta-BHC	E4S57, E4S60, E4S63, E4S64, E4S72, E4SE7DL, E4SE8

Endosulfan II	E4S60, E4S60MS, E4S60MSD, E4S68, E4S70, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8
4,4'-DDT	E4S65, E4S67, E4S68, E4S69, E4S71, E4SE8
alpha-Chlordane	E4SE7DL
Endrin ketone	E4S60, E4S60MS, E4S60MSD, E4S63, E4S66, E4S70, E4SE5, E4SE7
gamma-BHC (Lindane)	E4SE7DL, E4SE8
Dieldrin	E4S57, E4S63, E4S71, E4SE7DL
Endrin	E4S63, E4S64, E4S66, E4S67, E4S71, E4S72, E4SE1DL, E4SE3, E4SE7
Methoxychlor	E4S61, E4S63, E4S64, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8
4,4'-DDD	E4S65, E4S66, E4S67, E4S68, E4S69, E4S71
4,4'-DDE	E4SE1DL
Endrin aldehyde	E4S58, E4S60, E4S64, E4S66, E4S68, E4S69, E4S70, E4SE7
Heptachlor	E4S57, E4S64, E4S65, E4S67, E4S68, E4S69, E4S71
Endosulfan I	E4S58, E4SE8

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified “R”.

Heptachlor epoxide	E4S60, E4S60MS, E4S60MSD, E4SE1, E4SE3, E4SE7, E4SE7DL
beta-BHC	E4S60MS, E4S60MSD, E4S61, E4S66, E4S67, E4S68, E4S70, E4SE3, E4SE7
4,4'-DDT	E4S60MS, E4S60MSD, E4S64, E4SE7
gamma-BHC (Lindane)	E4SE1, E4SE1DL, E4SE3, E4SE7
Dieldrin	E4SE7
Endrin	E4SE1, E4SE5
4,4'-DDE	E4SE3, E4SE7, E4SE7DL
Endrin aldehyde	E4S60MS, E4S60MSD, E4SE8
Heptachlor	E4S60, E4S60MS, E4S60MSD, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. For sample E4SE7, the 4,4’-DDD result from dilute sample be used for result validation. For sample E4SE1, the Heptachlor results for both the original sample analysis and the diluted analysis have been rejected for reasons mention elsewhere in this narrative.

4,4'-DDD	E4SE7
Heptachlor	E4SE1

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All Aroclor samples in this SDG had acceptable surrogate recoveries on one or both columns for the original analyses. No samples were qualified based on surrogate recovery.

However, diluted Aroclor samples E4SE1DL, E4SE5DL, and E4SE7DL, with dilution factors greater than five, had percent recoveries that are between 150 - 200%, and some that exceeded 200%. The diluted samples are not qualified based on surrogate recovery.

Aroclor sample E4SE1DL with dilution factors greater than 5 also had surrogate percent recoveries less than 10%. Detected and nondetected compounds are not qualified.

A surrogate recovery between 150 – 200 % was obtained on only one column for Aroclor sample E4S60, E4S60DL, E4S66, E4S3DL, E4SE1, E4SE5, E4SE7, and E4S60MS and E4S60MSD. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared for sample E4S60, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016 and Aroclor-1260, and the RPD exceeded criteria for Aroclor-1260 on one column. This is likely due to high levels of Aroclor-1248 and Aroclor-1260 in the unspiked sample. Only sample E4S60 is affected. Detected results are qualified “J”. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S65 and E4S66 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4S65 and E4S66

Aroclor compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4S65 and E4S66, RPD values were not calculated because both values were nondetects for all compounds.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1248 E4S71, E4S72

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified “J”.

Aroclor-1248 E4S72

Aroclor-1260 E4S70

The following Aroclor samples had percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified “NJ”.

Aroclor-1248 E4S61

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1248 E4S71

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1248 E4S70, E4SE1

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted samples should be used for result validation.

Aroclor-1248 E4S60, E4SE1, E4SE3, E4SE5, E4SE7

Aroclor-1260 ES460

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: **August 4, 2010**

Subject: R**evised Review Narrative Report**
Review of Data
Received for Review on: April 14, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

This narrative review supersedes the narrative sent on June 24, 2010 for the review of data in SDG E4S89. The changes made to this narrative include clarifications added to the Semivolatile and Pesticide Additional Information sections of the narrative. The changes have been highlighted in bold face type. In addition, the "reportable results" field in the "Z" file has been updated to reflect the clarifications. No sample results or review qualifiers have been changed based on these changes.

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S89

Number and Type of Samples: 14 Sediment Samples

Sample Numbers: E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB0, E4SB4, E4SB6, E4SB7, E4SG5, E4SG6

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Fourteen (14) sediment samples labeled E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB0, E4SB4, E4SB6, E4SB7, E4SG5, and E4SG6 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All except E4SG5 and E4SG6 were collected on 3/3/2010 and were received on 3/5/2010 at 2 °C. Samples E4SG5 and E4SG6 (equipment blanks) were collected on 3/5/2010 and were received on 3/6/2010 at 7 °C. These samples exceeded the proper shipping temperature range of 2 - 6 ºC; no data have been qualified based on receipt temperature. Two of the three containers for sample E4SA3 were received broken. Because the box for each container was intact, the laboratory did not believe that cross contamination occurred. In accordance with direction from EPA, samples were transferred to new containers and used for analyses. Samples E4S89 and E4SB7 were received at pH 9.1, which is outside the allowable limits. In accordance with direction from EPA, the pH was adjusted and the analyses conducted. No data were qualified based on the broken containers or sample pH.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as “soil” on Form1s and in the EDD for the samples in this SDG. The samples are actually “sediment” samples.

Sample E4S92 contained less than 50% solids. Results were reported on a dry-weight basis using the percent solids (45.3%) determined by the laboratory.

As designated by the samplers, Sample E4SB6 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SA3 and E4SA6 as field duplicate pairs.

Per the laboratory narrative, manual edits were made in the semivolatiles calibration standards for a variety of miscalled peaks. Every manual integration is noted by an “m” footnote on the quantitation report.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening CCV percent Difference (%D) outside criteria for Pyrene. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4S89, E4S92, E4SA6, E4SG6

The following semivolatile sample is associated with an opening CCV percent Difference (%D) outside criteria for Benzo (g,h,i) perylene and Indeno (1,2,3-cd) pyrene. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4SG6

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile samples with dilution factors less than or equal to 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Pyrene-d_{10}	E4S89DL
Anthracene-d_{10}	E4S89DL, E4SA4
Benzo (a) pyrene-d_{12}	E4SA4
Fluorene-d_{10}	E4S89DL
Acenaphthylene-d_8	E4S89DL, E4SA4

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 were identified as field duplicates. In addition to undiluted analyses of E4SA3, a 1:2 dilution of this sample was also analyzed (E4SA3DL). Results are summarized in the

following tables. Note that results are not qualified based upon the results of the field duplicates. Two equipment blanks were collected for this SDG.

E4SA3 and E4SA6

Semivolatile compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	100	1	ND	1	
Acenaphthene	69	1	77	1	11
Fluorene	110	1	94	1	16
Phenanthrene	880	1	710	1	21
Anthracene	300	1	220	1	31
Fluoranthene	1400	1	1300	1	7.4
Pyrene	2100	1	1600	1	27
Benzo(a)anthracene	1300	1	860	1	41
Chrysene	1000	1	910	1	9.4
Benzo(b)fluoranthene	1400	1	1200	1	15
Benzo(k)fluoranthene	380	1	310	1	20
Benzo(a)pyrene	1000	1	820	1	20
Indeno(1,2,3-cd)pyrene	1000	1	770	1	26
Dibenzo(a,h)anthracene	190	1	150	1	24
Benzo(g,h,i)perylene	830	1	640	1	26

For field duplicates E4SA3 and E4SA6, where detects were reported for both samples, all RPD values were 50% or less.

E4SA3DL and E4SA6

Semivolatile compounds	E4SA3DL µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Naphthalene	ND	2	ND	1	
2-Methylnaphthalene	ND	2	ND	1	
Acenaphthylene	120	2	ND	1	
Acenaphthene	78	2	77	1	1.3
Fluorene	120	2	94	1	24
Phenanthrene	1100	2	710	1	43
Anthracene	370	2	220	1	51
Fluoranthene	2000	2	1300	1	42
Pyrene	2200	2	1600	1	32
Benzo(a)anthracene	1400	2	860	1	48
Chrysene	1200	2	910	1	28
Benzo(b)fluoranthene	1600	2	1200	1	29
Benzo(k)fluoranthene	490	2	310	1	45
Benzo(a)pyrene	1300	2	820	1	45
Indeno(1,2,3-cd)pyrene	1200	2	770	1	44
Dibenzo(a,h)anthracene	260	2	150	1	54

Semivolatile compounds	E4SA3DL µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Benzo(g,h,i)perylene	1100	2	640	1	53

For field duplicates E4SA3DL and E4SA6, where detects were reported for both samples, all RPD values were less than 50% except for Anthracene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene.

Equipment Blanks E4SG5 and E4SG6

Semivolatile compounds	E4SG5 µg/L	E4SG6 µg/L
Naphthalene	ND	ND
2-Methylnaphthalene	ND	ND
Acenaphthylene	ND	ND
Acenaphthene	ND	ND
Fluorene	ND	ND
Phenanthrene	ND	ND
Anthracene	ND	ND
Fluoranthene	ND	ND
Pyrene	ND	ND
Benzo(a)anthracene	ND	ND
Chrysene	ND	ND
Benzo(b)fluoranthene	ND	2.6
Benzo(k)fluoranthene	ND	ND
Benzo(a)pyrene	ND	2.7
Indeno(1,2,3-cd)pyrene	ND	ND
Dibenzo(a,h)anthracene	ND	ND
Benzo(g,h,i)perylene	ND	ND

No target compounds were detected in equipment blanks E4SG5. In equipment blank E4SG6, target compounds Benzo(b)fluoranthene and Benzo(a)pyrene were detected at levels below the CRQL.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Anthracene E4S90, E4S92, E4SB4

Pyrene E4SB0, E4SB6

Benzo (b) fluoranthene	E4SB6, E4SB6MS, E4SB6MSD, E4SG6
Fluoranthene	E4SB0, E4SB6, E4SB6MS, E4SB6MSD
Benzo (k) fluoranthene	E4SB4
Acenaphthylene	E4SA3, E4SA3DL
Benzo (a) pyrene	E4SG6
Dibenzo (a,h) anthracene	E4S89DL, E4SA2, E4SA4, E4SA9DL
Acenaphthene	E4S89DL, E4S92, E4SA2, E4SA3, E4SA3DL, E4SA4, E4SA6, E4SA9DL
Phenanthrene	E4SB6MS
Fluorene	E4S89DL, E4S92, E4SA2, E4SA3, E4SA3DL, E4SA6, E4SA9, E4SA9DL
Naphthalene	E4S89, E4SA9
2-Methylnaphthalene	E4S89

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4S89 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene, Chrysene, Benzo(b)fluoranthene, and Pyrene; and samples E4SA3 and E4SA9 had concentrations for Pyrene that exceeded the instrument calibration range. These results were flagged "E" by the laboratory and, as per the NFG, are flagged estimated, "J". The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike (E4SB6MS) and matrix spike duplicate (E4SB6MSD) recoveries is outside criteria for Acenaphthene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

The matrix spike (E4SB6MS) and matrix spike duplicate (E4SB6MSD) have percent recoveries that are greater than the upper acceptance limit for Pyrene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 are identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. Semivolatile, but not Semivolatile-SIM, analyses were conducted for the equipment blanks E4SG5 and E4SG6. Results for the equipment blanks are reported in the Semivolatiles Section 7.0 above.

E4SA3 and E4SA6

Semivolatile-SIM compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	54	10	7.9	10	150
Acenaphthene	35	10	41	10	15.8

Semivolatile-SIM compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Fluorene	59	10	52	10	12.6
Phenanthrene	630	10	470	10	29.1
Anthracene	190	10	130	10	37.5
Fluoranthene	1700	10	1300	10	26.7
Pyrene	1200	10	910	10	27.5
Benzo(a)anthracene	800	10	560	10	35.3
Chrysene	630	10	550	10	13.6
Benzo(b)fluoranthene	990	10	760	10	26.3
Benzo(k)fluoranthene	300	10	230	10	26.4
Benzo(a)pyrene	730	10	510	10	35.5
Indeno(1,2,3-cd)pyrene	460	10	380	10	19
Dibenzo(a,h)anthracene	93	10	75	10	21.4
Benzo(g,h,i)perylene	370	10	300	10	20.9

For field duplicate pair E4SC5 and E4SC6, all compounds detected in both samples had RPD values less than 50%, except for Acenaphthylene (150%).

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original analysis for samples E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, and E4SB4 were performed using 10-fold dilutions. The original analysis for samples E4SB0 and E4SB6 were performed using 2-fold and 5-fold dilutions, respectively.

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4SB0DL, E4SB6DL
Indeno (1,2,3-cd) pyrene	E4SB7
Benzo (b) fluoranthene	E4SB7
Fluoranthene	E4SB7
Benzo (k) fluoranthene	E4SB6DL
Acenaphthylene	E4S89, E4SA4, E4SA6, E4SA9, E4SB6, E4SB6MS

Chrysene	E4SB7
Benzo (a) pyrene	E4SB7
Dibenzo (a,h) anthracene	E4SB0, E4SB0DL, E4SB6DL
Benzo (a) anthracene	E4SB7
Acenaphthene	E4S90, E4S92, E4SB0, E4SB0DL, E4SB4, E4SB6
Phenanthrene	E4SB7
Fluorene	E4S90, E4SB0, E4SB0DL, E4SB4, E4SB6, E4SB6MS, E4SB6MSD
Naphthalene	E4SB6MSD
2-Methylnaphthalene	E4SA9, E4SB6, E4SB6MSD

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". Where diluted results are provided, these should be used for result validation.

Anthracene	E4S89, E4SA4
Benzo(a)anthracene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Benzo(a)pyrene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Benzo(b)fluoranthene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB4, E4SB6, E4SB6MSD
Benzo(g,h,i)perylene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Benzo(k)fluoranthene	E4S89, E4SA3, E4SA4, E4SA9
Chrysene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Fluoranthene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB0, E4SB4, E4SB6, E4SB6MS, E4SB6MSD
Fluorene	E4SA4
Indeno(1,2,3-cd)pyrene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9

Phenanthrene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Pyrene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB4, E4SB6, E4SB6MS, E4SB6MSD

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4S89, E4S89DL, E4S90, E4S90DL, E4S92, E4SA2, E4SA3, E4SA4, E4SA4DL, E4SA6, E4SA9, E4SA9DL, E4SB0, E4SB4, E4SB6, E4SB6MS, E4SB6MSD, E4SB7

All pesticide samples are associated with a CCV with % Difference that exceeded criteria for the target compounds Endosulfan I, Endosulfan II, 4,4'-DDT, Endrin ketone, Endrin, Methoxychlor, beta-BHC, delta-BHC, alpha-Chlordane, gamma-BHC (Lindane), and Endrin aldehyde. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

4,4'-DDE	E4SB0, E4SB6MS
Endrin aldehyde	E4SG5, E4SG6

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

gamma-Chlordane	E4SB7
4,4'-DDE	E4SB0, E4SB6MS
Endrin aldehyde	E4SG5, E4SG6

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following pesticide samples have surrogate percent recoveries that are greater than 200%. All target pesticide compounds are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA4, E4SA6
Tetrachloro-m-xylene	E4SA9

The following pesticide samples have surrogate percent recoveries that are greater than 200%. All target pesticide compounds are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA4DL, E4SA9DL
Tetrachloro-m-xylene	E4SA4DL, E4SA9DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. All samples are affected. Detected results for Heptachlor compounds are qualified "J." Nondetected compounds are not qualified.

Heptachlor	E4SB6MS, E4SB6MSD

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 were identified as field duplicates**.** Results are summarized in the following table. Results for gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, 4,4'-DDT, Methoxychlor, and Endrin aldehyde were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs. Sample results are not qualified based on the results of field duplicates. Two equipment blanks were collected for this SDG.

E4SA3 and E4SA6

Pesticide compound	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC (Lindane)		1	ND	1	
Heptachlor		1		1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1		1	
Endosulfan I	0.46	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	2.5	1	3.1	1	21
Endrin	0.25	1	0.26	1	3.9
Endosulfan II	0.25	1	0.26	1	3.9
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT		1		1	

Pesticide compound	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Methoxychlor	1.3	1		1	
Endrin ketone	0.25	1		1	
Endrin aldehyde		1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	2.6	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4SA3 and E4SA6, where calculated, RPD values were less than 50%.

Equipment Blanks E4SG5 and E4SG6

Pesticide compound	E4SG5 µg/L	E4SG6 µg/L
alpha-BHC	ND	ND
beta-BHC	ND	ND
delta-BHC	ND	ND
gamma-BHC (Lindane)	ND	ND
Heptachlor	ND	ND
Aldrin	ND	ND
Heptachlor epoxide	ND	ND
Endosulfan I	ND	ND
Dieldrin	ND	ND
4,4'-DDE	ND	ND
Endrin	ND	ND
Endosulfan II	ND	ND
4,4'-DDD	ND	ND
Endosulfan sulfate	ND	ND
4,4'-DDT	ND	ND
Methoxychlor	ND	ND
Endrin ketone	ND	ND
Endrin aldehyde	ND	ND
alpha-Chlordane	ND	ND
gamma-Chlordane	ND	ND
Toxaphene	ND	ND

No target compounds were detected in equipment blanks E4SG5 or E4SG6.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

alpha-BHC	E4SB7
Methoxychlor	E4SA4DL
Heptachlor epoxide	E4SG6

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

Endosulfan sulfate	E4S90DL, E4SB0
Aldrin	E4S92, E4SA3, E4SB4
alpha-BHC	E4S90DL
beta-BHC	E4SB0
delta-BHC	E4S90DL, E4SB7
Endosulfan II	E4SB6
alpha-Chlordane	E4S90DL, E4SB6
gamma-Chlordane	E4SB7, E4SG5
Endrin ketone	E4S89DL, E4S90
gamma-BHC (Lindane)	E4S89, E4S90, E4SB7
Dieldrin	E4SB0, E4SB6
Endrin	E4S90DL, E4SB0, E4SB7
Methoxychlor	E4SB7
Endrin aldehyde	E4SG5
Endosulfan I	E4S89DL, E4S90, E4S90DL, E4S92, E4SB0, E4SB7

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Heptachlor epoxide	E4S90DL
alpha-BHC	E4SA4DL

beta-BHC	E4S90, E4SB7, E4SG5
4,4'-DDT	E4S90, E4SA4
alpha-Chlordane	E4S89
gamma-BHC (Lindane)	E4SA4DL, E4SB6MSD
Dieldrin	E4S89, E4S90, E4S92, E4SB4, E4SB6MS
Endrin	E4SB6MS, E4SB6MSD
4,4'-DDD	E4S90DL, E4SA4DL, E4SG5
4,4'-DDE	E4S89DL, E4S92, E4SA2, E4SA3, E4SA9DL, E4SB4
Endrin aldehyde	E4SB0, E4SB7
Heptachlor	E4SB6MS, E4SB6MSD
Endosulfan I	E4SA3, E4SA4

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified “NJ”.

Heptachlor epoxide	E4S90
alpha-BHC	E4SA9, E4SA9DL
4,4'-DDT	E4S89DL, E4SA2, E4SA9DL
gamma-Chlordane	E4S90, E4SA6
Dieldrin	E4SA9, E4SB6MSD
Methoxychlor	E4S89
4,4'-DDD	E4S89DL
4,4'-DDE	E4S89, E4S90, E4S90DL, E4SA4DL
Endrin aldehyde	E4S90, E4S92, E4SA2
Heptachlor	E4S90, E4SA9, E4SB6

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified “U” and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4SA2, E4SA9DL, E4SB0, E4SB6, E4SB6MS, E4SB6MSD, E4SB7, E4SG5

Endosulfan sulfate	E4SB6MS, E4SB7
alpha-BHC	E4SB0
beta-BHC	E4S89DL, E4S90DL
delta-BHC	E4SG5
Endosulfan II	E4S89, E4S89DL, E4S90, E4S90DL, E4S92, E4SA3, E4SA4, E4SA4DL, E4SA6, E4SA9, E4SA9DL, E4SB4, E4SB7
4,4'-DDT	E4SB7
alpha-Chlordane	E4SA4DL, E4SB0
Endrin ketone	E4S89, E4S92, E4SA3, E4SA4, E4SA9, E4SB4
Endrin	E4S89DL, E4SA3, E4SA4DL, E4SA6
Methoxychlor	E4S90DL, E4S92, E4SA2, E4SA3, E4SA9DL, E4SB0, E4SB4, E4SB6
4,4'-DDD	E4SB0, E4SB6, E4SB6MS, E4SB6MSD, E4SB7
4,4'-DDE	E4SB0
Endrin aldehyde	E4S90DL
Heptachlor	E4S89DL, E4S90DL, E4SB0
Endosulfan I	E4SA4DL

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified “R”.

Heptachlor epoxide	E4S89, E4S89DL, E4S92, E4SA3, E4SA6, E4SA9, E4SB4
Endosulfan sulfate	E4S90, E4SA9
beta-BHC	E4S89, E4SA2, E4SB6
4,4'-DDT	E4S89, E4S92, E4SA3, E4SA6, E4SA9, E4SB4
gamma-Chlordane	E4S89
Endrin ketone	E4SA6
gamma-BHC (Lindane)	E4SA3
Endrin	E4S89, E4S92, E4SA4, E4SB4
Methoxychlor	E4S90, E4SA4, E4SA6, E4SA9

4,4'-DDD	E4S92
4,4'-DDE	E4SA9
Endrin aldehyde	E4SA3, E4SA9, E4SB4, E4SB6, E4SB6MS, E4SB6MSD
Heptachlor	E4S89, E4SA3, E4SA4DL, E4SA6, E4SA9DL

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, the results are flagged "J". The results from the diluted samples should be used for result validation.

4,4'-DDD	**E4S89, E4S90, E4SA9**
4,4'-DDE	**E4S89**
gamma-BHC (Lindane)	**E4SA4**

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns, with the exception of diluted sample E4S89DL. No sample results were qualified based on surrogate recovery. However, a surrogate recovery greater than 150% was obtained on only one column for samples E4S89, E4S90, E4S92, E4SSA3, E4SA6, and E4SA9. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

The following Aroclor samples have surrogate percent recoveries that are greater than 200% Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S89, E4S90, E4S92, E4SA3, E4SA6
Tetrachloro-m-xylene	E4SA9

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Decachlorobiphenyl	E4S89DL, E4S92DL, E4SA3DL, E4SA4DL, E4SA6DL, E4SA9DL, E4SB4DL
Tetrachloro-m-xylene	E4SA3DL, E4SA4DL, E4SA6DL, E4SA9DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA4, E4SA9, E4SB4
Tetrachloro-m-xylene	E4SA3, E4SA6

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Tetrachloro-m-xylene E4S89DL, E4SA9DL, E4SB4DL

The following Aroclor sample has surrogate percent recoveries less than 30% but greater than 10%. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Decachlorobiphenyl E4SA2

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4SB6, the Aroclor MS and MSD sample has a percent recovery greater than the upper acceptance limit on both the RTX-CLP and RTX-CLP2 columns for Aroclor-1260. In addition, the relative percent difference (RPD) between the MS and MSD for Aroclor-1260 was above criteria on column RTX-CLP. For column RTX-CLP2, the MS for Arochlor-1016 had a RPD greater than the upper acceptance limit. All samples are affected. Detected results are qualified "J". Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 were identified as field duplicates. In addition to undiluted analyses of each sample, a dilution was also analyzed (E4SA3DL, E4SA6DL). Results are summarized in the following two tables. Note that results are not qualified based upon the results of the field duplicates. Two equipment blanks were collected for this SDG.

E4SA3 and E4SA6

Aroclor compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	260	1	290	1	11
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4SA3 and E4SC6DL

Aroclor compounds	E4SA3 µg/kg	DF	E4SA6DL µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	50	
Aroclor-1221	ND	1	ND	50	

Aroclor compounds	E4SA3 µg/kg	DF	E4SA6DL µg/kg	DF	%RPD
Aroclor-1232	ND	1	ND	50	
Aroclor-1242	ND	1	ND	50	
Aroclor-1248	260	1	450	50	54
Aroclor-1254	ND	1	ND	50	
Aroclor-1260	ND	1	ND	50	
Aroclor-1262	ND	1	ND	50	
Aroclor-1268	ND	1	ND	50	

E4SA3DL and E4SC6

Aroclor compounds	E4SA3DL µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Aroclor-1016	ND	50	ND	1	
Aroclor-1221	ND	50	ND	1	
Aroclor-1232	ND	50	ND	1	
Aroclor-1242	ND	50	ND	1	
Aroclor-1248	390	50	290	1	29
Aroclor-1254	ND	50	ND	1	
Aroclor-1260	ND	50	ND	1	
Aroclor-1262	ND	50	ND	1	
Aroclor-1268	ND	50	ND	1	

E4SA3DL and E4SC6DL

Aroclor compounds	E4SA3DL µg/kg	DF	E4SA6DL µg/kg	DF	%RPD
Aroclor-1016	ND	50	ND	50	
Aroclor-1221	ND	50	ND	50	
Aroclor-1232	ND	50	ND	50	
Aroclor-1242	ND	50	ND	50	
Aroclor-1248	390	50	450	50	14
Aroclor-1254	ND	50	ND	50	
Aroclor-1260	ND	50	ND	50	
Aroclor-1262	ND	50	ND	50	
Aroclor-1268	ND	50	ND	50	

For the neat and diluted analysis of field duplicate samples E4SA3 and E4SA6, RPD values were not calculated when both values were nondetects. The RPDs for Aroclor-1248 were below 50% except for RPDs for E4SA3 and E4SC6DL.

Equipment Blanks E4SG5 and E4SG6

Aroclor compounds	E4SG5 µg/L	E4SG6 µg/L
Aroclor-1016	ND	ND
Aroclor-1221	ND	ND
Aroclor-1232	ND	ND

Aroclor compounds	E4SG5 µg/L	E4SG6 µg/L
Aroclor-1242	ND	ND
Aroclor-1248	ND	ND
Aroclor-1254	ND	ND
Aroclor-1260	ND	ND
Aroclor-1262	ND	ND
Aroclor-1268	ND	ND

No target compounds were detected in equipment blanks E4SG5 or E4SG6.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

Aroclor-1260 E4RZ6, E4S10, E4S51

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4RZ2, E4RZ6, E4S51

Aroclor-1248 E4RY8, E4S09DL

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1260 E4S59

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4S52

For the MS and MSD prepared for sample E4RZ1, Aroclor-1016 had a percent difference between the results on the two GC columns exceeding 100%. Detected Aroclor-1016 results in the MS and MSD are qualified "R".

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

Aroclor-1248 E4SA3, E4SA4, E4SA6, E4SA9

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "NJ". The results from the diluted sample should be used.

Aroclor-1260 E4S92, E4SB4

The following Aroclor sample reported concentrations that exceeded the calibrated range of the instrument and was flagged "E" by the laboratory. As per the NFG, this results is flagged "J" as the percent difference was between 26 and 50%. Where provided, the results from the diluted sample should be used.

Aroclor-1260 E4S89

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 1, 2010

Subject: Review of Data
Received for Review on: April 14, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S93

Number and Type of Samples: 13 Sediment Samples

Sample Numbers: E4S93, E4S94, E4S95, E4S96, E4S97, E4SA1, E4SA5, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5, E4SB8

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Thirteen (13) sediment samples labeled E4S93, E4S94, E4S95, E4S96, E4S97, E4SA1, E4SA5, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5, and E4SB8 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All samples were collected on 3/3/2010 and shipped on 3/4/2010. All samples were received on 3/6/2010 at 5 °C. One of the three containers for sample E4SB3 was received broken; however, the remaining two containers had sufficient sample for analyses. In accordance with direction from EPA, analyses proceeded. Sample E4SB3 was received at pH 9.05, which is outside the allowable limits. In accordance with direction from EPA, the pH was adjusted and the analyses conducted. No data were qualified based on the late delivery, the broken container, or sample pH.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

Samples E4S92 and E4SB1 contained less than 50% solids (45.3066% and 44.4634%, respectively). Results were reported on a dry-weight basis using the percent solids determined by the laboratory. As designated by the samplers, Sample E4S95 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no samples were identified as field duplicate pairs.

Per the laboratory narrative, manual edits were made in the semivolatiles calibration standards for a variety of miscalled peaks. Every manual integration is noted by an "m" footnote on the quantitation report.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile compounds and samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Benzo(g,h,i)perylene	E4S93
Benzo(b)fluoranthene	E4S93

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for Benzo(b)fluoranthene and Benzo(k)fluoranthene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4S97, E4SA1, E4SA5, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5, E4SB8

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile samples E4S95 and E4S95MS have deuterated monitoring compound recovery below the lower limit of the criteria window for Pyrene-d_{10}. Sample results for Benzo(a)anthracene, Chrysene, Fluoranthene, and Pyrene are affected. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Anthracene	E4S94
Pyrene	E4S96
Benzo(g,h,i)perylene	E4S95, E4S95MSD, E4SA8
Indeno(1,2,3-cd)pyrene	E4S95, E4SA7, E4SA8
Benzo(b)fluoranthene	E4S95MS, E4S95MSD, E4S96
Fluoranthene	E4S95MS
Benzo(k)fluoranthene	E4S95, E4SA7, E4SB5
Chrysene	E4S95MSD
Benzo(a)pyrene	E4S95MSD, E4S96
Dibenzo(a,h)anthracene	E4S93
Benzo(a)anthracene	E4S96
Phenanthrene	E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA8
Fluorene	E4S93

The following semivolatile samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

Anthracene	E4S95, E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5
Pyrene	E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Benzo(g,h,i)perylene	E4S95MS, E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Indeno(1,2,3-cd)pyrene	E4S95MS, E4S95MSD, E4S96, E4SA1, E4SB3
Benzo(b)fluoranthene	E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Fluoranthene	E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Benzo(k)fluoranthene	E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA8, E4SB3
Acenaphthylene	E4S93, E4S94, E4SA7, E4SA8, E4SB1
Chrysene	E4S95MS, E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Benzo(a)pyrene	E4S95MS, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Dibenzo(a,h)anthracene	E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(a)anthracene	E4S95MS, E4S95MSD, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Acenaphthene	E4S93, E4S94, E4S95, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5
Phenanthrene	E4S97, E4SA5, E4SB3, E4SB8
Fluorene	E4S94, E4S95, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5

Naphthalene	E4S93, E4S94, E4S95, E4SA1, E4SA8, E4SB1
2-Methylnaphthalene	E4S94, E4S95MSD, E4SA1

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information.

SEMIVOLATILES-SIM

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples and compounds have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Benzo(k)fluoranthene	E4S96DL, E4S97, E4SA1DL, E4SA5, E4SB3, E4SB8
Benzo(a)pyrene	E4SA5, E4SB8
Dibenzo(a,h)anthracene	E4S96DL, E4S97, E4SA1, E4SA1DL, E4SA5, E4SB3, E4SB8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike (E4S95MS) and matrix spike duplicate (E4S95MSD) recoveries is outside criteria for Acenaphthene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original analysis for samples E4S93, E4S94, E4S92, E4S95 E4S96, E4SA7, E4SA8, E4SB1, and E4SB4 were performed using 10-fold dilutions. The original analysis for sample E4SA1 was performed using 3-fold dilution.

The following semivolatile samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

Acenaphthylene	E4S96, E4SA8DL
Acenaphthene	E4S96DL, E4S97, E4SA5, E4SA7DL
Fluorene	E4S96DL, E4S97, E4SA5
Naphthalene	E4S93DL, E4S94DL, E4S95DL, E4S95MS, E4S97, E4SA1DL, E4SA5, E4SA8DL, E4SB1DL, E4SB3, E4SB8
2-Methylnaphthalene	E4S93DL, E4S94DL, E4S95MS, E4S96, E4S97, E4SA5, E4SB5DL, E4SB8

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Anthracene	E4S96DL, E4S97, E4SA1DL, E4SA5, E4SA8DL, E4SB1DL, E4SB8
Benzo(k)fluoranthene	E4S96DL, E4S97, E4SA1DL, E4SA5, E4SB3, E4SB8
Acenaphthylene	E4S93DL, E4S94DL, E4S95, E4S95MS, E4S95MSD, E4SB1, E4SB5
Benzo(a)pyrene	E4SA5, E4SB8
Dibenzo(a,h)anthracene	E4S96DL, E4S97, E4SA1, E4SA1DL, E4SA5, E4SB3, E4SB8
Acenaphthene	E4S94DL, E4S95DL, E4SA8DL, E4SB1DL, E4SB3, E4SB5DL
Fluorene	E4S95DL, E4S95MS, E4SA7DL, E4SA8DL, E4SB1DL, E4SB3, E4SB5DL
Naphthalene	E4S96
2-Methylnaphthalene	E4S95, E4SA7, E4SB3

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are qualified "J".

Acenaphthene	E4S93
Anthracene	E4S93, E4S94, E4S95, E4SA7, E4SB5

Benzo(a)anthracene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(a)pyrene	E4S93, E4S94, E4S95, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(b)fluoranthene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(g,h,i)perylene	E4S93, E4S94, E4S95, E4S95MSD, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(k)fluoranthene	E4S93, E4S94, E4S95, E4S95MSD, E4SA7, E4SA8, E4SB1, E4SB5
Chrysene	E4S93, E4S94, E4S95, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Dibenzo(a,h)anthracene	E4S93, E4S94, E4SA7, E4SB1
Fluoranthene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5
Fluorene	E4S93
Indeno(1,2,3-cd)pyrene	E4S93, E4S94, E4S95, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5
Pyrene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5

The following *diluted* semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are qualified "J".

Benzo(a)anthracene	E4S93DL, E4S94DL
Benzo(a)pyrene	E4S93DL, E4S94DL
Benzo(b)fluoranthene	E4S93DL, E4S94DL
Benzo(g,h,i)perylene	E4S93DL
Benzo(k)fluoranthene	E4S93DL
Chrysene	E4S93DL, E4S94DL
Fluoranthene	E4S93DL, E4S94DL, E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Indeno(1,2,3-cd)pyrene	E4S93DL, E4S94DL
Phenanthrene	E4S93DL, E4S94DL
Pyrene	E4S93DL, E4S94DL, E4SB5DL

The following *diluted* semivolatile-SIM samples reported concentrations that *did not* exceed the calibrated range of the instrument and were *not* flagged "E" by the laboratory.

Acenaphthene	E4S93DL
Anthracene	E4S93DL, E4S94DL, E4S95DL, E4SA7DL, E4SB5DL
Benzo(a)anthracene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(a)pyrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(b)fluoranthene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(g,h,i)perylene	E4S94DL, E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(k)fluoranthene	E4S94DL, E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Chrysene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Dibenzo(a,h)anthracene	E4S93DL, E4S94DL, E4SA7DL, E4SB1DL
Fluorene	E4S93DL
Indeno(1,2,3-cd)pyrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL

Phenanthrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Pyrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL

PESTICIDES

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *method* blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

4,4'-DDT	E4S94DL, E4S96, E4SA1, E4SA5, E4SB3

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *initial* instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endrin aldehyde	E4S97, E4SA5, E4SB3, E4SB8

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

4,4'-DDE	E4S97, E4SA1, E4SA5, E4SB3
Endrin aldehyde	E4S93DL, E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. All pesticide compounds are affected. Detected and nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93DL

The following pesticide samples have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected compounds are qualified "J." All pesticide compounds are affected. Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries greater than 150% but less than or equal to 200%. All pesticide compounds are affected. Detected and nondetected compounds are not qualified.

Tetrachloro-m-xylene	E4S93DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. All samples are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Heptachlor	E4S95MS, E4S95MSD

For the pesticide matrix/matrix spike pair E4S95/MS/E4S95MSD, percent recoveries are greater than the upper acceptance limit for Aldrin, 4,4'-DDT, gamma-BHC (Lindane), Dieldrin, Endrin, and Heptachlor. All samples are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

Aldrin	E4SB5
4,4'-DDT	E4SB8
alpha-Chlordane	E4SB8
Endrin ketone	E4SA1, E4SB3, E4SB8
gamma-BHC (Lindane)	E4S93DL, E4S95, E4S96, E4SA5, E4SB1, E4SB3, E4SB5, E4SB8
Dieldrin	E4SA5

Endrin	E4SB8
4,4'-DDD	E4SB8

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Endosulfan sulfate	E4SA1
Aldrin	E4S96, E4SA8
alpha-BHC	E4S93DL, E4SA1, E4SA5
beta-BHC	E4S95, E4S96, E4SA5, E4SA8, E4SB8
delta-BHC	E4S93DL, E4S95
Endosulfan II	E4SA1, E4SB3
alpha-Chlordane	E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB5
Endrin ketone	E4S93DL, E4SB1, E4SB5
gamma-BHC (Lindane)	E4S93, E4S97, E4SA1, E4SA7
Dieldrin	E4S96, E4SA1, E4SB3, E4SB5
Endrin	E4SA1, E4SA5, E4SB3
Methoxychlor	E4SA5, E4SB8
4,4'-DDE	E4S97
Endrin aldehyde	E4SB5
Heptachlor	E4S97, E4SB3, E4SB8
Endosulfan I	E4S93DL, E4S94, E4S95, E4SA7, E4SB1, E4SB5

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Heptachlor epoxide	E4S95, E4S95MSD
Aldrin	E4S95MS, E4S95MSD
alpha-BHC	E4SB8
4,4'-DDT	E4S94DL, E4SA8
alpha-Chlordane	E4S93, E4S93DL, E4S94, E4SB1
gamma-Chlordane	E4SB3, E4SB5
gamma-BHC (Lindane)	E4SA8
Endrin	E4S95MS, E4S95MSD
4,4'-DDD	E4S93DL, E4S95MS
4,4'-DDE	E4SA7, E4SB3, E4SB5
Endrin aldehyde	E4S95MS, E4SB1, E4SB3
Heptachlor	E4S95MS
Endosulfan I	E4SA8

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Heptachlor epoxide	E4S93DL, E4S95MS
4,4'-DDT	E4S93, E4S93DL, E4S94, E4S95, E4SA7, E4SB1, E4SB5
gamma-Chlordane	E4S93, E4S95, E4S95MS, E4S95MSD, E4SB1
gamma-BHC (Lindane)	E4S95MS, E4S95MSD
Dieldrin	E4S93, E4S93DL, E4S95MS, E4S95MSD, E4SA8
Methoxychlor	E4S93
4,4'-DDD	E4SA7
4,4'-DDE	E4S94, E4S94DL, E4SB1

Endrin aldehyde	E4S95, E4S95MSD, E4SA7, E4SA8
Heptachlor	E4S95MSD

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below the CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4S96, E4S97, E4SA1, E4SA5, E4SB5, E4SB8
Endosulfan sulfate	E4SB3
Aldrin	E4SA1
alpha-BHC	E4S97, E4SA7
beta-BHC	E4S93DL, E4S97, E4SA1, E4SB5
delta-BHC	E4SB3
Endosulfan II	E4S93, E4S93DL, E4S94, E4S94DL, E4SA8
4,4'-DDT	E4S96, E4SA5, E4SB3
gamma-Chlordane	E4S97, E4SA5, E4SB8
Endrin ketone	E4S95, E4S95MS, E4S95MSD, E4SA7, E4SA8
Dieldrin	E4S94, E4S94DL, E4S95, E4SB8
Endrin	E4S93DL, E4S97, E4SA8, E4SB1
Methoxychlor	E4S93DL, E4S94DL, E4S95, E4S95MS, E4S95MSD, E4S96, E4S97, E4SA1, E4SA8, E4SB3, E4SB5
4,4'-DDD	E4SA1, E4SA5, E4SB3
4,4'-DDE	E4SA1, E4SA5
Endrin aldehyde	E4S93DL, E4S96, E4S97, E4SA1, E4SA5, E4SB8
Heptachlor	E4S94, E4S95, E4S96, E4SA1, E4SA5, E4SB5

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4S93, E4SA7, E4SA8
Endosulfan sulfate	E4S94, E4SA7
delta-BHC	E4S96, E4SB1
gamma-Chlordane	E4S94, E4S96
Endrin	E4S93, E4SA7
Methoxychlor	E4S94, E4SA7, E4SB1
4,4'-DDE	E4SA8
Endrin aldehyde	E4S93
Heptachlor	E4SA7, E4SA8

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery. However, a surrogate recovery greater than 150% was obtained on only one column for samples E4S93, E4S94, E4SA7, E4SSA8, and E4S95MS. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries that are greater than 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93DL, E4SA7DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93, E4S94, E4SA7, E4SA8
Tetrachloro-m-xylene	E4S94, E4S95MS

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA8DL

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93DL, E4SA7DL
Tetrachloro-m-xylene	E4SA7DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4S95, the Aroclor MS and MSD samples have a percent recovery greater than the upper acceptance limit on the RTX-CLP and RTX-CLP2 columns for Aroclor-1016 and on the RTX-CLP column for Aroclor-1260. The results for Aroclor-1016 and Aroclor-1260 were rejected in sample E4S95MSD for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs. All samples are affected.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Not applicable.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Aroclor-1260	E4S93DL, E4SB5

The following Aroclor sample has percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Aroclor-1248	E4SB5

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R."

Aroclor-1260	E4S95MSD
Aroclor-1016	E4S95MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where provided, the results from the diluted sample should be used.

Aroclor-1016	E4S95MS
Aroclor-1248	E4SA7, E4SA8
Aroclor-1260	E4S93

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 17, 2010

SUBJECT: Review of Data
Received for Review on: April 8, 2010

FROM: Eric Boring
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4SC2

Number and Type of Samples: 20 Sediment Samples

Sample Numbers: E4SC2, E4SD4-E4SD7, E4SE2, E4SF0, E4SF2-E4SF8, E4SG0-E4SG4, E4SG7

Laboratory: DATAC

Following are our findings:

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Receipt: Twenty (20) sediment samples labeled E4SC2, E4SD4 – E4SD7, E4SE2, E4SF0, E4SF2 - E4SF8, E4SG0 – E4SG4 and E4SG7 were shipped to DataChem Laboratories, Inc., in Salt Lake City, Utah. Samples E4SC2, E4SD4 – E4SD7, E4SE2, and E4SG7 were collected on 3/4/2010 and were received on 3/6/2010, intact and at 4 ºC. Sample E4SF0, E4SF2 – E4SF4 were collected on 3/4/2010 and received on 3/6/2010, intact and at 6 ºC. Samples E4SF5 - E4SF7 were collected on 3/5/2010 and were received on 3/6/2010, intact and at 6 ºC. Samples E4SG0 – E4SG4 were collected on 3/5/2010 and received, intact and at 4 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, ***with the following exception***. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Some samples in this SDG were originally reported with results below the sample-specific MDLs and qualifier by the laboratory with a "J" flag. The EDD, Form 1s and other data summary forms for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s.

Several of the Form 1s reported target compound results less than the MDL for the semivolatile, Semivolatiles-SIM, and pesticide analyses. The forms were revised and resubmitted by the laboratory and should be used when viewing the data package. For the Semivolatiles-SIM analysis, however, some corrected Form 1s were not provided and are noted in the appropriate section of this report. For these samples, the EDD provides the sample results at the appropriate levels.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed. GLNPO may wish to obtain revised copies of the summary forms packages from the laboratory if there is a problem identifying the appropriate data based on the noted discrepancies.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples

Sample E4SF0 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Samples E4SC1/E4SC2, E4SE1/E4SE2, and E4SG1/E4SG4 were identified as field duplicates. Field Duplicate pairs E4SC1/E4SC2 and E4SE1/E4SE2 had high RPDs (> 50%) for many target compounds. In addition, it should be noted that E4SE1 was analyzed at a dilution factor of 10, while its duplicate, E4SE2 was analyzed at a dilution factor of 1. *Note: Samples E4SC1, E4SE1, and E4SE1DL were not part of this SDG. Sample E4SC1 is part of SDG E4RY5 and sample E4SE1 is part of SDG E4S57. Data from these three samples were added to the field duplicate tables in the narrative in order to calculate RPDs.*

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Benzo (g,h,i) perylene	E4SF4, E4SF7, E4SG0, E4SG2
Indeno (1,2,3-cd) pyrene	E4SF4, E4SF7, E4SG0, E4SG2
Benzo (b) fluoranthene	E4SF4, E4SF7, E4SG0, E4SG2

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The original analysis of the following semivolatile sample E4SG0 has a dilution factor greater than 5 and a deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene, Anthracene, Phenanthrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Pyrene, Acenaphthene E4SF0, E4SF0MS, E4SF0MSD

6B. LABORATORY CONTROL SAMPLE

An LCS was not required.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1/E4SE2 and E4SG1/E4SG4 were identified as field duplicates. Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Semivolatile Compounds	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	ND	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

E4SE1 and E4SE2

Semivolatile Compounds	E4SE1 µg/kg	DF	E4SE2 µg/kg	DF	%RPD
Naphthalene	ND	5	ND	1	
2-Methylnaphthalene	ND	5	ND	1	
Acenaphthylene	ND	5	ND	1	
Acenaphthene	410	5	130	1	100
Fluorene	340	5	120	1	96
Phenanthrene	2600	5	880	1	99
Anthracene	660	5	200	1	110
Fluoranthene	6700	5	1700	1	120
Pyrene	7600	5	2400	1	100
Benzo(a)anthracene	3400	5	1100	1	100
Chrysene	4200	5	1300	1	110
Benzo(b)fluoranthene	5800	5	1700	1	110
Benzo(k)fluoranthene	1400	5	510	1	93
Benzo(a)pyrene	3600	5	1200	1	100
Indeno(1,2,3-cd)pyrene	4000	5	1100	1	110
Dibenzo(a,h)anthracene	790	5	250	1	100
Benzo(g,h,i)perylene	3400	5	1000	1	110

E4SG1 and E4SG4

Semivolatile Compounds	E4SG1 µg/kg	DF	E4SG4 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	2	
2-Methylnaphthalene	ND	1	ND	2	
Acenaphthylene	ND	1	ND	2	
Acenaphthene	74	1	ND	2	
Fluorene	99	1	110	2	11
Phenanthrene	1100	1	1300	2	17
Anthracene	270	1	290	2	7.1
Fluoranthene	1700	1	2100	2	21
Pyrene	2300	1	2300	2	0
Benzo(a)anthracene	1300	1	1300	2	0
Chrysene	1400	1	1400	2	0
Benzo(b)fluoranthene	1700	1	1700	2	0
Benzo(k)fluoranthene	550	1	550	2	0
Benzo(a)pyrene	1300	1	1300	2	0
Indeno(1,2,3-cd)pyrene	1200	1	1000	2	18
Dibenzo(a,h)anthracene	260	1	210	2	21
Benzo(g,h,i)perylene	1000	1	890	2	12

For field duplicates E4SC1 and E4SC2, the RPD values could not be calculated because either one or both of the values was zero. For field duplicates E4SE1 and E4SE2 the RPDs are near 100% or higher for most of the detected analytes.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4SD4, E4SD5, E4SF2, E4SF3, E4SG0, E4SG1DL, E4SG4
Pyrene	E4SD6
Benzo (g,h,i) perylene	E4SD4, E4SD5, E4SF0, E4SF0MS, E4SF0MSD, E4SF3, E4SF4, E4SF6, E4SF7, E4SG0, E4SG2
Indeno (1,2,3-cd) pyrene	E4SD4, E4SD5, E4SF3, E4SF6, E4SG0, E4SG2
Benzo (b) fluoranthene	E4SD6

Fluoranthene	E4SD6
Benzo (k) fluoranthene	E4SD4, E4SD5, E4SF0, E4SF0MS, E4SF2, E4SF3, E4SF6, E4SF7, E4SG0, E4SG2
Chrysene	E4SF0, E4SF0MS, E4SF7
Benzo (a) pyrene	E4SD6, E4SF0, E4SF0MS, E4SF6
Dibenzo (a,h) anthracene	E4SG1DL, E4SG4
Benzo (a) anthracene	E4SF0, E4SF0MS, E4SF6, E4SF7
Acenaphthene	E4SE2, E4SF3, E4SF4, E4SF5, E4SG1
Phenanthrene	E4SD6, E4SF0, E4SF0MS, E4SF6, E4SF7
Fluorene	E4SE2, E4SF0MSD, E4SF3, E4SF5, E4SG1, E4SG4

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following semivolatile samples have reported concentrations that exceeded the calibration range. These results were flagged “E” by the laboratory and are estimated “J”. The results from the diluted sample analyses were within the calibration range.

Pyrene	E4SG1

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

No problems were found

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Indeno (1,2,3-cd) pyrene	E4SC2, E4SD4DL, E4SD6DL, E4SD7, E4SF0DL, E4SF2DL, E4SF3DL, E4SF6DL, E4SF7DL, E4SF8, E4SG2DL, E4SG3
Dibenzo (a,h) anthracene	E4SC2, E4SD4DL, E4SD6DL, E4SD7, E4SF0DL, E4SF2DL, E4SF3DL, E4SF6DL, E4SF7DL, E4SF8, E4SG2DL, E4SG3

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Diluted semivolatile-SIM sample E4SG0, with a dilution factor greater than 5, had a deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

Acenaphthene	E4SF0, E4SF0MS, E4SF0MSD

6B. LABORATORY CONTROL SAMPLE

An LCS was not required

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1/E4SE2 and E4SG1/E4SG4 were identified as field duplicates. Results are summarized in the following Tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Semivolatiles-SIM Compounds	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
Naphthalene	2.7	1	2	1	30
2-Methylnaphthalene	1.9	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	0.88	1	ND	1	
Phenanthrene	8.1	1	3.7	1	75
Anthracene	1.6	1	0.69	1	80
Fluoranthene	18	1	5.5	1	110
Pyrene	23	1	7.9	1	98
Benzo(a)anthracene	8.6	1	2.2	1	120
Chrysene	12	1	3.6	1	110
Benzo(b)fluoranthene	16	1	4.2	1	120
Benzo(k)fluoranthene	3.8	1	1.2	1	100
Benzo(a)pyrene	12	1	2.7	1	130
Indeno(1,2,3-cd)pyrene	10	1	2.9	1	110
Dibenzo(a,h)anthracene	2	1	2.4	1	18
Benzo(g,h,i)perylene	11	1	3.3	1	110

E4SE1 and E4SE2

Semivolatiles-SIM Compounds	E4SE1 µg/kg	DF	E4SE2 µg/kg	DF	%RPD
Naphthalene	40	10	13	1	100
2-Methylnaphthalene	42	10	11	1	120
Acenaphthylene	32	10	7	1	130
Acenaphthene	200	10	45	1	130
Fluorene	170	10	42	1	120
Phenanthrene	1600	10	570	1	95
Anthracene	390	10	130	1	100
Fluoranthene	6000	10	1700	1	110
Pyrene	3600	10	1200	1	100
Benzo(a)anthracene	1900	10	650	1	98
Chrysene	2100	10	640	1	110
Benzo(b)fluoranthene	4000	10	1600	1	86
Benzo(k)fluoranthene	1000	10	480	1	70
Benzo(a)pyrene	2200	10	1100	1	67
Indeno(1,2,3-cd)pyrene	1700	10	740	1	79
Dibenzo(a,h)anthracene	320	10	160	1	67
Benzo(g,h,i)perylene	1400	10	610	1	79

E4SG1 and E4SG4

Semivolatile Compounds	E4SG1 µg/kg	DF	E4SG4 µg/kg	DF	%RPD
Naphthalene	22	1	21	1	4.7
2-Methylnaphthalene	14	1	14	1	0
Acenaphthylene	17	1	19	1	11
Acenaphthene	29	1	34	1	16
Fluorene	36	1	45	1	22
Phenanthrene	650	1	940	1	37
Anthracene	140	1	200	1	35
Fluoranthene	1500	1	2100	1	33
Pyrene	1500	1	1800	1	18
Benzo(a)anthracene	950	1	1100	1	15
Chrysene	830	1	1000	1	19
Benzo(b)fluoranthene	1600	1	1800	1	12
Benzo(k)fluoranthene	370	1	470	1	24
Benzo(a)pyrene	990	1	1100	1	11
Indeno(1,2,3-cd)pyrene	660	1	740	1	11
Dibenzo(a,h)anthracene	140	1	160	1	13
Benzo(g,h,i)perylene	520	1	560	1	7.4

For field duplicates E4SC1 and E4SC2, the RPD values could not be calculated where one or both of the values was zero. Of those that could be calculated, only Naphthalene and Dibenzo(ah)anthracene had an RPD value below 50%. For field duplicates E4SE1 and E4SE2 the RPDs are near 100% or higher for all of the detected analytes. For field duplicates E4SG1 and E4SG4 all RPD values were below 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4SC2, E4SD6DL, E4SF0DL, E4SF6DL, E4SF7DL, E4SF8, E4SG3
Indeno (1,2,3-cd) pyrene	E4SD7, E4SG7
Benzo (b) fluoranthene	E4SD7, E4SG7
Fluoranthene	E4SD7, E4SG7

Benzo (k) fluoranthene	E4SC2, E4SD6DL, E4SD7, E4SF8
Acenaphthylene	E4SD4, E4SD5, E4SE2DL, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5DL, E4SF6, E4SF7DL, E4SG1DL, E4SG2, E4SG4DL
Chrysene	E4SD7, E4SG7
Benzo (a) pyrene	E4SD7, E4SG7
Dibenzo (a,h) anthracene	E4SC2, E4SD4DL, E4SD6DL, E4SD7, E4SF0DL, E4SF2DL, E4SF3DL, E4SF6DL, E4SF7DL, E4SF8, E4SG2DL, E4SG3
Benzo (a) anthracene	E4SC2, E4SD7, E4SG7
Acenaphthene	E4SD4DL, E4SD5DL, E4SD6, E4SF0, E4SF2DL, E4SF3DL, E4SF6, E4SF7, E4SF8, E4SG2DL, E4SG3
Phenanthrene	E4SD7, E4SG7
Fluorene	E4SD4DL, E4SD5DL, E4SD6, E4SF0MSD, E4SF2DL, E4SF6, E4SF8, E4SG2DL, E4SG3
Naphthalene	E4SC2, E4SF0, E4SF0MS, E4SF0MSD, E4SG7
2-Methylnaphthalene	E4SD5, E4SD6, E4SF0, E4SF0MS, E4SF0MSD, E4SF6

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following Semivolatiles-SIM samples have reported concentrations that exceeded the calibration range. These results were flagged “E” by the laboratory and are estimated “J”. The results from the diluted sample analyses were within the calibration range.

Phenanthrene	E4SD4, E4SD5, E4SE2, E4SF0, E4SF0MS, E4SF0MS, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, E4SG0, E4SG1, E4SG2, E4SG4
Anthracene	E4SD4, E4SD5, E4SE2, E4SF2, E4SF3, E4SF4, E4SF5, E4SG0, E4SG1, E4SG2, E4SG4
Fluoranthene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Pyrene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4

Benzo(a)anthracene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Chrysene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(b)fluoranthene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(k)fluoranthene	E4SD4, E4SD5, E4SE2, E4SF0, E4SF0MS, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(a)pyrene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Indeno(1,2,3-cd)pyrene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(g,h,i)perylene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Dibenzo(a,h)anthracene	E4SD4, E4SF0MS, E4SF0MSD, E4SF5, E4SG0, E4SG1, E4SG4
Acenaphthene	E4SE2, E4SF4, E4SF5, E4SG0, E4SG1, E4SG4
Fluorene	E4SE2, E4SF4, E4SF5, E4SG0, E4SG1, E4SG4

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated “J”. No further dilution analysis was performed and these diluted results should be used in the result validation.

Fluoranthene	E4SD5DL, E4SF4DL
Phenanthrene	E4SF4DL
Pyrene	E4SF4DL
Benzo(b)fluoranthene	E4SF4DL

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

beta-BHC	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endosulfan II	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
alpha-Chlordane	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endrin ketone	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Dieldrin	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endrin	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Methoxychlor	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
4,4'-DDD	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endrin aldehyde	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endosulfan I	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SF5 had surrogate percent recoveries greater than 150% but less than or equal to 200%. Pesticide sample E4SF5 also had surrogate percent recoveries that are greater than 200% (the same surrogate was out on both columns). Detected compounds are qualified J. Nondetected compounds are not qualified.

Diluted pesticide sample E4SF5DL, with a dilution factor greater than 5 has surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

A high surrogate recovery was obtained on only one column for samples E4SE2DL, E4SF4, E4SF4DL, E4SG1, E4SG4, E4SG4DL, and E4SF2. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SF4, E4SG1, E4SG4, and E4SF2, the "J" flags applied during the automated check process for surrogate recovery have been removed for detected compounds.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

According to the modified analysis, the laboratory was required to spike MS/MSD analytes at levels different than the SOW. For samples E4SF0, E4SF0MS, E4SF0MSD, all analytes were within acceptance limits based on the modified analysis procedures; therefore, the "J" flags applied during the automated check process have been removed for the following compounds.

Aldrin, 4,4'DDT, Gamma-BHC (Lindane), Dieldrin, Endrin, and Heptachlor

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1/E4SE2DL and E4SG1/E4SG4 were identified as field duplicates. Results are summarized in the following Tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Pesticide compound	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
alpha-BHC	0.13	1	ND	1	
beta-BHC	ND	1	0.12	1	
delta-BHC	ND	1	0.12	1	
gamma-BHC (Lindane)	ND	1	ND	1	
Heptachlor	0.14	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.13	1	0.12	1	8
Endosulfan I	ND	1	ND	1	
Dieldrin	0.25	1	ND	1	

Pesticide compound	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
4,4'-DDE	0.25	1	0.24	1	4.1
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	0.083	1	0.24	1	97
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.25	1	ND	1	
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	0.1	1	
Toxaphene	ND	1	ND	1	

E4SE1 and E4SE2DL

Pesticide compound	E4SE1 µg/kg	DF	E4SE2DL µg/kg	DF	%RPD
alpha-BHC	ND	10	ND	10	
beta-BHC	ND	10	ND	10	
delta-BHC	ND	10	ND	10	
gamma-BHC (Lindane)	25	10		10	
Heptachlor	38	10	ND	10	
Aldrin	ND	10	ND	10	
Heptachlor epoxide	8.5	10		10	
Endosulfan I	ND	10	3.9	10	
Dieldrin	ND	10	7.6	10	
4,4'-DDE	25	10	11	10	78
Endrin	6.3	10	4.5	10	33
Endosulfan II	3.4	10	ND	10	
4,4'-DDD	ND	10	7.5	10	
Endosulfan sulfate	ND	10	3.3	10	
4,4'-DDT	ND	10	32	10	
Methoxychlor	ND	10	17	10	
Endrin ketone	ND	10	ND	10	
Endrin aldehyde	ND	10	3.3	10	
alpha-Chlordane	ND	10	3.3	10	
gamma-Chlordane	ND	10	ND	10	
Toxaphene	ND	10	ND	10	

E4SG1 and E4SG4

Pesticide compound	E4SG1 µg/kg	DF	E4SG4 µg/kg	DF	%RPD
alpha-BHC	0.14	1	ND	1	
beta-BHC		1		1	
delta-BHC	ND	1	ND	1	
gamma-BHC (Lindane)		1		1	
Heptachlor		1		1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1		1	
Endosulfan I	ND	1	ND	1	
Dieldrin	1.3	1	1.2	1	8
4,4'-DDE	3.4	1	3.4	1	0
Endrin		1	0.3	1	
Endosulfan II	0.28	1	0.3	1	6.9
4,4'-DDD	9.5	1	9.3	1	2.1
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	2.5	1		1	
Methoxychlor	1.4	1	1.5	1	6.9
Endrin ketone	ND	1	ND	1	
Endrin aldehyde		1		1	
alpha-Chlordane	0.83	1	0.89	1	7
gamma-Chlordane		1		1	
Toxaphene	ND	1	ND	1	

Results for beta-BHC, gamma-BHC(Lindane), Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDT, Endrin aldehyde, and gamma-Chlordane were rejected in one or both samples in field duplicate pairs E4SE1 and E4SE2DL and E4SG1 and E4SG4 for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs.

RPD values could not be calculated where one or both of the values was zero. For field duplicates E4SC1 and E4SC2, 4,4"-DDD had an RPD value above 50%. For field duplicates E4SE1 and E4SE2DL, gamma-BHC (Lindane) and 4,4'-DDE had RPD values above 50% . For field duplicates E4SG1 and E4SG4 all RPD values were below 50%.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4SF0, E4SF0MS
Aldrin	E4SF0MS
beta-BHC	E4SD7
4,4'-DDT	E4SE2, E4SF0MS, E4SF0MSD, E4SG1, E4SG2
alpha-Chlordane	E4SE2, E4SE2DL, E4SF5, E4SG1
gamma-Chlordane	E4SC2, E4SD4, E4SE2, E4SF0, E4SF2
Gamma-BHC (Lindane)	E4SF0MS, E4SF0MSD, E4SF6
Dieldrin	E4SF2
Endrin	E4SD4, E4SD5, E4SF2
4,4'-DDD	E4SE2DL, E4SF2, E4SF5, E4SG0
4,4'-DDE	E4SD5, E4SF6, E4SG0, E4SG1
Heptachlor	E4SF7

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

alpha-Chlordane	E4SG0
Endrin ketone	E4SF5DL
Dieldrin	E4SE2, E4SE2DL, E4SF3, E4SG1, E4SG4
Endrin	E4SE2DL
4,4'-DDD	E4SD5, E4SE2, E4SF3
4,4'-DDE	E4SE2, E4SE2DL, E4SG4
Endrin aldehyde	E4SF4
Heptachlor	E4SF5
Endosulfan I	E4SE2, E4SE2DL

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

alpha-BHC	E4SE2, E4SG1, E4SG2
beta-BHC	E4SC2, E4SF2, E4SF6, E4SF7, E4SF8, E4SG0, E4SG7
delta-BHC	E4SC2, E4SG2, E4SG3
Endosulfan II	E4SD4, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF6, E4SG0, E4SG1, E4SG4, E4SG4DL
4,4'-DDT	E4SF0, E4SF7, E4SG3
alpha-Chlordane	E4SD4
Endrin ketone	E4SD4, E4SF2, E4SF3
Gamma-BHC (Lindane)	E4SD4, E4SG1DL, E4SG4DL
Dieldrin	E4SG1DL, E4SG4DL
Endrin	E4SF0, E4SF4DL, E4SF6, E4SG1DL, E4SG4, E4SG4DL
Methoxychlor	E4SD4, E4SE2DL, E4SF2, E4SF4DL, E4SF5DL, E4SG0, E4SG1, E4SG4
4,4'-DDD	E4SC2, E4SD5DL, E4SD6
4,4'-DDE	E4SC2, E4SF7, E4SF8, E4SG3, E4SG7
Endrin aldehyde	E4SD4, E4SD5, E4SD6, E4SE2DL, E4SF0MS, E4SF0MSD, E4SF4DL, E4SF7, E4SG2, E4SG4DL, E4SG7
Heptachlor	E4SG1DL, E4SG3, E4SG4DL
Endosulfan I	E4SD4, E4SG1DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4SD4, E4SE2DL, E4SF2, E4SF3, E4SF5DL, E4SF6, E4SG0, E4SG1, E4SG1DL, E4SG4, E4SG4DL
beta-BHC	E4SF3, E4SF4, E4SG1, E4SG4
Endosulfan II	E4SF4, E4SF5
4,4'-DDT	E4SD4, E4SF2, E4SF3, E4SF5, E4SG0, E4SG1DL, E4SG4, E4SG4DL

gamma-Chlordane	E4SF5, E4SG1, E4SG4
Endrin ketone	E4SF5
Gamma-BHC (Lindane)	E4SE2DL, E4SF3, E4SF4, E4SF4DL, E4SF5, E4SF5DL, E4SG0, E4SG1, E4SG4
Endrin	E4SG1
Methoxychlor	E4SE2, E4SF4, E4SF5
4,4'-DDD	E4SF0
4,4'-DDE	E4SG1DL, E4SG2
Endrin aldehyde	E4SE2, E4SF3, E4SF6, E4SG0, E4SG1, E4SG4
Heptachlor	E4SF4, E4SF4DL, E4SF6, E4SG1, E4SG4
Endosulfan I	E4SF5, E4SF5DL

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples had reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The result from the diluted sample should be used for result validation.

E4SD5	4,4’-DDT
E4SE2	4,4’-DDT, gamma-chlordane
E4SF4, ES4F5	Heptachlor, 4,4’-DDE, 4,4’-DDD
E4SG1, E4SG4	4,4’-DDD

The following pesticide samples had reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. However, the analyte was undetected in the diluted reanalysis and flagged “U” by the laboratory. The dilution factor should have been less than 10 for this analyte; however, the other analyte in this sample with an “E” flag was diluted within the calibration range.

E4SE2	gamma-Chlordane

For gamma-chlordane, the result from the original analysis, E4SE2, should be used.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

A high surrogate recovery, greater than 200%, was obtained on only one column for samples E4SD4, E4SF0, E4SF0MSD, and E4SG4. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SD4, E4SF0, E4SF0MSD, E4SG4, the "J" flags applied during the automated check process have been removed for detected compounds.

A high surrogate recovery, which exceed 150% but are less than or equal to 200%, was obtained on only one column for samples E4SF0, E4SF0MS and E4SF2. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SF0, E4SF0MS and E4SF2, the "J" flags applied during the automated check process have been removed for the following compounds.

Aroclor samples E4SE2, E4SF4, E4SF5, E4SG2, with dilution factors greater than 5 had surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

Aroclor samples E4SG1 and E4SG4DL, with dilution factors greater than five, had high surrogate recoveries, greater than 200%, on only one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SG1 and E4SG4DL, detected and non-detected compounds are not qualified.

Aroclor samples E4SE2, E4SF4, E4SF5, E4SG0, with dilution factors greater than 5 had surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Aroclor sample E4SF3, with a dilution factor greater than five had a high surrogate recovery, which exceed 150% but was less than or equal to 200% on only one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the

surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For sample E4SF3, detected and non-detected compounds are not qualified.

Aroclor sample E4SD5, with a dilution factor less than or equal to 5 had surrogate percent recoveries which exceed 150% but are less than or equal to 200%, and a surrogate recovery greater than 200%. Detected compounds are qualified J. Nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4SF0, the Aroclor MS and/or MSD samples have percent recoveries that are greater than the upper acceptance limit for Aroclor 1016 and less than the lower acceptance limit for Aroclor 1260 on the RTXCLP2 column. However, since the results of Aroclor 1016 and 1260 were reported from the RTXCLP column for all samples in this SDG, the data are not qualified. For samples E4SF0, E4SF0MS and E4SF90MSD, the "J" flags applied during the automated check process have been removed for the following compounds.

Aroclor 1016 and 1260

On the other column, RTX-CLP, the relative percent difference (RPD) between the MS and MSD, recalculated using concentrations instead of recoveries in the RPD calculation, is within the acceptance limits for both Aroclor 1016 and 1260. For samples E4SF0, E4SF0MS and E4SF90MSD, the "J" flags applied during the automated check process have been removed for the following compounds.

Aroclor 1016 and 1260

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1DL/E4SE2 and E4SG1/E4SG4DL were identified as field duplicates. Results are summarized in the following Tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Aroclor compound	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	4.4	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	

E4SE1DL and E4SE2

Aroclor compound	E4SE1DL µg/kg	DF	E4SE2 µg/kg	DF	%RPD
Aroclor-1016	ND	1000	ND	100	
Aroclor-1221	ND	1000	ND	100	
Aroclor-1232	ND	1000	ND	100	
Aroclor-1242	ND	1000	ND	100	
Aroclor-1248	7100	1000	2200	100	110
Aroclor-1254	ND	1000	ND	100	
Aroclor-1260	ND	1000	ND	100	
Aroclor-1262	ND	1000	ND	100	

E4SG1 and E4SG4DL

Aroclor compound	E4SG1 µg/kg	DF	E4SG4DL µg/kg	DF	%RPD
Aroclor-1016	ND	10	ND	10	
Aroclor-1221	ND	10	ND	10	
Aroclor-1232	ND	10	ND	10	
Aroclor-1242	ND	10	ND	10	
Aroclor-1248	130	10	190	10	38
Aroclor-1254	ND	10	ND	10	
Aroclor-1260	ND	10	ND	10	
Aroclor-1262	ND	10	ND	10	

RPD values could not be calculated where one or both of the values were zero. For field duplicates E4SC1 and E4SC2, no RPD values were calculated. For field duplicates E4SE1 and E4SE2DL, Aroclor-1248 had an RPD value above 50%. For field duplicates E4SG1 and E4SG4 the RPD value calculated for Aroclor-1248 was below 50%.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260	E4SF0MS
Aroclor-1248	E4SD6, E4SF3, E4SF7, E4SF8, E4SG7

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1016	E4SF0MS

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1260	E4SD4, E4SF0
Aroclor-1016	E4SF0MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following sample reported concentration that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SG4	Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: August 4, 2010

Subject: **Revised Narrative Report**
Review of Data
Received for Review on: April 13, 2010

From: Julie Rest
Environmental Chemist, CSC

To: Data User: GLNPO

This data review narrative supersedes the narrative sent to you on June 24, 2010 for the review of data in SDG E4SC4. The changes made to the narrative include clarifications added to the Pesticide Additional Information section. These appear in bold face type. In addition, the "reportable results" field in the "Z" file has been updated to reflect the clarifications. No sample results or review qualifiers have been changed based on these corrections.

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4SC4

Number and Type of Samples: 12 Sediment Samples

Sample Numbers: E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2 – E4SD4, E4SE6, E4SE9, E4SF1

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Twelve (12) sediment samples labeled E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2 – E4SD4, E4SE6, E4SE9, and E4SF1 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All were collected on 3/4/2010 and were received on 3/6/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 7 ºC. No data have been qualified based on receipt temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4SD2 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SC5and E4SC6 as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

For semivolatile sample E4SF1, the fourteen-day extraction holding time was exceeded by five days, due to poor deuterated monitoring compound (DMC) recoveries in the original analysis. All detected compounds are flagged "J". Nondetected compounds are flagged "UJ".

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening CCV percent difference (%D) outside criteria for fluoranthene. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SC5 – E4SC7, E4SC9, E4SD0, E4SD2, E4SD2MS, E4SD2MSD, E4SD3, E4SE4, E4SE6, E4SE9

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC5 and E4SC6 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4SC5 and E4SC6

Semivolatile compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	160	1	ND	1	
Fluorene	260	1	ND	1	

Semivolatile compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Phenanthrene	2100	1	500	1	120
Anthracene	690	1	90	1	150
Fluoranthene	3600	1	1600	1	77
Pyrene	3000	1	1300	1	79
Benzo(a)anthracene	1800	1	740	1	84
Chrysene	1400	1	790	1	56
Benzo(b)fluoranthene	2200	1	1200	1	59
Benzo(k)fluoranthene	650	1	440	1	39
Benzo(a)pyrene	1700	1	830	1	69
Indeno(1,2,3-cd)pyrene	950	1	550	1	53
Dibenzo(a,h)anthracene	200	1	120	1	50
Benzo(g,h,i)perylene	730	1	440	1	50

For field duplicates E4SC5 and E4SC6, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of benzo(k)fluoranthene, the RPD values were 50% or greater.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4SC6, E4SC7
Pyrene	E4SF1
Benzo(g,h,i)perylene	E4SC4, E4SD2, E4SE9
Indeno(1,2,3-cd)pyrene	E4SE9
Benzo(b)fluoranthene	E4SD2, E4SD2MS, E4SD2MSD, E4SF1
Fluoranthene	E4SD2MS, E4SD2MSD, E4SF1
Benzo(k)fluoranthene	E4SC4, E4SE9
Chrysene	E4SD2, E4SE9

Benzo(a)pyrene	E4SD2, E4SD2MS, E4SE9
Dibenzo (a,h) anthracene	E4SC5DL, E4SC6, E4SC7, E4SD0, E4SE6DL
Benzo (a) anthracene	E4SD2, E4SE9
Acenaphthene	E4SC5, E4SC5DL, E4SC7, E4SD0
Phenanthrene	E4SC4, E4SE9, E4SF1
Fluorene	E4SC5DL, E4SD0
Naphthalene	E4SE6
2-Methylnaphthalene	E4SE6

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4SC5 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene and Pyrene; and sample E4SE6 reported concentrations that exceeded the calibrated range of the instrument for Benzo(b)fluoranthene, Fluoranthene, Phenanthrene and Pyrene. These results were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted samples E4SC5 and E4SE6 should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

For semivolatile-SIM sample E4SF1, the fourteen-day extraction holding time was exceeded by five days, due to poor deuterated monitoring compound (DMC) recoveries in the original analysis. All detected compounds are flagged "J". Nondetected compounds are flagged "UJ".

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pyrene was not recovered in the MSD prepared for sample E4SD2 and was recovered below criteria in the MS. All sample results for Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4SC5 and E4SC6 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4SC5 and E4SC6

Semivolatile-SIM compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	ND	10	ND	10	
Acenaphthene	100	10	22	10	130
Fluorene	140	10	22	10	150
Phenanthrene	1200	10	290	10	120
Anthracene	400	10	62	10	150
Fluoranthene	2200	10	900	10	84

Semivolatile-SIM compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Pyrene	1700	10	780	10	74
Benzo(a)anthracene	1100	10	470	10	80
Chrysene	960	10	480	10	67
Benzo(b)fluoranthene	1500	10	710	10	72
Benzo(k)fluoranthene	420	10	200	10	71
Benzo(a)pyrene	1100	10	500	10	75
Indeno(1,2,3-cd)pyrene	820	10	410	10	67
Dibenzo(a,h)anthracene	160	10	78	10	69
Benzo(g,h,i)perylene	640	10	340	10	61

For field duplicates E4SC5 and E4SC6, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, all compounds had RPD values above 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original analysis for samples E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2, E4SE4, E4SE6, E4SE9, and E4SF1 was performed using a 10-fold dilution.

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4SC4, E4SD2, E4SE4, E4SE9, E4SF1
Benzo(g,h,i)perylene	E4SD2MS, E4SD2MSD
Indeno(1,2,3-cd)pyrene	E4SD2MS, E4SD2MSD, E4SD3
Benzo(k)fluoranthene	E4SD2, E4SD2MS, E4SD2MSD, E4SD3, E4SE9, E4SF1
Acenaphthylene	E4SC7, E4SD0, E4SE6
Chrysene	E4SD2MS, E4SD2MSD, E4SF1
Benzo(a)pyrene	E4SD2MS, E4SD2MSD, E4SD3
Dibenzo(a,h)anthracene	E4SC4, E4SD2, E4SE9, E4SF1
Benzo(a)anthracene	E4SD2MS, E4SD2MSD, E4SD3, E4SF1

Acenaphthene	E4SC6, E4SC9, E4SD2MS
Phenanthrene	E4SD2MS, E4SD2MSD, E4SD3
Fluorene	E4SC6, E4SC7, E4SC9, E4SE4

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J".

Acenaphthene	E4SE6
Anthracene	E4SC5, E4SC6
Benzo(a)anthracene	E4SC5 – E4SC7, E4SD0, E4SE6
Benzo(a)pyrene	E4SC5 – E4SC7, E4SD0, E4SE6
Benzo(b)fluoranthene	E4SC5 – E4SC7, E4SC9, E4SD0, E4SE4, E4SE6
Benzo(g,h,i)perylene	E4SC5, E4SC7, E4SD0, E4SE6
Benzo(k)fluoranthene	E4SC5, E4SE6
Chrysene	E4SC5 – E4SC7, E4SD0, E4SE6
Fluoranthene	E4SC5 – E4SC7, E4SC9, E4SD0, E4SE4, E4SE6
Fluorene	E4SE6
Indeno(1,2,3-cd)pyrene	E4SC5 – E4SC7, E4SD0, E4SE6
Phenanthrene	E4SC5, E4SD0, E4SE6
Pyrene	E4SC5 – E4SC7, E4SC9, E4SD0, E4SE4, E4SE6

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a surrogate compound is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SD2MS, E4SD2MSD, E4SD3, E4SE4, E4SE6, E4SE6DL, E4SE9, E4SF1

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2, E4SD3, E4SE4, E4SE6, E4SE9, E4SF1

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the target compounds Endosulfan sulfate, Endosulfan II, 4,4'-DDT, Endrin ketone, Endrin, Methoxychlor, 4,4'-DDD, 4,4'-DDE, and Endrin aldehyde. All samples are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2, E4SD3, E4SE4, E4SE6, E4SE9, E4SF1

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan II	E4SC5, E4SC5DL, E4SC7, E4SC9, E4SD0, E4SE6DL
4,4'-DDT	E4SD3
Methoxychlor	E4SC4, E4SC5DL, E4SC9, E4SD2, E4SD2MS, E4SD2MSD, E4SE6DL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery.

However, a surrogate recovery between 150 – 200 % was obtained on only one column for samples E4SC6, E4SD0, E4SE6, and E4SF1. The high recovery likely indicates a coelution or matrix interference

on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

Diluted pesticide sample E4SE6DL, with a dilution factor greater than 5 had a surrogate percent recovery greater than 200%, and a surrogate percent recovery that was less than 10%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pesticide MSD sample E4SD2 had a percent recovery greater than the upper acceptance limit on RTX-CLP2 column for gamma-BHC and Heptachlor, and the MS had a percent recovery greater than the acceptance limit for Heptachlor. Also, the relative percent difference (RPD) between the MS and MSD exceeded criteria for Aldrin on the RTX-CLP2 column and for gamma-BHC on the RTX-CLP column. All samples are affected. Detected results for gamma-BHC are qualified "J" in all samples. Detected results for Heptachlor and Aldrin are qualified "J" in samples reported from the RTX-CLP column. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC5 and E4SC6 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

Results for Endosulfan I, 4,4'-DDE, Endosulfan II, Endrin, and 4,4'-DDD, were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs

E4SC5 and E4SC6

Pesticide compound	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	4.9	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	1.5	1		1	
Dieldrin	ND	1	3.1	1	
4,4'-DDE		1		1	
Endrin		1		1	
Endosulfan II	0.36	1		1	
4,4'-DDD		1		1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	9.8	1	3.7	1	90

Pesticide compound	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Methoxychlor	3.9	1	3.5	1	11
Endrin ketone	0.36	1	ND	1	
Endrin aldehyde	2.1	1	3.1	1	39
alpha-Chlordane		1	0.4	1	
gamma-Chlordane	6.2	1	3.6	1	53
Toxaphene	ND	1	ND	1	

For field duplicate samples E4SC5and E4SC6, where calculated, RPD values were less than 50 %, with the exception of 4,4'-DDT and gamma chlordane.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

4,4'-DDT	E4SC6, E4SD2MSD, E4SE9
alpha-chlordane	E4SC6, E4SC7, E4SC9, E4SE6
gamma-chlordane	E4SC4, E4SD0, E4SE6, E4SF1
gamma-BHC(Lindane)	E4SC5DL
Dieldrin	E4SD2MS, E4SD2MSD
Methoxychlor	E4SE9
4,4'-DDD	E4SC7, E4SD2
4,4'-DDE	E4SD2MSD, E4SF1, PLCSS1
Endrin aldehyde	E4SC7
Heptachlor	E4SD2MS

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

Aldrin	E4SD2MSD

4,4'-DDT	E4SC4, E4SE4, E4SF1
gamma-Chlordane	E4SC5, E4SC7, E4SD2MS
gamma-BHC(Lindane)	E4SD2MS
Endrin	E4SE6
Methoxychlor	E4SC5, E4SC6, E4SC7, E4SD0, E4SE6, E4SF1
4,4'-DDD	E4SD0, E4SD2MS, E4SD2MSD, E4SE6, E4SE6DL
4,4'-DDE	E4SC7, E4SC9, E4SD2MS, E4SE4, E4SE9
Endrin aldehyde	E4SC5, E4SC6
Heptachlor	E4SD2MSD
Endosulfan I	E4SC5, E4SC5DL
Heptachlor epoxide	E4SF1

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified “U” and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4SD2, E4SD3, E4SE9
Endosulfan sulfate	E4SE9
alpha-BHC	E4SC9
beta-BHC	E4SD3
Endosulfan II	E4SC5, E4SC5DL, E4SC7, E4SC9, E4SD0, E4SE6DL
4,4'-DDT	E4SD3
alpha-Chlordane	E4SD2, E4SD2MS, E4SD2MSD, E4SE9, E4SF1
Endrin ketone	E4SC5, E4SC7, E4SC9, E4SD0, E4SE6, E4SE9
Dieldrin	E4SE9
Endrin	E4SC5DL, E4SC7, E4SC9, E4SD0, E4SD2, E4SE6DL, E4SF1
Methoxychlor	E4SC4, E4SC5DL, E4SC9, E4SD2, E4SD2MSD, E4SE6DL
Endrin aldehyde	E4SD0, E4SD2MS, E4SD2MSD, E4SE6DL, E4SE9
Heptachlor	E4SF1

Endosulfan I	E4SC4, E4SD0, E4SD2, E4SD2MS, E4SD2MSD

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4SC4, E4SC9, E4SD2MS, E4SD2MSD, E4SE6DL
alpha-BHC	E4SE4
beta-BHC	E4SC9, E4SE4
Endosulfan II	E4SC6, E4SE6
4,4'-DDT	E4SC9, E4SD2
alpha-Chlordane	E4SC5
Gamma-BHC(Lindane)	E4SE6DL
Endrin	E4SC5, E4SC6, E4SE4
Methoxychlor	E4SE4
4,4'-DDD	E4SC4, E4SC5, E4SC6, E4SC9, E4SF1
4,4'-DDE	E4SC4, E4SC5, E4SC6, E4SE6, E4SE6DL
Endrin aldehyde	E4SC5DL
Heptachlor	E4SC4
Endosulfan I	E4SC6

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where provided, the results from the diluted samples should be used for result validation.

4,4'-DDT	E4SC5, E4SE6
4,4'-DDD	E4SE6
gamma-BHC (Lindane)	**E4SC5**

Pesticide sample E4SE6 had an R-flagged result for 4,4'-DDE in both the neat analysis and the dilution. Consequently, no result is available for 4,4'-DDE for this sample. The "reportable result" in the EDD remains the result reported from the neat analysis.

The results for gamma-Chlordane in Pesticide samples E4SC5 and E4SE6 exceeded the calibration range in the neat analysis and were reported as non-detects in the dilutions. The qualified results from the neat analyses should be used for result validation.

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns, with the exception of the original analysis of samples E4SC5, E4SC6 and E4SE6, which have ten-fold dilutions; and diluted samples E4SC5DL – E4SC7DL, and E4SE6DL, which have 100-fold dilutions. None of the samples are qualified based on surrogate recovery.

However, a ten-fold dilution was used for the original analysis of Aroclor samples E4SC5, E4SC6, and E4SE6. Due to the dilution, detected and nondetected results are not qualified.

Aroclor samples E4SC5DL – E4SC7DL, E4SE4DL, and E4SE6DL with 100-fold dilutions have multiple surrogate failures. Detected and nondetected compounds are not qualified.

A surrogate recovery between 150 – 200 % was obtained on only one column for sample E4SE4. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared for sample E4SD2, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016 and Aroclor-1260. All samples are affected. Detected results are qualified “J”. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC5 and E4SC6 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4SC5 and E4SC6

Aroclor compounds	**E4SC5 µg/kg**	**DF**	**E4SC6 µg/kg**	**DF**	**%RPD**
Aroclor-1016	ND	10	ND	10	
Aroclor-1221	ND	10	ND	10	
Aroclor-1232	ND	10	ND	10	
Aroclor-1242	ND	10	ND	10	
Aroclor-1248	890	10	1400	10	44
Aroclor-1254	ND	10	ND	10	
Aroclor-1260	ND	10	ND	10	
Aroclor-1262	ND	10	ND	10	
Aroclor-1268	ND	10	ND	10	

E4SC5DL and E4SC6DL

Aroclor compounds	**E4SC5DL µg/kg**	**DF**	**E4SC6DL µg/kg**	**DF**	**%RPD**
Aroclor-1016	ND	100	ND	100	
Aroclor-1221	ND	100	ND	100	
Aroclor-1232	ND	100	ND	100	
Aroclor-1242	ND	100	ND	100	
Aroclor-1248	290	100	240	100	19
Aroclor-1254	ND	100	ND	100	
Aroclor-1260	ND	100	ND	100	
Aroclor-1262	ND	100	ND	100	
Aroclor-1268	ND	100	ND	100	

For the neat and diluted analysis of field duplicate samples E4SC5 and E4SC6, RPD values were not calculated when both values were nondetects. The RPD for Aroclor-1248 was below 50%.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4SD2MS, E4SD2MSD, E4SE4, E4SE4DL

Aroclor-1016 E4SD2MS, E4SD2MSD, E4SE4, E4SE4DL

The following Aroclor samples had percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1248 E4SC4

The following Aroclor samples had percent differences between analyte results exceeding 100% for Aroclor-1260. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1260 E4SE4, E4SE9, E4SF1

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

E4SC5 – E4SC7, E4SE6	Aroclor-1248
E4SE4	Aroclor-1016

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 14, 2010

Subject: Review of Data
Received for Review on May 12, 2010

From: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39668 MRN: none

SDG Number: E4SG8

Number and Type of Samples: Twenty (20) sediment samples

Sample Numbers: E4SG8, E4SG9, E4SH0-E4SH3, E4SK0-E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Three coolers containing twenty (20) sediment samples, labeled E4SG8, E4SG9, E4SH0-E4SH3, E4SK0-E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2 and E4SM4 were shipped to KAP Technologies, Inc. located in The Woodlands, Texas. The samples were collected on 04/14/2010 and 04/15/2010 and were received at the laboratory on 04/15/2010 and 04/16/2010 intact at 4.1, 2.6, and 3.3 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The Form 1 for semivolatile SIM analysis of sample E4SK9DL (page 1547) is missing from the data package. The quantitation report, chromatogram and spectral information were provided. The results for this sample are reported in both the spreadsheet and superset EDD.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4SG9 and E4SH0 are field duplicates. There are no field blanks associated with this SDG. No sample was designated for laboratory QC, i.e. MS/MSD. Sample E4SK9 was selected as the laboratory QC sample.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOM01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

Sample E4SK9DL is associated with an initial calibration percent relative standard deviation (%RSD) for Pentachlorophenol outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

The following semivolatile samples are associated with a % difference between the continuing calibration response factor and the initial calibration that exceeds criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. The relative response factor (RRF) for 4- Methyl phenol was greater in the continuing calibration than in the initial calibration, therefore the automated UJ flag affixed for nondetected 4-Methylphenol was overridden because the compound would have been detected if present.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3DL, E4SK0, E4SK1, E4SK1DL, E4SK1RE, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SMS

2,4-Dimethylphenol	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3
4-Methylphenol	E4SH3DL, E4SK1DL, E4SK1RE
4-Chloro-3-methylphenol	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3
Pentachlorophenol	E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4
2-Methylnaphthalene	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3DL, E4SK0, E4SK1, E4SK1DL, E4SK1RE, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Nitrobenzene-d_5 E4SK1, E4SK1RE
Affected compounds: 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Acetophenone, Hexachloroethane, N-Nitroso-di-n-propylamine, N-Nitrosodiphenylamine, Nitrobenzene

The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene-d_{10} E4SG8, E4SH3, E4SK0, E4SK5, E4SK9, E4SM2, E4SM4
Affected compounds: Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene

Dimethylphthalate-d_6 E4SK1
Affected compounds: 1,1'-Biphenyl, bis(2-Ethylhexyl)phthalate, Butylbenzylphthalate, Caprolactam, Di-n-butylphthalate, Di-n-octylphthalate, Diethylphthalate, Dimethylphthalate

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The percent recovery of 4-Nitrophenol exceeded the upper criterion in sample E4SK9MSD. Detected and nondetected compounds are not qualified.

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. The automated NFG report mistakenly reported N-Nitroso-di-n-propylamine as an outlier when it was within limits. The J flag was removed for this compound.

E4SK9, E4SK9MS, E4SK9MSD Pyrene, Acenaphthene

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following table. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
Hexachlorocyclopentadiene	ND	ND	
2,4,6-Trichlorophenol	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	ND	ND	
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	150	280	60.5
Anthracene	ND	ND	
Carbazole	ND	ND	
Di-n-butylphthalate	140	190	30.3

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Fluoranthene	350	600	52.6
Pyrene	230	360	44.1
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	150	200	28.6
Chrysene	190	250	27.3
Bis(2-ethylhexyl)phthalate	ND	ND	
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	130	270	70
Benzo(k)fluoranthene	150	210	33.3
Benzo(a)pyrene	150	210	33.3
Indeno(1,2,3-cd)pyrene	110	170	42.9
Dibenzo(a,h)anthracene	ND	ND	
Benzo(g,h,i)perylene	140	190	30.3
2,3,4,6-Tetrachlorophenol	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, were less than 50 percent, with the exceptions of Phenanthrene and Fluoranthene, the RPD values.

7. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Perylene-d_{12} E4SK1, E4SK1RE
Affected compounds: Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SK1, E4SK1RE
Affected compounds: Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Bis(2-ehtykhexyl)phthalate, Chrysene

8. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

9. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3DL, E4SK0, E4SK1DL, E4SK2, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9DL, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8

4-Methylphenol E4SH1
bis (2-Ethylhexyl) phthalate E4SK8, E4SK9, E4SK9MS, E4SK9MSD

Anthracene	E4SK0, E4SK5, E4SK9DL
Pyrene	E4SH1, E4SL6, E4SL8
Dibenzofuran	E4SH3DL, E4SK1DL
Benzo(g,h,i)perylene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK6, E4SL6, E4SL8
Indeno(1,2,3-cd)pyrene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK6, E4SL6, E4SL8
Benzo(b)fluoranthene	E4SG8, E4SG9, E4SH2, E4SK1DL, E4SL6, E4SL8
Fluoranthene	E4SH1
Benzo(k)fluoranthene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK1DL, E4SL6, E4SL8
Acenaphthylene	E4SH3
Chrysene	E4SG9, E4SH2, E4SL6, E4SL8
Benzo(a)pyrene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK1DL, E4SL6, E4SL8
Dibenzo(a,h)anthracene	E4SH3DL, E4SK5, E4SK8, E4SK9DL, E4SL5
Benzo(a)anthracene	E4SG9, E4SH0, E4SH2, E4SL6, E4SL8
Acenaphthene	E4SH3DL, E4SK0, E4SK9DL
Di-n-butylphthalate	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SK0, E4SK2
Phenanthrene	E4SG8, E4SG9, E4SH2, E4SK6, E4SL6, E4SL8
Fluorene	E4SH3DL, E4SK0, E4SK9DL
9H-Carbazole	E4SK9DL
Naphthalene	E4SK0
2-Methylnaphthalene	E4SK9
1,1'-Biphenyl	E4SH3, E4SK9MS

10. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

11. ADDITIONAL INFORMATION

The following semivolatile samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SH3	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK1	Naphthalene, 2-Methylnaphthalene, 1,1’-Biphenyl, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK1RE	Naphthalene, 2-Methylnaphthalene, 1,1’-Biphenyl, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene
E4SK9	Phenanthrene, Fluoranthene, Pyrene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo(g,h,i)perylene

E4SG8DL, E4SG9DL, E4SH0DL, E4SH1DL, E4SH2DL, E4SH3DL, E4SK0DL, E4SK1DL, E4SK4DL, E4SK5DL, E4SK6DL, E4SK8DL, E4SK9DL, E4SK9MS, E4SK9MSD, E4SL5DL, E4SL6DL, E4SL8DL, E4SM2DL, E4SM4DL

Pentachlorophenol

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

The following semivolatile samples are associated with an initial calibration with average relative response factors (mean RRFs) below the minimum required RRF for Pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

The following semivolatile samples are associated with a % difference between the continuing calibration response factor and the initial calibration that exceeds criteria. The relative response factor (RRF) for Dibenzo(a,h)anthracene was greater in the continuing calibration than in the initial calibration, therefore the automated UJ flag affixed for nondetected Dibenzo(a,h)anthracene was overridden as the compound would have been detected if present.

E4SH3DL, E4SH3RE, E4SH3RX, E4SK0, E4SK0DL, E4SK1, E4SK1DL, E4SK4, E4SK4DL, E4SK5, E4SK5DL, E4SK6, E4SK6DL, E4SK8, E4SK8DL, E4SK9, E4SK9DL, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4, E4SM4DL, SBLK21

Benzo(g,h,i)perylene	E4SH3DL, E4SK0DL, E4SK1DL, E4SK4DL, E4SK6DL, E4SK8DL, E4SK9DL
Benzo(b)fluoranthene	E4SK5DL, E4SK9MS, E4SK9MSD, E4SM4DL

Benzo(k)fluoranthene	E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4
Dibenzo(a,h)anthracene	E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4
Pentachlorophenol	E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) below the minimum required RRF for Pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Fluoranthene-d_{10} E4SH3, E4SH3RE, E4SH3RX
Affected compounds: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

The following diluted semivolatile samples with dilution factors greater than 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

2-Methylnaphthalene-d_{10} E4SM2DL
Affected compounds: 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, Pentachlorophenol, Phenanthrene

Fluoranthene-d_{10} E4SH3DL, E4SK1DL, E4SM2DL
Affected compounds: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The semivolatile-SIM matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit for all three spiked compounds. Detected compounds are qualified J. Nondetected compounds are not qualified. Because the spiking level was inappropriately low in comparison to the native levels of Acenaphthene and Pyrene present in the samples, no other samples were qualified based on the MS/MSD failure.

E4SK9, E4SK9MS, E4SK9MSD Acenaphthene, Pentachlorophenol, Pyrene

The relative percent difference (RPD) between the following semivolatile-SIM matrix spike and matrix spike duplicate recoveries is outside criteria for all three spiked compounds. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SK9, E4SK9MS, E4SK9MSD Acenaphthene, Pentachlorophenol, Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatile SIM.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following tables, original analyses and diluted analyses. Results for Pentachlorophenol were rejected in one or both samples in this field duplicate pair for reasons detailed elsewhere in this review. Therefore, those values were not used to calculate RPDs. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Naphthalene	ND	12	
2-Methylnaphthalene	ND	4.3	
Acenaphthylene	4.6	ND	
Acenaphthene	10	29	97.4
Fluorene	12	30	85.7
Phenanthrene	170	320	61.2
Anthracene	39	63	47.1
Fluoranthene	490	720	38
Pyrene	370	560	40.9
Benzo(a)anthracene	220	340	42.9
Chrysene	240	350	37.3
Benzo(b)fluoranthene	120	180	40
Benzo(k)fluoranthene	73	110	40.4
Benzo(a)pyrene	100	160	46.2
Indeno(1,2,3-cd)pyrene	78	110	34
Dibenzo(a,h)anthracene	36	52	36.4
Benzo(g,h,i)perylene	84	120	35.3
Pentachlorophenol			

Semivolatile Analyte	E4SG9DL (ug/kg)	E4SH0DL (ug/kg)	%RPD
Naphthalene	ND	ND	
2-Methylnaphthalene	ND	ND	
Acenaphthylene	ND	ND	

Semivolatile Analyte	E4SG9DL (ug/kg)	E4SH0DL (ug/kg)	%RPD
Acenaphthene	ND	ND	
Fluorene	ND	ND	
Phenanthrene	220	400	58.1
Anthracene	70	100	35.3
Fluoranthene	510	720	34.1
Pyrene	370	550	39.1
Benzo(a)anthracene	170	260	41.9
Chrysene	230	320	32.7
Benzo(b)fluoranthene	130	200	42.4
Benzo(k)fluoranthene	130	190	37.5
Benzo(a)pyrene	130	180	32.3
Indeno(1,2,3-cd)pyrene	83	110	28
Dibenzo(a,h)anthracene	53	49	7.8
Benzo(g,h,i)perylene	96	130	30.1
Pentachlorophenol	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples the RPD values were less than 50 percent, with the exception of Acenaphthene, Fluorene and Phenanthrene in the undiluted analysis and Phenanthrene in the diluted analysis.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SH3, E4SH3RE, E4SH3RX, E4SK1, E4SK3, SBLK19

Acenaphthene-d_{10} E4SH3, E4SK1
Affected compounds: Acenaphthylene, Acenaphthene, Fluorene

Perylene-d_{12} E4SH3, E4SH3RE, E4SH3RX, E4SK3
Affected compounds: Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SH3
Affected compounds: Pyrene, Benzo(a)anthracene, Chrysene

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SH2, E4SK3, E4SK4, E4SL6, E4SM2DL, E4SM4, E4SM4DL

Anthracene	E4SK4
Benzo(b)Fluoranthene	E4SM4DL
Benzo(k)fluoranthene	E4SM4DL
Chrysene	E4SM2DL
Dibenzo(a,h)anthracene	E4SK3
Fluorene	E4SM4
Naphthalene	E4SH2
2-Methylnaphthalene	E4SL6

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4SG8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SG9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SH0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SH1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SH2	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SH3	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SH3RE	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E4SH3RX	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK0	Naphthalene, 2-Methylnaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK1	Naphthalene, 2-Methylnaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK4	Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4SK5	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK8	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK9	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL5	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM2	Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4SM4	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4SG8DL	Fluoranthene
E4SG9DL	Fluoranthene
E4SH0DL	Fluoranthene, Pyrene
E4SH2DL	Fluoranthene
E4SH3DL	Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene
E4SK0DL	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, Pyrene,
E4SK1DL	2-Methylnaphthalene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene
E4SK5DL	Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene
E4SK6DL	Fluoranthene
E4SK8DL	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, Pyrene
E4SK9DL	Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene
E4SL5DL	Fluoranthene, Pyrene
E4SL6 DL	Fluoranthene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SH3 had Tetrachloro-m-xylene surrogate percent recovery on one column equal to the upper limit of 150%. The NFG automated report stated the surrogate as being greater than 150% but less than or equal to 200%. No data was qualified for surrogate recovery.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following table. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Pesticide Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	

Pesticide Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
4,4'-DDE	ND	ND	
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	ND	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	1.7	0.82	69.8
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected.

8. INTERNAL STANDARDS

Not applicable for Pesticides.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide sample has percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

alpha-Chlordane E4SL6

11. SYSTEM PERFORMANCE

No problems were found.

12. ADDITIONAL INFORMATION

For reasons that could not be determined, the NFG automated flagging report flagged 4,4-DDE in the following samples U as not detected at the stated concentration. These compounds are present. The NFG flag was overridden in the spreadsheet and superset EDD.

E4SK5, E4SK8

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following Aroclor matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SK9, E4SK9MS, E4SK9MSD Aroclor-1016

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified. NFG automated flags were overridden for Aroclor-1260 as the spike recovery was equal to, not greater than, the upper limit.

E4SK9, E4SK9MS, E4SK9MSD Aroclor-1260, Aroclor-1016

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following table. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Aroclor Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	

Aroclor Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	ND	ND	
Aroclor-1254	ND	ND	
Aroclor-1260	ND	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	ND	ND	
Aroclor-1254	ND	ND	
Aroclor-1260	ND	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected.

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SM4 Aroclor-1248

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

E4SK1, E4SK5, E4SK6, E4SK8, E4SK8DL, E4SK9MS Aroclor-1248

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

E4SK0, E4SL5 Aroclor-1248

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4SL5	Aroclor-1254
E4SM4	Aroclor-1248

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

E4SK8, E4SK8DL, E4SK9, E4SK9MS, E4SK9MSD Aroclor-1254

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Sample E4SK8 reported concentration of Aroclor-1248 that exceeded the calibration range of the instrument and was flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 9, 2010

Subject: Review of Data
Received for Review on: May 11, 2010

From: Julie Rest
Environmental Chemist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39668 MRN: NA SDG Number: E4SH4

Number and Type of Samples: 20 Sediment Samples

Sample Numbers: E4SH4 – E4SH9, E4SJ0 – E4SJ9, E4SL0 – E4SL3

Laboratory: KAP Technologies

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Twenty (20) sediment samples, labeled E4SH4 – E4SH9, E4SJ0 – E4SJ9, and E4SL0 – E4SL3, were shipped to KAP Technologies, Inc., in The Woodlands, Texas. Samples E4SH4 – E4SH9, and E4SJ0 – E4SJ9 were collected on 4/14/2010 and were received on 4/16/2010. Samples E4SL0 – E4SL3 were collected on 4/15/2010 and were received on 4/16/2010. The cooler temperatures on receipt were 4.2 ºC and at 2.9 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. As detailed later in this narrative, sample results reported below the reporting detection limit have been elevated to the quantitation limit and qualified "U" in the "B" and "Z" files. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOM01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

No QC sample was designated on the traffic reports for this SDG. Sample E4SH9 was used for laboratory QC, i.e., MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SL2 and E4SL3 as a field duplicate pair.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

2,4-Dimethylphenol	E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ4, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL0RE, E4SL1, E4SL1RE, E4SL2, E4SL3
4-Chloro-3-methylphenol	E4SJ9DL, E4SL0DL, E4SL0RE, E4SL1RE
Pentachlorophenol	E4SH4, E4SH5, E4SH6, E4SH7, E4SH8, E4SH9, E4SJ0, E4SJ1, E4SJ2, E4SJ3
2-Methylnaphthalene	E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ4, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL0RE, E4SL1, E4SL1RE, E4SL2, E4SL3

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene	E4SJ8, E4SJ9, E4SL2, E4SJ9DL

The following semivolatile sample has a deuterated monitoring compound recovery for 4-Nitrophenol-d_4 below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

2,4-Dinitrophenol, 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline, 4-Nitrophenol	E4SH9

Semivolatile sample E4SJ9DL, with a dilution factor less than or equal to five, had a deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Sample results for Benzo(a)anthracene, Chrysene, Fluoranthene, and Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SL2 and E4SL3 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4SL2 and E4SL3

Semivolatile compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Benzaldehyde	ND	1	ND	1	
Phenol	ND	1	ND	1	
Bis(2-chloroethyl)ether	ND	1	ND	1	
2-Chlorophenol	ND	1	ND	1	
2-Methylphenol	ND	1	ND	1	
2,2'-Oxybis(1-chloropropane)	ND	1	ND	1	
Acetophenone	ND	1	ND	1	
4-Methylphenol	ND	1	ND	1	
N-Nitroso-di-n-propylamine	ND	1	ND	1	
Hexachloroethane	ND	1	ND	1	
Nitrobenzene	ND	1	ND	1	
Isophorone	ND	1	ND	1	
2-Nitrophenol	ND	1	ND	1	
Bis(2-chloroethoxy)methane	ND	1	ND	1	
2,4-Dichlorophenol	ND	1	ND	1	
Naphthalene	ND	1	ND	1	
4-Chloroaniline	ND	1	ND	1	
2,4-Dimethylphenol	ND	1	ND	1	
Hexachlorobutadiene	ND	1	ND	1	
Caprolactam	ND	1	ND	1	
4-Chloro-3-methylphenol	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Hexachlorocyclopentadiene	ND	1	ND	1	
2,4,6-Trichlorophenol	ND	1	ND	1	
2,4,5-Trichlorophenol	ND	1	ND	1	
1,1'-Biphenyl	ND	1	ND	1	
2-Chloronaphthalene	ND	1	ND	1	
2-Nitroaniline	ND	1	ND	1	
Dimethylphthalate	ND	1	ND	1	

Semivolatile compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
2,6-Dinitrotoluene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
3-Nitroaniline	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
2,4-Dinitrophenol	ND	1	ND	1	
4-Nitrophenol	ND	1	ND	1	
Dibenzofuran	ND	1	ND	1	
2,4-Dinitrotoluene	ND	1	ND	1	
Diethylphthalate	ND	1	ND	1	
Fluorene	ND	1	ND	1	
4-Chlorophenyl-phenylether	ND	1	ND	1	
4-Nitroaniline	ND	1	ND	1	
4,6-Dinitro-2-methylphenol	ND	1	ND	1	
N-Nitrosodiphenylamine	ND	1	ND	1	
1,2,4,5-Tetrachlorobenzene	ND	1	ND	1	
4-Bromophenyl-phenylether	ND	1	ND	1	
Hexachlorobenzene	ND	1	ND	1	
Atrazine	ND	1	ND	1	
Pentachlorophenol	ND	1	ND	1	
Phenanthrene	230	1	190	1	19
Anthracene	ND	1	ND	1	
Carbazole	ND	1	ND	1	
Di-n-butylphthalate	230	1	230	1	0
Fluoranthene	460	1	380	1	19
Pyrene	320	1	270	1	17
Butylbenzylphthalate	ND	1	ND	1	
3,3'-Dichlorobenzidine	ND	1	ND	1	
Benzo(a)anthracene	230	1	170	1	30
Chrysene	250	1	220	1	13
Bis(2-ethylhexyl)phthalate	240	1	97	1	85
Di-n-octylphthalate	ND	1	ND	1	
Benzo(b)fluoranthene	210	1	210	1	0
Benzo(k)fluoranthene	190	1	170	1	11
Benzo(a)pyrene	210	1	200	1	4.9
Indeno(1,2,3-cd)pyrene	140	1	130	1	7.4
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	150	1	150	1	0
2,3,4,6-Tetrachlorophenol	ND	1	ND	1	

For field duplicates E4SL2 and E4SL3, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of Bis(2-ethylhexyl)phthalate, the RPD values were less than 50 percent.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J for the affected compounds. Nondetected compounds are not qualified.

Perylene-d_{12} E4SL0, E4SL0RE, E4SL1, E4SL1RE

Affected analytes: Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SL0, E4SL1

Affected analytes: Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene

As described above, the original semivolatile analysis for samples E4SL0 and E4SL1 had internal standard area counts for Chrysene-d_{12} and Perylene-d_{12} that were above the upper criteria limit. The samples were subsequently reanalyzed by the laboratory as samples E4SL0RE and E4SL1RE. For both E4SL0 and E4SL1, the reanalysis had area counts above the upper criteria limit only for Perylene-d_{12}. Since the target compound results compare favorably between the original analysis and the reanalysis for both samples, the results from the reanalyses should be used for result validation.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Target compound Benzo(a)pyrene had a concentration below the MDL for sample E4SJ0. The sample result is qualified "U" and reported at the CRQL.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

Bis(2-Ethylhexyl)phthalate	E4SH6, E4SH6DL, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ9DL, E4SL0DL, E4SL3
Anthracene	E4SH6DL, E4SJ1, E4SJ2, E4SL0DL
Pyrene	E4SH4, E4SH7, E4SH9, E4SJ0
Dibenzofuran	E4SL0, E4SL0RE
Benzo(g,h,i)perylene	E4SH5, E4SH7, E4SJ0, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SL0DL, E4SL2, E4SL3
Indeno(1,2,3-cd)pyrene	E4SH5, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SL0DL, E4SL2, E4SL3

Benzo(b)fluoranthene	E4SH4, E4SH5, E4SH9MS, E4SJ0, E4SJ3, E4SJ4, E4SJ5, E4SL3
Fluoranthene	E4SH4, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0
Benzo(k)fluoranthene	E4SH5, E4SH7, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SL2, E4SL3
Chrysene	E4SH4, E4SH5, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ3, E4SJ4, E4SJ5
Benzo(a)pyrene	E4SH5, E4SH7, E4SJ3, E4SJ4, E4SJ5, E4SL3
Dibenzo(a,h)anthracene	E4SH6DL, E4SJ1, E4SJ2, E4SJ9DL, E4SL1RE
Benzo(a)anthracene	E4SH5, E4SH7, E4SJ0, E4SJ3, E4SJ4, E4SJ5, E4SL3
Acenaphthene	E4SH6, E4SH6DL
Di-n-butylphthalate	E4SH4, E4SH5, E4SH6DL, E4SH7, E4SH8, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3, E4SJ6, E4SJ7, E4SJ8, E4SJ9, E4SL0, E4SL0RE, E4SL1, E4SL1RE
Phenanthrene	E4SJ0, E4SJ3, E4SJ5, E4SJ8, E4SL3
Fluorene	E4SH6DL, E4SL0DL, E4SL1, E4SL1RE
9H-Carbazole	E4SH6, E4SH6DL

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted samples should be used for result validation. Note that for sample E4SL0RE, the results from the dilution of the original analysis should be used for result validation.

Anthracene	E4SJ9
Benzo(a)anthracene	E4SJ9
Phenanthrene	E4SL0, E4SL0RE
Fluoranthene	E4SH6, E4SJ9, E4SL0, E4SL0RE
Chrysene	E4SJ9
Pyrene	E4SJ9

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile-SIM samples are associated with an initial calibration with an average relative response factor (mean RRF) for pentachlorophenol that are below the minimum required RRF. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4SH4, E4SH4DL, E4SH5, E4SH5DL, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH7DL, E4SH8, E4SH8DL, E4SH9, E4SH9DL, E4SJ0, E4SJ0DL, E4SJ1, E4SJ1DL, E4SJ2, E4SJ2DL, E4SJ3, E4SJ3DL, E4SJ4, E4SJ4DL, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ8DL, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL1, E4SL1DL, E4SL2, E4SL2DL, E4SL3, E4SL3DL

The following semivolatile-SIM samples are associated with initial calibration percent relative standard deviations (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo(g,h,i)perylene	ESH9MS, E4SH9MSD, E4SJ5DL
Chrysene	E4SH4, E4SH5, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH8, E4SH9, E4SJ0, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5
Pentachlorophenol	E4SH4, E4SH4DL, E4SH5, E4SH5DL, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH7DL, E4SH8, E4SH8DL, E4SH9, E4SH9DL, E4SJ0, E4SJ0DL, E4SJ1, E4SJ1DL, E4SJ2, E4SJ2DL, E4SJ3, E4SJ3DL, E4SJ4, E4SJ4DL, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ8DL, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL1, E4SL1DL, E4SL2, E4SL2DL, E4SL3, E4SL3DL

The following semivolatile-SIM samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene	E4SH4, E4SH6, E4SH8, E4SH9, E4SJ0
Benzo (b) fluoranthene	E4SH5, E4SH6DL, E4SH6RE, E4SH7, E4SH9MS, E4SH9MSD, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5, E4SJ5DL
Chrysene	E4SH5, E4SH6DL, E4SH6RE, E4SH7, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5

The following semivolatile-SIM samples are associated with a CCV with a relative response factor (RRF50) for pentachlorophenol below the minimum required RRF. Detected compounds are qualified J. Nondetected compounds are qualified R.

Pentachlorophenol	E4SH4, E4SH5, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH8, E4SH9, E4SJ0, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL, E4SL3DL, SBLK11

4. BLANKS

For the semivolatile-SIM method blank, SBLK11, the nondetected Pentachlorophenol result was flagged "R" by the NFG automated check procedure due to RRF failures in the associated initial and continuing calibrations. This method blank is also associated with samples E4SH9MS, E4SH9MSD, and E4SJ5DL which are not affected by calibration failures. Therefore, the nondetect result for pentachlorophenol in SBLK11 has not been removed from the "B" or "Z" files and is flagged "U," in order to preserve the nondetect flag.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Diluted semivolatile-SIM sample E4SJ8DL with dilution factors *greater* than 5 had a deuterated monitoring compound recovery for Fluoranthene-d_{10} above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

Diluted semivolatile-SIM samples E4SL0DL and E4SL1DLwith dilution factors *less* than or equal to 5 had a deuterated monitoring compound recovery for Fluoranthene-d_{10} above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Affected analytes: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4SL2 and E4SL3 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4SL2 and E4SL3

Semivolatile-SIM compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Pentachlorophenol					
Naphthalene	6.4	1	4.3	1	39
2-Methylnaphthalene	4.8	1	ND	1	
Acenaphthylene	16	1	8.1	1	66
Acenaphthene	14	1	17	1	19

Semivolatile-SIM compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Fluorene	26	1	21	1	21
Phenanthrene	220	1	180	1	20
Anthracene	84	1	63	1	28
Fluoranthene	520	1	460	1	12
Pyrene	430	1	390	1	10
Benzo(a)anthracene	340	1	270	1	23
Chrysene	300	1	260	1	14
Benzo(b)fluoranthene	200	1	180	1	11
Benzo(k)fluoranthene	110	1	93	1	17
Benzo(a)pyrene	180	1	160	1	12
Indeno(1,2,3-cd)pyrene	150	1	130	1	14
Dibenzo(a,h)anthracene	79	1	66	1	18
Benzo(g,h,i)perylene	150	1	130	1	14

E4SL2DL and E4SL3DL

Semivolatile-SIM compounds	E4SL2DL µg/kg	DF	E4SL3DL µg/kg	DF	%RPD
Pentachlorophenol					
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	50	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	37	1	ND	1	
Phenanthrene	260	1	220	1	17
Anthracene	120	1	98	1	20
Fluoranthene	620	1	540	1	14
Pyrene	440	1	350	1	23
Benzo(a)anthracene	560	1	350	1	46
Chrysene	560	1	360	1	44
Benzo(b)fluoranthene	440	1	400	1	9.5
Benzo(k)fluoranthene	340	1	220	1	43
Benzo(a)pyrene	470	1	360	1	27
Indeno(1,2,3-cd)pyrene	400	1	280	1	35
Dibenzo(a,h)anthracene	210	1	150	1	33
Benzo(g,h,i)perylene	420	1	290	1	37

For field duplicates E4SL2 and E4SL3, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, all RPD values for all compounds except Acenaphthylene were below 50%.

For reasons noted elsewhere in this narrative, the pentachlorophenol results for E4SL2 and E4SL3 have been rejected and the results removed from the “B” and “Z” files.

8. INTERNAL STANDARDS

The following semivolatile-SIM samples have internal standard area counts that are outside the upper criteria limit. Detected compounds are qualified J. Nondetected compounds are not qualified.

Phenanthrene-d_{10} E4SH6, E4SH6RE

Affected analytes: 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene

Perylene-d_{12} E4SH6, E4SH6RE, E4SJ9DL

Affected analytes: Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SH6, E4SH6RE

Affected analytes: Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene

As described above, the original semivolatile analysis for sample E4SH6 had internal standard area counts for Phenanthrene-d_{10}, Chrysene-d_{12} and Perylene-d_{12} that were above the upper criteria limit. The sample was reanalyzed by the laboratory as sample E4SH6RE. The reanalysis had the same internal standard failures. The results from the original analysis should be used for result validation.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4SJ0DL
Acenaphthylene	E4SH7, E4SJ3
Fluorene	E4SL2DL
Pentachlorophenol	E4SJ2, E4SJ3DL

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". The results from the diluted samples should be used for result validation.

Naphthalene	E4SL0
2-Methylnaphthalene	E4SH6, E4SL0, E4SL1
Acenaphthylene	E4SJ9, E4SL0, E4SL1
Acenaphthene	E4SH6, E4SJ1, E4SJ2, E4SJ9, E4SL0, E4SL1
Fluorene	E4SH6, E4SJ1, E4SJ2, E4SJ9, E4SL0, E4SL1
Phenanthrene	E4SH4 – E4SH6, E4SH7, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Anthracene	E4SH5, E4SH6, E4SJ1, E4SJ2, E4SJ5, E4SJ8, E4SJ9, E4SJ0, E4SL1, E4SL2, E4SL3,
Fluoranthene	E4SH4, E4SH6, E4SH7 – E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ2, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Pyrene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(a)anthracene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Chrysene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(b)fluoranthene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(k)fluoranthene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(a)pyrene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Indeno(1,2,3-cd)pyrene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3

Dibenzo(a,h)anthracene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(g,h,i)perylene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3

Semivolatile-SIM sample E4SJ1 reported concentrations for Acenaphthene and Fluorene that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". The result from the diluted sample was nondetected for Acenaphthene and Fluorene. The result from the original analysis should be used for result validation.

The following diluted semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". No further dilutions were performed. The results from these diluted samples should be used for result validation.

2-Methylnaphthalene	E4SL0DL
Acenaphthene	E4SL0DL
Fluorene	E4SJ9DL, E4SL0DL
Phenanthrene	E4SH6DL, E4SJ2DL, E4SJ9DL, E4SL0DL, E4SL1DL
Anthracene	E4SH6DL, E4SJ9DL, E4SJ0DL, E4SL1DL
Fluoranthene	E4SH6DL, E4SJ2DL, E4SJ3DL, E4SJ4DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL, E4SL3DL
Pyrene	E4SH6DL, E4SJ2DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(a)anthracene	E4SH6DL, E4SJ2DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Chrysene	E4SH6DL, E4SJ2DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(b)fluoranthene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(k)fluoranthene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(a0pyrene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Indeno(1,2,3-cd)pyrene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Dibenzo(a,h)anthracene	E4SH6DL, E4SJ8DL, E4SJ9DL,E4SL0DL, E4SL1DL, E4SL2DL,
Benzo(g,h,i)perylene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL

Sample E4SH6RE represents a reanalysis performed due to internal standard failure in the original analysis. For this analysis the following compounds had concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. No dilutions were performed for this reanalyses. The results from the dilution of the original analysis should be used for result validation.

Affected analytes: 2-Methylnaphthalene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

No problems were found

4. BLANKS

No problems were found

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

A surrogate recovery between 150 – 200 % was obtained on only one column for sample E4SL0. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SL2 and E4SL3 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4SL2 and E4SL3

Pesticide compound	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	ND	1	ND	1	

Pesticide compound	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	3.8	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	ND	1	5.8	1	
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicates E4SL2 and E4SL3, RPDs were not calculated because one or both results were nondetected.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations reported below the MDL. The affected results are elevated to the quantitation limit and are flagged “U”.

4,4’-DDE	E4SH5, E4SJ5, E4SL1, E4SL2, E4SL3
4,4’-DDD	E4SJ5, E4SJ7
Endosulfan II	E4SJ7
4,4’-DDT	E4SJ7, E4SL2
Methoxychlor	E4SJ7
Endrin ketone	E4SJ7
Endosulfan sulfate	E4SJ7

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4SL1

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

4,4'-DDE	E4SJ2

The following pesticide sample had a percent difference between the results on the two GC columns exceeding 50% and the result is below the CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

4,4'-DDT	E4SJ2

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

Results for the following samples were flagged "U" during the NFG automated checking process. It is unclear why this flag was applied, and based on our review findings the results for the following compounds in the samples are valid. Consequently the "U" validator flags have been removed from the "B" and "Z" files.

Dieldrin	E4SJ5, E4SH9MS, E4SH9MSD
Endrin	E4SJ5, E4SH9MS, E4SH9MSD
4,4'-DDT	E4SL0
4,4'-DDE	E4SH9, E4SJ1, E4SJ9, E4SL0, E4SH9MS, E4SH9MSD

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All Aroclor samples in this SDG had acceptable surrogate recoveries on one or both columns for the original analyses. No samples were qualified based on surrogate recovery.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared from sample E4S60, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016 and Aroclor-1260, and the RPD exceeded criteria for Aroclor-1260 on one column. This is likely due to high levels of Aroclor-1248 and Aroclor-1260 in the unspiked sample. Only sample E4S60 is affected. Detected results are qualified "J". Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SL2 and E4SL3 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4SL2 and E4SL3

Aroclor compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	200	1	240	1	18
Aroclor-1254					

Aroclor compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Aroclor-1260	21	1	49	1	80
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4SL2 and E4SL3, RPD values are not calculated when one or both results are nondetects. Aroclor-1260 had an RPD value above 50 percent.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1248 E4SH4, E4SJ2, E4SL1

Aroclor-1254 E4SH4, E4SH7, E4SJ3, E4SJ4, E4SL1

Aroclor-1260 E4SJ9

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4SJ9DL

Aroclor-1254 E4SH9

Aroclor-1248 E4SH5, E4SH6, E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ1, E4SJ9, E4SJ9DL, E4SL0, E4SL3

Aroclor-1016 E4SH9MS, E4SH9MSD

The following Aroclor samples had percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1254 E4SJ1DL, E4SL0

Aroclor-1248 E4SH9, E4SJ1DL, E4SL2

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4SJ1DL

Aroclor-1254 E4SJ2, E4SJ9DL

Aroclor-1248 E4SH7, E4SJ3, E4SJ4, E4SL1

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1254 E4SH5, E4SH6, E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ1, E4SJ9, E4SL2, E4SL3

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where dilutions are provided the results from the diluted sample should be used.

E4SH6, E4SJ1 Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 16, 2010

Subject: Review of Data
Received for Review on May 12, 2010

From: Caryn Wojtowicz
Senior Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39668 MRN: None SDG Number: E4SL4

Number and Type of Samples: Twenty (20) sediment samples

Sample Numbers: E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8, E4SM9, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Three coolers containing twenty (20) sediment samples, labeled E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5 through E4SM9 and E4SN0 through E4SN8, were shipped to KAP Technologies, Inc. located in The Woodlands, Texas. The samples were collected on 04/15/2010 and 04/16/2010 and were received at the laboratory on 04/16/2010 and 04/17/2010, intact at 3.3, 1.6, and 1.5°C.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2.Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Three sets of field duplicates are associated with this SDG; E4SM0 and E4SM1, E4SM6 and E4SM7, and E4SN5 and E4SN6. There are no field blanks associated with this SDG. Sample E4SM9 was designated for laboratory QC, i.e. MS/MSD.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOM01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

Semivolatile method blanks SBLK17 and SBLK19 are associated with an initial calibration in which a surrogate/DMC exceeded percent relative standard deviation (%RSD) criteria. Detected and nondetected compounds are not qualified.

Semivolatile method blanks SBLK17 and SBLK19 are associated with initial calibration percent relative standard deviations (%RSD) for various target analytes were outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SL9, E4SM3, E4SM7 Pentachlorophenol

The following semivolatile samples are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Less sensitivity was found in the continuing calibration than was present in the initial calibration. Nondetected compounds are qualified UJ.

E4SM0, E4SM5, E4SM8DL, E4SN4, E4SN6, E4SN7DL 2,4-Dimethylphenol

Semivolatile method blanks SBLK17 and SBLK19 are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Less sensitivity was found in the continuing calibration than was present in the initial calibration. Nondetected compounds are qualified UJ.

Semivolatile method blanks SBLK17 and SBLK19 are associated with a CCV with relative response factors for Pentachlorophenol (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.

Semivolatile method blanks SBLK17 and SBLK19 are associated with a continuing calibration in which a surrogate/DMC exceeded percent difference (%D) criteria. Detected and nondetected compounds are not qualified.

4. BLANKS

No problems were found other than those mentioned regarding the calibrations with which they are associated.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SL9 Anthracene-d_{10}	Anthracene, Atrazine, Hexachlorobenzene, Phenanthrene
E4SL9 Phenol-d_5	Benzaldehyde, Phenol
E4SM0 Fluorene-d_{10}	4-Bromophenyl-phenylether, 4-Chlorophenyl-phenylether, Carbazole, Dibenzofuran, Fluorene
E4SL9, E4SM0 Acenaphthylene-d_8	2-Chloronaphthalene, 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Naphthalene

Diluted semivolatile sample E4SM8DL with dilution factors less than or equal to 5 has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo(a)pyrene-d_{12}	Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 AND E4SN5/E4SN6. Results are summarized in the following tables. For field duplicates, RPDs are not calculated where one or both results were nondetected. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
Bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	ND	ND	
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	370	340	8.5
Anthracene	ND	ND	
Carbazole	ND	ND	
Di-n-butylphthalate	ND	110	
Fluoranthene	800	830	3.7
Pyrene	490	540	9.7

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	300	260	14.3
Chrysene	330	350	5.9
Bis(2-ethylhexyl)phthalate	180	ND	
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	230	370	46.7
Benzo(k)fluoranthene	260	330	23.7
Benzo(a)pyrene	320	310	3.2
Indeno(1,2,3-cd)pyrene	230	250	8.3
Dibenzo(a,h)anthracene	100	110	9.5
Benzo(g,h,i)perylene	260	270	3.8
2,3,4,6-Tetrachlorophenol	ND	ND	

All RPD values were less than 50 percent.

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
Bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	ND	ND	
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	160	210	27
Anthracene	ND	ND	
Carbazole	ND	ND	
Di-n-butylphthalate	240	130	59.5
Fluoranthene	540	840	43.5
Pyrene	390	930	81.8
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	230	390	51.6
Chrysene	250	380	41.3
Bis(2-ethylhexyl)phthalate	ND	2100	
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	260	340	26.7
Benzo(k)fluoranthene	230	230	0
Benzo(a)pyrene	260	340	26.7
Indeno(1,2,3-cd)pyrene	170	190	11.1
Dibenzo(a,h)anthracene	ND	ND	
Benzo(g,h,i)perylene	180	210	15.4
2,3,4,6-Tetrachlorophenol	ND	ND	

With the exception of Di-n-butylphthalate, Pyrene, and Benzo(a)anthracene all RPD values were less than 50 percent.

Semivolatile Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
Bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	120	120	0
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	

Semivolatile Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	1100	1000	9.5
Anthracene	290	230	23.1
Carbazole	110	100	9.5
Di-n-butylphthalate	250	270	7.7
Fluoranthene	2600	2700	3.8
Pyrene	1200	1200	0
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	810	740	9
Chrysene	930	890	4.4
Bis(2-ethylhexyl)phthalate	260	1300	133.3
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	620	810	26.6
Benzo(k)fluoranthene	640	740	14.5
Benzo(a)pyrene	570	760	28.6
Indeno(1,2,3-cd)pyrene	490	560	13.3
Dibenzo(a,h)anthracene	240	270	11.8
Benzo(g,h,i)perylene	500	610	19.8
2,3,4,6-Tetrachlorophenol	ND	ND	

With the exception of Bis(2-ethylhexyl)phthalate, all RPD values were less than 50 percent.

7. INTERNAL STANDARDS

No problems were found.

8. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

9. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

4-Methylphenol	E4SL7
Bis(2-Ethylhexyl)phthalate	E4SL4, E4SL7, E4SM0, E4SM8, E4SN3, E4SN8

Anthracene	E4SL4, E4SL7, E4SL9, E4SM5, E4SM9, E4SM9MS, 4SM9MSD, E4SN0, E4SN6, E4SN7DL
Pyrene	E4SM3
Dibenzofuran	E4SN1
Benzo(g,h,i)perylene	E4SL9, E4SM3, E4SM6, E4SM7
Indeno(1,2,3-cd)pyrene	E4SL9, E4SM6, E4SM7
Benzo(b)fluoranthene	E4SM3
Benzo(k)fluoranthene	E4SL9, E4SM3, E4SM6, E4SM7
Chrysene	E4SM3
Benzo(a)pyrene	E4SM3
Dibenzo(a,h)anthracene	E4SL4, E4SL7, E4SM0, E4SM1, E4SM8DL, E4SM9, E4SM9MSD, E4SN2, E4SN3, E4SN4, E4SN7DL, E4SN8
Benzo(a)anthracene	E4SM3, E4SM6
Acenaphthene	E4SN1DL, E4SN7
Di-n-butylphthalate	E4SL7, E4SM1, E4SM3, E4SM7, E4SM9MSD, E4SN0, E4SN1DL, E4SN4, E4SN7
Phenanthrene	E4SM6, E4SM7
Butylbenzylphthalate	E4SN1
Fluorene	E4SL4, E4SM8, E4SN1DL, E4SN5, E4SN6
9H-Carbazole	E4SM8, E4SN1DL, E4SN5, E4SN6, E4SN

10. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

11. ADDITIONAL INFORMATION

The following semivolatile samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SM8	Fluoranthene
E4SN1	Fluoranthene, Pyrene
E4SN7	Fluoranthene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

All semivolatile SIM samples are associated with an initial calibration percent relative standard deviation for Benzo(g,h,i)perylene (%RSD) outside criteria. Detected Benzo(g,h,i)perylene is qualified J. Nondetected Benzo(g,h,i)perylene is not qualified.

All semivolatile SIM samples are associated with incorrect initial calibration sequences. All compounds listed exhibit a decrease in sensitivity. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Benzo(g,h,i)perylene	E4SM7DL, E4SM8DL, E4SM9DL, E4SN0DL, E4SN1DL, E4SN2DL, E4SN3DL, E4SN4DL, E4SN5DL, E4SN6DL, E4SN7DL, E4SN8DL
Benzo(b)fluoranthene	E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8
Phenanthrene	E4SL4, E4SL4DL, E4SL7, E4SL7DL, E4SL9, E4SL9DL, E4SM0, E4SM0DL, E4SM1, E4SM1DL, E4SM3, E4SM3DL, E4SM5, E4SM5DL, E4SM6, E4SM6DL, E4SM7, E4SM8, E4SM9, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

The following semivolatile samples are associated with a CCV for Pentachlorophenol with relative response factors (RRF50) outside criteria. Detected Pentachlorophenol is qualified J. Nondetected Pentachlorophenol is qualified R.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile samples with dilution factors greater than 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4SN7DL Fluoranthene-d_{10}

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The semivolatile-SIM matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit for Pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are not qualified. The MS/MSD samples have negative percent recoveries that are greater than the acceptance limit for Pyrene. As the spiking level was inappropriately low in comparison to the native levels of Pyrene present in the sample, no data were qualified based on the Pyrene failure.

E4SK9, E4SK9MS, E4SK9MSD Pentachlorophenol, Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatile-SIM.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 and E4SN5/E4SN6. Results are summarized in the following tables. For field duplicates, RPDs are not calculated where one or both results were nondetected. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Naphthalene	4.5	4.3	4.5
2-Methylnaphthalene	3.7	3.8	2.7
Acenaphthylene	7.3	8.7	17.5
Acenaphthene	21	16	27
Fluorene	26	19	31.1
Phenanthrene	310	310	0
Anthracene	74	40	59.6
Fluoranthene	660	750	12.8
Pyrene	490	570	15.1
Benzo(a)anthracene	310	290	6.7
Chrysene	300	350	15.4
Benzo(b)fluoranthene	330	410	21.6
Benzo(k)fluoranthene	230	290	23.1
Benzo(a)pyrene	270	290	7.1
Indeno(1,2,3-cd)pyrene	120	160	28.6
Dibenzo(a,h)anthracene	60	71	16.8
Benzo(g,h,i)perylene	120	160	28.6
Pentachlorophenol	4.5	ND	

With the exception of Anthracene, all RPD values were less than 50 percent.

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
Naphthalene	6.2	4.9	23.4

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
2-Methylnaphthalene	ND	7.8	
Acenaphthylene	37	99	91.2
Acenaphthene	6.7	6.8	1.5
Fluorene	12	12	0
Phenanthrene	140	190	30.3
Anthracene	51	68	28.6
Fluoranthene	480	760	45.2
Pyrene	380	730	63.1
Benzo(a)anthracene	270	480	56
Chrysene	250	390	43.8
Benzo(b)fluoranthene	230	350	41.4
Benzo(k)fluoranthene	180	310	53.1
Benzo(a)pyrene	210	400	62.3
Indeno(1,2,3-cd)pyrene	98	140	35.3
Dibenzo(a,h)anthracene	46	65	34.2
Benzo(g,h,i)perylene	98	140	35.3
Pentachlorophenol	ND	6.5	

With the exception of Acenaphthylene, Pyrene, Benzo(a)anthracene, Benzo(k)fluoranthene, and Benzo(a)pyrene, all RPD values were less than 50 percent.

Semivolatile Analyte	E4SM6DL ug/kg	E4SM7DL ug.kg	%RPD
Naphthalene	ND	ND	
2-Methylnaphthalene	ND	ND	
Acenaphthylene	ND	74	
Acenaphthene	ND	ND	
Fluorene	ND	ND	
Phenanthrene	160	210	27
Anthracene	83	96	14.5
Fluoranthene	520	790	41.2
Pyrene	380	790	70.1
Benzo(a)anthracene	210	370	55.2
Chrysene	230	390	51.6
Benzo(b)fluoranthene	99	96	3.1
Benzo(k)fluoranthene	130	120	8
Benzo(a)pyrene	130	150	14.3
Indeno(1,2,3-cd)pyrene	78	58	29.4
Dibenzo(a,h)anthracene	ND	ND	
Benzo(g,h,i)perylene	89	67	28.2
Pentachlorophenol	ND	ND	

With the exception of Pyrene, Benzo(a)anthracene and Chrysene, all RPD values were less than 50 percent.

Semivolatile Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
Naphthalene	12	18	40
2-Methylnaphthalene	12	12	0
Acenaphthylene	41	32	24.7
Acenaphthene	64	58	9.8
Fluorene	92	95	3.2
Phenanthrene	850	820	3.6
Anthracene	230	210	9.1
Fluoranthene	1700	1900	11.1
Pyrene	1400	1300	7.4
Benzo(a)anthracene	950	870	8.8
Chrysene	910	900	1.1
Benzo(b)fluoranthene	740	1200	47.4
Benzo(k)fluoranthene	520	850	48.2
Benzo(a)pyrene	560	900	46.6
Indeno(1,2,3-cd)pyrene	230	400	54
Dibenzo(a,h)anthracene	110	190	53.3
Benzo(g,h,i)perylene	230	400	54
Pentachlorophenol	5.1	ND	

With the exception of Dibenzo(a,h)anthracene, all RPD values were less than 50 percent.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

Anthracene	E4SM3DL
Acenaphthene	E4SL9DL
Pentachlorophenol	E4SM0, E4SM7, E4SM8, E4SN0, E4SN5
2-Methylnaphthalene	E4SL9, E4SM0, E4SM1

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4SL4	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL7	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM8	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM9	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL9	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM3	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SM5	Acenaphthylene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E4SM6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SM7	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM8	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM9	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN0	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN1	Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN3	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN4	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN5	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN6	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E4SN7	Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4SL4DL	Phenanthrene, Fluoranthene, Pyrene
E4SL7DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
E4SL9DL	Fluoranthene
E4SM0DL	Fluoranthene
E4SM1DL	Fluoranthene, Pyrene
E4SM5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene,
E4SM6DL	Fluoranthene
E4SM7DL	Fluoranthene, Pyrene
E4SM8DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM9DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
E4SN0DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene,
E4SN1DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SN2DL	Fluoranthene, Benzo(b)fluoranthene
E4SN3DL	Fluoranthene, Pyrene, Chrysene, Benzo(k)fluoranthene, Benzo(a)Pyrene
E4SN4DL	Fluoranthene, Pyrene

E4SN5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
E4SN6DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
E4SN7DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SN8DL	Fluoranthene, Pyrene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found in the pesticide method blanks. Several instrument blanks had target compounds present below the CRQL.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MSD result for Aldrin has percent recovery greater than the upper acceptance limit on one column. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden, unless applied for another reason. Detected and nondetected compounds are not qualified.

E4SM9, E4SM9MSD Aldrin

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 AND E4SN5/E4SN6. Results are summarized in the following tables. For field duplicates, RPDs are not calculated where one or both results were nondetected. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Pesticide Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	

Pesticide Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	
4,4'-DDE	ND	ND	
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	ND	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	ND	ND	
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

All RPD values were less than 50 percent.

Pesticide Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	
4,4'-DDE	9.8	11	11.5
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	13	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	6.8	7	2.9
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	

Pesticide Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

All RPD values were less than 50 percent.

Pesticide Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	
4,4'-DDE	1.7	ND	
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	ND	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	5.9	ND	
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

8. INTERNAL STANDARDS

Not applicable to pesticides.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples are associated with an instrument blank which has compound concentrations below the MDL. Detected compounds are qualified U and reported at the CRQL if the sample concentration is above the MDL but less than the CRQL. Nondetected compounds are not qualified. Sample results above the CRQL are not qualified.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8, E4SM9, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

Heptachlor epoxide, Endosulfan sulfate, gamma-Chlordane, gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDE

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

4,4'-DDT	E4SM5, E4SM7, E4SN1
gamma-BHC (Lindane)	E4SM9MSD
4,4'-DDD	E4SM6
4,4'-DDE	E4SM5, E4SM7

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aldrin	E4SM9MSD

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aldrin	E4SM9MS

11. SYSTEM PERFORMANCE

No problems were found.

12. ADDITIONAL INFORMATION

No dilution analyses were required for pesticides.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following Aroclor samples are associated with an opening or closing CCV with % Difference of a surrogate exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8, E4SM9, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

The RT of Aroclor-1248 in the midpoint Aroclor CCV fell outside the RT window established during the initial calibration. Detected and nondetected compounds are not qualified.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4SM8DL, E4SN7DL

Aroclor sample E4SN7 has surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified J. Nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The Aroclor matrix spike and matrix spike duplicate sample have percent recovery of Aroclor-1016 that is greater than the upper acceptance limit on one column. The NFG automated flagging of detected Aroclor-1016 as J in the original sample, MS and MSD has been overridden. No data has been qualified based on MS/MSD results.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 AND E4SN5/E4SN6. Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Aroclor Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	ND	55	
Aroclor-1254	ND	41	
Aroclor-1260	ND	10	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

Aroclor Analyte	E4SM6 ug/kg	E4SM7 ug/kg	
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	250	310	21.4
Aroclor-1254	220	320	37
Aroclor-1260	ND	76	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

Aroclor Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	150	ND	
Aroclor-1254	61	ND	
Aroclor-1260	25	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

RPDs were not calculated where one or both results were nondetects. All calculated RPDs were below the 50% criterion.

8. INTERNAL STANDARDS

Not applicable to Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1254	E4SM3, E4SM8DL, E4SN0DL
Aroclor-1248	E4SN2, E4SN4

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260	E4SL9, E4SM1, E4SN1, E4SN5
Aroclor-1254	E4SN7DL
Aroclor-1248	E4SL4, E4SM1, E4SM3, E4SM8DL, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN5

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1254	E4SL4DL, E4SL7, E4SM5, E4SM6, E4SM7, E4SM9, E4SM9MS, E4SM9MSD, E4SN3, E4SN7, E4SN8
Aroclor-1248	E4SL4DL, E4SL7, E4SL9

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260	E4SL4DL, E4SM8DL, E4SN0DL
Aroclor-1254	E4SM1, E4SM3, E4SM8DL, E4SN0DL, E4SN2
Aroclor-1248	E4SN4

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1254	E4SL4, E4SL9, E4SM8, E4SN0, E4SN1, E4SN5
Aroclor-1248	E4SN8
Aroclor-1016	E4SM9MS, E4SM9MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4SM8	Aroclor-1248
E4SN0	Aroclor-1248
E4SN7	Aroclor-1248, Aroclor-1254

Sample E4SL4 was analyzed at a dilution, although it was not required, because Aroclor-1248 was within the calibrated range in the original analysis.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 13, 2010

Subject: Review of Data
Received for Review on: April 26, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39668 MRN: NA SDG Number: E4SN9

Number and Type of Samples: 17 Sediment Samples

Sample Numbers: E4SN9, E 4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2,E4SQ3, E4SQ4, E4SQ5

Laboratory: KAP Technologies

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Seventeen (17) sediment samples labeled E4SN9, E 4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, and E4SQ5, were shipped to KAP Technologies, Inc., in The Woodlands, Texas. All samples were collected on 4/16/2010 and were received at the laboratory on 4/17/2010 at 1.4 – 1.5 °C.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 . Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. As detailed later in this narrative, sample results reported below the reporting detection limit have been elevated to the quantitation limit and qualified "U" in the "B" and "Z" files. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOMO01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Samples E4SP6 and E4SP7 failed the acceptance limits for one or more internal standards for SVOA and SVOA-SIM analyses; repeat analyses also failed. Failure was due to the sample matrix.

Sample E4SP6 had target compound concentrations above the calibration range for SVOA analysis and was analyzed using sample dilutions. All samples had target compound concentrations above the calibration range for SVOA-SIMs analysis and were analyzed using sample dilutions.

Sample E4SP6 also had target compound concentrations above the calibration range for Aroclors analysis and was analyzed at dilutions within the calibration range.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

No QC sample was designated on the traffic reports for this SDG. Sample E4SP6 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SP0/E4SP1and E4SP8/E4SP9 as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Pentachlorophenol	E4SP6MS, E4SP6MSD, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5

The following semivolatile samples are associated with a CCV with a relative response factor (RRF50) for pentachlorophenol below the minimum required RRF. Detected compounds are qualified "J." Nondetected compounds are qualified "R."

E4SP6MS, E4SP6MSD, E4SQ5

The following semivolatile samples are associated with a closing CCV standard that has a percent difference value outside criteria (±50%).

E4SP6MS, E4SP6MSD, E4SQ5

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery for 4-Methylphenol-d_8 above the upper limit of the criteria window. Detected compounds are qualified "J." Nondetected compounds are not qualified.

2,4-Dimethylphenol, 2-Methylphenol, 4-Methylphenol	E4SQ1, E4SQ4

The following semivolatile samples have deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene	E4SP2, E4SP5, E4SP6, E4SP6RE, E4SP7, E4SP7RE

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Semivolatile compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Benzaldehyde	ND	1	ND	1	
Phenol	ND	1	ND	1	
Bis(2-chloroethyl)ether	ND	1	ND	1	
2-Chlorophenol	ND	1	ND	1	
2-Methylphenol	ND	1	ND	1	
2,2'-Oxybis(1-chloropropane)	ND	1	ND	1	
Acetophenone	ND	1	ND	1	
4-Methylphenol	ND	1	ND	1	
N-Nitroso-di-n-propylamine	ND	1	ND	1	
Hexachloroethane	ND	1	ND	1	
Nitrobenzene	ND	1	ND	1	
Isophorone	ND	1	ND	1	
2-Nitrophenol	ND	1	ND	1	
Bis(2-chloroethoxy)methane	ND	1	ND	1	
2,4-Dichlorophenol	ND	1	ND	1	
Naphthalene	ND	1	ND	1	
4-Chloroaniline	ND	1	ND	1	
2,4-Dimethylphenol	ND	1	ND	1	
Hexachlorobutadiene	ND	1	ND	1	
Caprolactam	ND	1	ND	1	
4-Chloro-3-methylphenol	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Hexachlorocyclopentadiene	ND	1	ND	1	
2,4,6-Trichlorophenol	ND	1	ND	1	
2,4,5-Trichlorophenol	ND	1	ND	1	
1,1'-Biphenyl	ND	1	ND	1	
2-Chloronaphthalene	ND	1	ND	1	
2-Nitroaniline	ND	1	ND	1	

Semivolatile compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Dimethylphthalate	ND	1	ND	1	
2,6-Dinitrotoluene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
3-Nitroaniline	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
2,4-Dinitrophenol	ND	1	ND	1	
4-Nitrophenol	ND	1	ND	1	
Dibenzofuran	ND	1	ND	1	
2,4-Dinitrotoluene	ND	1	ND	1	
Diethylphthalate	ND	1	ND	1	
Fluorene	ND	1	ND	1	
4-Chlorophenyl-phenylether	ND	1	ND	1	
4-Nitroaniline	ND	1	ND	1	
4,6-Dinitro-2-methylphenol	ND	1	ND	1	
N-Nitrosodiphenylamine	ND	1	ND	1	
1,2,4,5-Tetrachlorobenzene	ND	1	ND	1	
4-Bromophenyl-phenylether	ND	1	ND	1	
Hexachlorobenzene	ND	1	ND	1	
Atrazine	ND	1	ND	1	
Pentachlorophenol	ND	1	ND	1	
Phenanthrene	130	1	200	1	42
Anthracene	ND	1	ND	1	
Carbazole	ND	1	ND	1	
Di-n-butylphthalate	ND	1	ND	1	
Fluoranthene	280	1	500	1	56
Pyrene	250	1	350	1	33
Butylbenzylphthalate	ND	1	ND	1	
3,3'-Dichlorobenzidine	ND	1	ND	1	
Benzo(a)anthracene	160	1	250	1	44
Chrysene	200	1	310	1	43
Bis(2-ethylhexyl)phthalate	ND	1	ND	1	
Di-n-octylphthalate	ND	1	ND	1	
Benzo(b)fluoranthene	150	1	310	1	70
Benzo(k)fluoranthene	140	1	240	1	53
Benzo(a)pyrene	170	1	270	1	46
Indeno(1,2,3-cd)pyrene	130	1	160	1	21
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	140	1	170	1	19
2,3,4,6-Tetrachlorophenol	ND	1	ND	1	

For field duplicates E4SP0 and E4SP1, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of Fluoranthene, Benzo(b)fluoranthene, and Benzo(k)fluoranthene, the RPD values were less than 50 percent.

E4SP8 and E4SP9

Semivolatile compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Benzaldehyde	ND	1	ND	1	
Phenol	ND	1	ND	1	
Bis(2-chloroethyl)ether	ND	1	ND	1	
2-Chlorophenol	ND	1	ND	1	
2-Methylphenol	ND	1	ND	1	
2,2'-Oxybis(1-chloropropane)	ND	1	ND	1	
Acetophenone	ND	1	ND	1	
4-Methylphenol	ND	1	ND	1	
N-Nitroso-di-n-propylamine	ND	1	ND	1	
Hexachloroethane	ND	1	ND	1	
Nitrobenzene	ND	1	ND	1	
Isophorone	ND	1	ND	1	
2-Nitrophenol	ND	1	ND	1	
Bis(2-chloroethoxy)methane	ND	1	ND	1	
2,4-Dichlorophenol	ND	1	ND	1	
Naphthalene	ND	1	ND	1	
4-Chloroaniline	ND	1	ND	1	
2,4-Dimethylphenol	ND	1	ND	1	
Hexachlorobutadiene	ND	1	ND	1	
Caprolactam	ND	1	ND	1	
4-Chloro-3-methylphenol	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Hexachlorocyclopentadiene	ND	1	ND	1	
2,4,6-Trichlorophenol	ND	1	ND	1	
2,4,5-Trichlorophenol	ND	1	ND	1	
1,1'-Biphenyl	ND	1	ND	1	
2-Chloronaphthalene	ND	1	ND	1	
2-Nitroaniline	ND	1	ND	1	
Dimethylphthalate	ND	1	ND	1	
2,6-Dinitrotoluene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
3-Nitroaniline	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
2,4-Dinitrophenol	ND	1	ND	1	
4-Nitrophenol	ND	1	ND	1	
Dibenzofuran	ND	1	ND	1	
2,4-Dinitrotoluene	ND	1	ND	1	

Semivolatile compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Diethylphthalate	ND	1	ND	1	
Fluorene	ND	1	ND	1	
4-Chlorophenyl-phenylether	ND	1	ND	1	
4-Nitroaniline	ND	1	ND	1	
4,6-Dinitro-2-methylphenol	ND	1	ND	1	
N-Nitrosodiphenylamine	ND	1	ND	1	
1,2,4,5-Tetrachlorobenzene	ND	1	ND	1	
4-Bromophenyl-phenylether	ND	1	ND	1	
Hexachlorobenzene	ND	1	ND	1	
Atrazine	ND	1	ND	1	
Pentachlorophenol	ND	1	ND	1	
Phenanthrene	600	1	350	1	53
Anthracene	ND	1	ND	1	
Carbazole	ND	1	ND	1	
Di-n-butylphthalate	ND	1	ND	1	
Fluoranthene	1600	1	990	1	47
Pyrene	1300	1	850	1	42
Butylbenzylphthalate	ND	1	ND	1	
3,3'-Dichlorobenzidine	ND	1	ND	1	
Benzo(a)anthracene	790	1	520	1	41
Chrysene	1100	1	750	1	38
Bis(2-ethylhexyl)phthalate	340	1	250	1	31
Di-n-octylphthalate	ND	1	ND	1	
Benzo(b)fluoranthene	1000	1	790	1	24
Benzo(k)fluoranthene	900	1	560	1	47
Benzo(a)pyrene	980	1	670	1	38
Indeno(1,2,3-cd)pyrene	690	1	480	1	36
Dibenzo(a,h)anthracene	320	1	250	1	25
Benzo(g,h,i)perylene	790	1	530	1	39
2,3,4,6-Tetrachlorophenol	ND	1	ND	1	

For field duplicates E4SP8 and E4SP9, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of Phenanthrene, the RPD values were less than 50 percent.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified "J" for the affected analytes. Nondetected compounds are not qualified.

Perylene-d_{12}	E4SP6, E4SP6RE, E4SP7, E4SP7RE

As noted above, the original analysis for samples E4SLP6 and E4SP7 had internal standard area counts for Perylene-d_{12} that were above the upper criteria limit. The samples were subsequently reanalyzed by the laboratory as samples E4SP6RE and E4SP7RE and again failed due to sample matrix. Since the reanalysis provided no additional useful information, the data from the original analyses should be used for result validation.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations reported below the MDL. Detected compounds are qualified "U." and reported at the CRQL. Nondetected compounds are not qualified.

Benzo(a)pyrene	E4SP4

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

4-Chloroaniline	E4SP6MSD
Bis (2-Ethylhexyl) phthalate	E4SP5, E4SP7, E4SP8, E4SP9, E4SQ3, E4SQ4
Anthracene	E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP6RE, E4SP7, E4SP7RE, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4
Pyrene	E4SP4
Benzo(g,h,i)perylene	E4SN9, E4SP0, E4SP1, E4SP2
Indeno(1,2,3-cd)pyrene	E4SN9, E4SP0, E4SP1, E4SP2
Benzo(b)fluoranthene	E4SP0, E4SP4
Fluoranthene	E4SP4
Benzo(k)fluoranthene	E4SN9, E4SP0, E4SP4
Chrysene	E4SP0, E4SP4
Benzo(a)pyrene	E4SP0, E4SP2
Dibenzo(a,h)anthracene	E4SP5, E4SP8, E4SP9, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Benzo(a)anthracene	E4SP0, E4SP2
Acenaphthene	E4SQ1

Di-n-butylphthalate	E4SP1, E4SP4, E4SP8, E4SQ1, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Phenanthrene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP9

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4SQ1 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene. These results were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) for Pentachlorophenol below the minimum required RRF. Detected compounds are qualified "J." Nondetected compounds are qualified "R."

E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP3DL, E4SP4, E4SP4DL, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9DL, E4SQ0DL, E4SQ1DL, E4SQ2DL, E4SQ3DL, E4SQ4DL, E4SQ5DL

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) for Benzo(g,h,i)perylene outside criteria. Detected compounds are qualified "J." Nondetected compounds are not qualified.

E4SN9, E4SN9DL, E4SP0, E4SP0DL, E4SP1, E4SP1DL, E4SP2, E4SP2DL, E4SP3, E4SP3DL, E4SP4, E4SP4DL, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile-SIM sample E4SP6 had deuterated monitoring compound recovery for Fluoranthene-d_{10} below the lower limit of the criteria window. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries was outside criteria. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Acenaphthene	E4SP6MS, E4SP6MSD

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Semivolatile-SIM compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Pentachlorophenol	ND	1	ND	1	
Naphthalene	5.5	1	5.1	1	7.5
2-Methylnaphthalene	6.5	1	5.5	1	17
Acenaphthylene	12	1	15	1	22
Acenaphthene	14	1	17	1	19
Fluorene	20	1	24	1	18
Phenanthrene	180	1	290	1	47
Anthracene	49	1	76	1	43
Fluoranthene	450	1	740	1	49
Pyrene	370	1	610	1	49
Benzo(a)anthracene	260	1	430	1	49
Chrysene	270	1	440	1	48
Benzo(b)fluoranthene	350	1	570	1	48
Benzo(k)fluoranthene	280	1	430	1	42
Benzo(a)pyrene	300	1	450	1	40
Indeno(1,2,3-cd)pyrene	130	1	210	1	47
Dibenzo(a,h)anthracene	57	1	98	1	53
Benzo(g,h,i)perylene	130	1	210	1	47

E4SP0DL and E4SP1DL

Semivolatile-SIM compounds	E4SP0DL µg/kg	DF	E4SP1DL µg/kg	DF	%RPD
Pentachlorophenol	ND	10	ND	10	
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	ND	10	ND	10	
Acenaphthene	ND	10	ND	10	
Fluorene	ND	10	ND	10	
Phenanthrene	210	10	290	10	32
Anthracene	81	10	93	10	14
Fluoranthene	480	10	710	10	39
Pyrene	330	10	480	10	37

Semivolatile-SIM compounds	E4SP0DL µg/kg	DF	E4SP1DL µg/kg	DF	%RPD
Benzo(a)anthracene	330	10	360	10	8.7
Chrysene	390	10	400	10	2.5
Benzo(b)fluoranthene	420	10	330	10	24
Benzo(k)fluoranthene	320	10	290	10	9.8
Benzo(a)pyrene	400	10	320	10	22
Indeno(1,2,3-cd)pyrene	260	10	210	10	21
Dibenzo(a,h)anthracene	130	10	100	10	26
Benzo(g,h,i)perylene	260	10	210	10	21

For field duplicates E4SP0 and E4SP1, RPDs were not calculated where one or both results were nondetected. Where detected, results were reported for both samples, all RPD values for all compounds except Dibenzo(a,h)anthracene were below 50%.

E4SP8 and E4SP9

Semivolatile-SIM compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Pentachlorophenol	ND	1	ND	1	
Naphthalene	13	1	12	1	8
2-Methylnaphthalene	11	1	8.6	1	25
Acenaphthylene	59	1	47	1	23
Acenaphthene	49	1	28	1	55
Fluorene	61	1	40	1	42
Phenanthrene	880	1	470	1	61
Anthracene	180	1	110	1	48
Fluoranthene	2400	1	1400	1	53
Pyrene	2100	1	1200	1	55
Benzo(a)anthracene	1500	1	860	1	54
Chrysene	1600	1	950	1	51
Benzo(b)fluoranthene	1500	1	1200	1	22
Benzo(k)fluoranthene	900	1	740	1	20
Benzo(a)pyrene	1000	1	860	1	15
Indeno(1,2,3-cd)pyrene	540	1	450	1	18
Dibenzo(a,h)anthracene	260	1	220	1	17
Benzo(g,h,i)perylene	550	1	460	1	18

E4SP8DL and E4SP9DL

Semivolatile-SIM compounds	E4SP8DL µg/kg	DF	E4SP9DL µg/kg	DF	%RPD
Pentachlorophenol	ND	5	ND	10	
Naphthalene	ND	5	ND	10	
2-Methylnaphthalene	ND	5	ND	10	
Acenaphthylene	55	5	ND	10	
Acenaphthene	45	5	ND	10	

Semivolatile-SIM compounds	E4SP8DL µg/kg	DF	E4SP9DL µg/kg	DF	%RPD
Fluorene	55	5	ND	10	
Phenanthrene	920	5	510	10	57
Anthracene	300	5	200	10	40
Fluoranthene	2800	5	1600	10	55
Pyrene	1800	5	1100	10	48
Benzo(a)anthracene	1100	5	660	10	50
Chrysene	1400	5	890	10	45
Benzo(b)fluoranthene	1500	5	830	10	58
Benzo(k)fluoranthene	1300	5	900	10	36
Benzo(a)pyrene	1300	5	880	10	39
Indeno(1,2,3-cd)pyrene	660	5	450	10	38
Dibenzo(a,h)anthracene	390	5	270	10	36
Benzo(g,h,i)perylene	700	5	490	10	35

For field duplicates E4SP8 and E4SP9, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, all RPD values for all compounds were below 50%, except Acenaphthene, Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, and Benzo(b)fluoranthene.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The samples E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, and E4SQ5 had target compound concentrations above the calibration range and were analyzed using a dilution within the calibration range.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Acenaphthylene	E4SQ2DL
Acenaphthene	E4SP8DL, E4SQ4DL
Fluorene	E4SQ4DL
Pentachlorophenol	E4SP2

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". Where dilutions are provided, the results from the diluted samples should be used for result validation.

Acenaphthene	E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SQ1
Acenaphthylene	E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SQ0, E4SQ1, E4SQ4, E4SQ5
Anthracene	E4SN9, E4SP0, E4SP1, E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Benzo(a)anthracene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Benzo(a)pyrene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Benzo(b)fluoranthene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Benzo(g,h,i)perylene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP7, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5, E4SQ5DL
Benzo(k)fluoranthene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Chrysene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD,

	E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Dibenzo(a,h)anthracene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Fluoranthene	E4SN9, E4SN9DL, E4SP0, E4SP0DL, E4SP1, E4SP1DL, E4SP2, E4SP2DL, E4SP3, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Fluorene	E4SP5, E4SP6, E4SP6MS, E4SP7, E4SQ0, E4SQ1, E4SQ1DL
Indeno(1,2,3-cd)pyrene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5, E4SQ5DL
Phenanthrene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Pyrene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP1DL, E4SP2, E4SP3, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference for Decachlorobiphenyl, Endrin, and Endosulfan I exceeding criteria. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, E4SQ5

4. BLANKS

No problems were found

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Surrogate recovery for Tetrachloro-m-xylene was greater than 150% but less than or equal to 200% on both columns for sample E4SP2. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified "J." Nondetected compounds are not qualified.

Aldrin	E4SP6MS, E4SP6MSD
4,4'-DDT	E4SP6MS, E4SP6MSD
gamma-BHC (Lindane)	E4SP6MS, E4SP6MSD
Dieldrin	E4SP6MS, E4SP6MSD
Endrin	E4SP6MS, E4SP6MSD
Heptachlor	E4SP6MS, E4SP6MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Pesticide compound	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	ND	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	2.2	1	1.6	1	32
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicates E4Sp0 and E4Sp1, RPDs were not calculated where one or both results were nondetected. All RPD values were less than 50 %.

E4SP8 and E4SP9

Pesticide compound	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	ND	1	ND	1	

Pesticide compound	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	ND	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	9.7	1	16	1	49
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	5	1	8.8	1	55
Toxaphene	ND	1	ND	1	

For field duplicates E4SP8 and E4SP9, RPDs were not calculated where one or both results were nondetected. The RPD value for gamma-Chlordane was greater than 50 %.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations below the MDL for Heptachlor epoxide, Endosulfan sulfate, gamma-Chlordane, gamma-BHC (Lindane), Dieldrin, Endrin, and 4,4'-DDE. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, E4SQ5

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

4,4'-DDT	E4SP6, E4SQ2
alpha-Chlordane	E4SP6MSD
gamma-Chlordane	E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP9
4,4'-DDE	E4SP6
Endrin aldehyde	E4SP7

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

alpha-Chlordane	E4SP6MS
gamma-Chlordane	E4SP7, E4SQ0

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4SP7
4,4'-DDT	E4SP8
gamma-Chlordane	E4SP8
Dieldrin	E4SP7

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aldrin	E4SP6MS, E4SP6MSD
gamma-BHC (Lindane)	E4SP6MS, E4SP6MSD
Dieldrin	E4SP6MS, E4SP6MSD
Heptachlor	E4SP6MS, E4SP6MSD

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". Where dilutions are provided, the results from the diluted samples should be used for result validation.

4,4'-DDE	E4SP6, E4SP6MS, E4SP6MSD
4,4'-DDT	E4SP6, E4SP6MS, E4SP6MSD
gamma-Chlordane	E4SP6, E4SP6MS, E4SP6MSD
Dieldrin	E4SP6MS, E4SP6MSD
gamma-BHC (Lindane)	E4SP6MS, E4SP6MSD

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

Aroclor sample E4SP6DL with a dilution factor greater than 5 had surrogate percent recoveries that were greater than 200% for Decachlorobiphenyl on one column and exceeded 150% but were less than or equal to 200% on the second column. All compounds are affected. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared for sample E4SP6, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016, and greater than the upper acceptance limit for Aroclor-1260 on one column. In addition, the RPD exceeded criteria on one column for Aroclor-1016 and Aroclor-1260. This is likely due to high levels of Aroclor-1248 and Aroclor-1260 in the unspiked sample. Only sample E4SP6 is affected. Detected results are qualified "J". Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Aroclor compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	

Aroclor compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Aroclor-1248	210	1	170	1	21
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	22	1	14	1	44
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4SP0 and E4SP1, RPD values are not calculated when one or both results are nondetects. All RPD values were less than 50 %.

E4SP8 and E4SP9

Aroclor compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	96	1	520	1	140
Aroclor-1254	96	1	340	1	110
Aroclor-1260	96	1	170	1	56
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4SP8 and E4SP9, RPD values are not calculated when one or both results are nondetects. Aroclor 1248, Aroclor 1254, and Aroclor 1260 RPD values greater than 50 %.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Aroclor-1248 E4SP7, E4SP8, E4SQ5

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Aroclor-1260 E4SP1

Aroclor-1248	E4SP0, E4SP1, E4SQ3

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Aroclor-1254	E4SP7, E4SP9, E4SQ0, E4SQ3, E4SQ4
Aroclor-1248	E4SP2, E4SP6DL, E4SQ2

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260	E4SP8
Aroclor-1254	E4SP8
Aroclor-1248	E4SP7, E4SP8

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1254	E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SQ2
Aroclor-1016	E4SP6MS, E4SP6MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where dilutions are provided the results from the diluted sample should be used.

Aroclor-1016	E4SP6MS, E4SP6MSD
Aroclor-1248	E4SP6, E4SP6MS, E4SP6MSD
Aroclor-1254	E4SP6, E4SP6MS, E4SP6MSD
Aroclor-1260	E4SP6, E4SP6MS, E4SP6MSD

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 24, 2010

SUBJECT: Review of Data
Received for Review on May 8, 2010

FROM: Eric Boring
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 SDG Number: E4SQ6

Number and Type of Samples: 1 Water Sample (Field QC)

Sample Numbers: E4SQ6

Laboratory: KAP Technologies Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: One (1) water sample labeled E4SQ6 and designated as field QC was shipped to KAP Technologies, Inc., in the Woodlands, TX. Sample E4SQ6 was collected on 4/16/2010 and was received on 4/17/2010, intact and at 1.5 ºC.

Sample Analysis and Data Review: The sample was analyzed according to CLP SOW SOM01.2.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Pentachlorophenol	E4SQ6

The following semivolatile samples are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Use professional judgment to qualify the data.

2,4-Dimethylphenol	E4SQ6
Hexachlorocyclopentadiene	E4SQ6
Pentachlorophenol	E4SQ6

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.

Pentachlorophenol	E4SQ6

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

4,6-Dinitro-2-methylphenol	E4SQ6

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required.

6B. LABORATORY CONTROL SAMPLE

LCS was not required.

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

No additional information to report.

SEMIVOLATILES – SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo (g,h,i) perylene	E4SQ6

The following semivolatile samples are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Use professional judgment to qualify the data.

Benzo (b) fluoranthene	E4SQ6
Phenanthrene	E4SQ6

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.

Pentachlorophenol	E4SQ6

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required

6B. LABORATORY CONTROL SAMPLE

LCS was not required

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

No additional information to report.

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

No problems were found

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

No additional information to report.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

No additional information to report.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 1, 2010

Subject: Review of Data
Received for Review on: June 6, 2010

From: Eric Boring, Environmental Chemist
CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: 1690.4 SDG Number: E4SQ7

Number and Type of Samples: 1 water for TCLP

Sample Numbers: E4SQ7

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Scott Cieniawski, EPA
Louis Blume, EPA
Theo Von Wallmenich, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: E4SQ7
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

SDG Summary

Sample Receipt: One water sample labeled E4SQ7 was shipped to KAP Technologies, Inc., in The Woodlands, Texas. The sample was collected on 4/19/2010 and received at the facility on 4/20/2010, intact, and at 3.3 ºC.

Sample Analysis and Data Review: The water sample was prepared using separatory funnel extraction, and esterification by diazomethane, according to SW-846 Method 8151A, and MA 1690.4. The sample was analyzed for herbicide compounds, 2,4-D and 2,4,5-TP (Silvex), by GC/ECD, according to SW-846 Method 8151A and the specifications in MA 1690.4. The sample was reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and according to the specifications in MA 1690.4, SW-846 Method 8151A, and SW-846 Method 1311.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “NJ”, “UJ”, “U”, “J”.

Although specified in MA 1690.4, no MS/MSD was prepared for this SDG. No sample was designated by the samplers to be used for laboratory QC.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicate sets were identified.

HERBICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD was performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

No target herbicide compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

Case Number: 39668 SDG Number: E4SQ7
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: **August 4, 2010**

Subject: **Revised Review Narrative Report**
Review of Data
Received for Review on: June 16, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

This data review narrative supersedes the narrative sent on July 13, 2010 for the review of data in SDG E4S89. The change made to this narrative includes a clarification added to the Aroclor Additional Information section of the narrative. The change has been highlighted in bold face type. In addition, the "reportable results" field in the "Z" file has been updated to reflect the clarification. No sample results or review qualifiers have been changed.

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39668 MRN: 1689.5, 1722.1, and 1723.0 SDG Number: E4SQ8

Number and Type of Samples: 2 Sediment Samples

Sample Numbers: E4SQ7, E4SQ8

Laboratory: KAP Technologies

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: One (1) investigation-derived waste (IDW) sample labeled E4SQ7 and one (1) trip blank labeled E4SQ8 were shipped to KAP Technologies in Woodlands, Texas. Both samples were collected and shipped on 4/19/2010 and were received on 4/20/2010 at 3.3 °C.

Sample Analysis and Data Review: The IDW sample (E4SQ7) was prepared and analyzed for Volatile (VOA), Semivolatile (SVOA), and Pesticide analytes according to CLP SOW SOM01.2, Modification Reference Numbers 1689.5, 1722.1, and 1723.0, and SW-846 TCLP Method 1311, and for Aroclors according to routine CLP SOW SOM01.2. The trip blank (E4SQ8) was prepared and analyzed for Volatiles only. The sample data were reviewed according to the NFG for SOM01.2, the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and Modification Reference Numbers 1689.5, 1722.1, and 1723.0.

Sample E4SQ7 is reported on the traffic report as a "waste" sample, requiring TCLP extraction/analysis for the Volatile, Semivolatile and Pesticide fractions. The Aroclor fraction required routine analysis according to CLP SOW SOM01.2. For the Aroclor fraction, sample E4SQ7 was prepared and reported on the Form 1 as a "soil" sample. The percent moisture for this sample was 26%.

According to Modified Analyses 1689.5, 1722.1, and 1723.0, associated with this SDG, the laboratory was required to provide the supporting data for the TCLP procedure (laboratory bench sheets, logs, and notebook pages). This includes the determination of extraction fluid, amount of liquid (if any) extracted from the solid phase, mass of solid material extracted, and volume of extraction fluid used. These items were missing from the data package

Although not requested in the Modified Analysis (MA), the laboratory reported tentatively identified compounds (TICs) for Volatile and Semivolatile analyses.

The MA reference number 1690.4 is reported on the Form 1s for the Aroclor analysis in error. It is not part of the Aroclor analysis that was performed according to the CLP SOW SOM01.2 (without MA).

MS/MSD evaluation: Although specified in MA 1689.5, no MS/MSD was prepared for Pesticide analysis. An MS/MSD was prepared for Aroclor analyses (E4SQ7MS/E4SQ7MSD). No sample results were qualified.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no samples were identified as field duplicate pairs.

This report is ordered by fraction in the following order: Volatiles, Semivolatiles, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

VOLATILES (LOW MEDIUM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The recovery of DMC compound 2-Butanone-d_5 was slightly below criteria. An examination of the raw data was performed, which confirmed that target compounds were not present in the blank.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

Semivolatile sample E4SQ7 is associated with an initial calibration in which the surrogate/DMC 2-Butanone-d_5 exceeded percent relative standard deviation (%RSD) criterion. No target compounds were affected. Detected and nondetected compounds are not qualified.

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Although one of the automated reports specified that an MS/MSD should be prepared for semivolatile analysis, no MS/MSD was prepared, nor was one requested in MA 1723.0. No sample results were qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information.

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following Aroclor sample is associated with an opening or closing CCV with % Difference exceeding criteria. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Aroclor-1248	E4SQ7DL

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

No problems were found

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4SQ7, the Aroclor matrix/matrix spike duplicate samples (E4SQ7MS/E4SQ7MSD) have percent recoveries that are greater than the upper acceptance limit for Aroclor-1016 on both columns due to high spike levels. Recoveries for Aroclor-1260 were acceptable. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Not applicable.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor sample has compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Aroclor-1254	E4SQ7DL

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Aroclor-1248	E4SQ7DL, E4SQ7MS, E4SQ7MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Aroclor-1016	E4SQ7MS, E4SQ7MSD

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260	E4SQ7DL
Aroclor-1254	E4SQ7DL

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R."

Aroclor-1254	E4SQ7, E4SQ7MS, E4SQ7MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Aroclor sample E4SQ7 reported a concentration for Aroclor-1248 that exceeded the calibration range of the instrument and was flagged "E" by the laboratory. As per the NFG, this result is flagged "J". The result from the dilute analysis should be used for result validation.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 2, 2010

Subject: Review of Data
Received for Review on: June 16, 2010

From: Eric Boring, Environmental Chemist
CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39668 MRN: 1690.4 SDG Number: E4SQ9

Number and Type of Samples: 1 water for TCLP

Sample Numbers: E4SQ9

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: E4SQ9
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

SDG Summary

Sample Receipt: One water sample, labeled E4YQ9, was shipped to KAP Technologies, Inc., in The Woodlands, Texas. The sample was collected on 4/23/2010 and received at the facility on 04/24/10, intact, and at 4.6 ºC.

Sample Analysis and Data Review: The water sample was prepared using separatory funnel extraction, and esterification by diazomethane, according to SW-846 Method 8151A, and MA 1690.4. The sample was analyzed for herbicide compounds, 2,4-D and 2,4,5-TP (Silvex), by GC/ECD, according to SW-846 Method 8151A and the specifications in MA 1690.4. The sample was reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and according to the specifications in MA 1690.4, SW-846 Method 8151A, and SW-846 Method 1311.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “NJ”, “UJ”, “U”, “J”.

Although specified in MA 1690.4, no MS/MSD was prepared for this SDG. No sample was designated by the samplers to be used for laboratory QC.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicate sets were identified.

HERBICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD was performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

No target herbicide compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

Case Number: 39668 SDG Number: E4SQ9
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 13, 2010

Subject: Review of Data
Received for Review on: June 16, 2010

From: Julie Rest, Environmental Chemist
CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39668 MRN: 1689.5, 1722.1, and 1723.0 SDG Number: E4SR0

Number and Type of Samples: 2 Water Samples; TCLP and Routine CLP Analysis

Sample Numbers: E4SR0, E4SQ9

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: One water sample and one wastewater sample, labeled E4SR0 and E4SQ9, were shipped to KAP Technologies, Inc., in The Woodlands, Texas. The samples were collected on 4/23/2010 and received at the facility on 04/24/10, intact, and at 4.6 ºC.

Sample Analysis and Data Review: One investigation-derived waste (IDW) sample, E4SQ9, was prepared and analyzed for Volatile, Semivolatile and Pesticide analytes according to CLP SOW SOM01.2, Modification Reference Numbers 1689.5, 1722.1, and 1723.0, and SW-846 TCLP Method 1311; and for Aroclors according to routine CLP SOW SOM01.2. One trip blank, E4SR0, was prepared and analyzed for Volatiles only. The sample data were reviewed according to the NFG for SOM01.2, the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and Modification Reference Numbers 1689.5, 1722.1, and 1723.0.

According to Modified Analyses 1689.5, 1722.1, and 1723.0, associated with this SDG, the laboratory was required to provide the supporting data for the TCLP procedure (laboratory bench sheets, logs, and notebook pages). This includes the determination of extraction fluid and volume of extraction fluid used. This information was missing from the data package.

The laboratory reported tentatively identified compounds (TICs) for the Volatile and Semivolatile Analysis, although not requested in the Modified Analysis (MA).

The MA reference number 1690.4 is reported on the Form 1s for the Aroclor analysis in error, and is not part of the Aroclor analyses which were performed according to the CLP SOW SOM01.2, without MA.

This report is ordered by fraction in the following order: Volatiles, Semivolatiles, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “NJ”, “UJ”, “U”, “J”.

VOLATILES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DMC RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No volatile MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. TRIP BLANK AND FIELD DUPLICATE

Trip blank E4SR0 was included with this SDG. No volatile target compounds were detected in this sample. All associated QC was acceptable. No field duplicate samples were collected for this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No target volatile compounds were detected in the samples included in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DMC RECOVERY

Some deuterated monitoring compound recoveries were below the lower limit of the criteria window. These surrogates were not associated with target compounds for TCLP analysis. No results have been qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No semivolatile MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No target semivolatile compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No pesticide MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

No target pesticide compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No Aroclor MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

In Aroclor sample E4SQ9, Aroclor-1260 had a concentration that was above the MDL and below the CRQL. The result for Aroclor-1260 in this sample is qualified "J."

Aroclor sample E4SQ9 had a percent difference between Aroclor-1248 results in the range of 26-50%. The result for Aroclor-1248 in sample E4SQ9 is qualified "J."

Aroclor sample E4SQ9 had a percent difference between Aroclor-1254 results that exceeded 100%. The result for Aroclor-1254 in sample E4SQ9 is qualified "R." "R" flagged results are removed from the "B" and "Z" files.

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor performance was acceptable.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/4/2010

SUBJECT: Review of Data
Received for Review on: 3/24/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4RS0

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4RS0, ME4RS1, ME4RS2, ME4RS3, ME4RS4, ME4RS5, ME4RS6, ME4RS7, ME4RS8, ME4RS9. ME4RT0, ME4RT1, ME4RT2, ME4RT3, ME4RT4, ME4RT5, ME4RT6, ME4RY2, ME4RY3, ME4RY4

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4RS0 - ME4RS9, ME4RT0 - ME4RT6, and ME4RY2 - ME4RY4 were shipped to A4 Scientific, Inc. Samples ME4RS0 - ME4RS9 and ME4RT0-ME4RT6 were collected on 2/25/2010 and samples ME4RY2 - ME4RY4 were collected on 2/24/2010. All twenty sediment samples were received at the facility on 2/27/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4RS1 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4RT5/ME4RT6 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4RS3	Aluminum, Iron
ME4RS4	Aluminum, Iron
ME4RS5	Aluminum, Iron
ME4RS6	Aluminum, Iron
ME4RS7	Aluminum, Iron
ME4RS8	Aluminum, Iron
ME4RS9	Aluminum, Iron
ME4RT0	Aluminum, Iron
ME4RT1	Aluminum, Iron
ME4RT2	Aluminum, Iron
ME4RT3	Aluminum, Iron
ME4RT4	Aluminum, Iron

The following inorganic soil samples are associated with an CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4RS0	Mercury
ME4RS1	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RS0	Barium, Potassium
ME4RS1	Barium, Potassium
ME4RS2	Barium, Potassium
ME4RS3	Barium, Potassium
ME4RS4	Barium, Potassium
ME4RS5	Barium, Potassium
ME4RS6	Barium, Potassium

ME4RS7	Barium, Potassium
ME4RS8	Barium, Potassium
ME4RS9	Barium, Potassium
ME4RT0	Barium, Potassium
ME4RT1	Barium, Potassium
ME4RT2	Barium, Potassium
ME4RT3	Barium, Potassium
ME4RT4	Barium, Potassium
ME4RT5	Barium, Potassium
ME4RT6	Barium, Potassium
ME4RY2	Barium, Potassium
ME4RY3	Barium, Potassium
ME4RY4	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Metal Analytes	ME4RT5 (mg/kg)	ME4RT6 (Field DUP) (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3530	4000	Y	12.5	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.7	3.6	N	-	0.1	≤2xCRQL
Barium	91.7	94.5	N	-	2.8	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	1.9	1.3	N	-	0.6	≤2xCRQL
Calcium	76900	89900	Y	15.6	-	-
Chromium	58.4	34.5	Y	51.5	-	-
Cobalt	5	5.4	NA	NA	NA	NA
Copper	37.7	24.6	Y	42.1	-	-
Iron	9130	9130	Y	0	-	-
Lead	120	82.3	Y	37.3	-	-
Magnesium	31100	33900	Y	8.6	-	-
Manganese	404	402	Y	0.5	-	-
Mercury	0.2	0.12	N	-	0.08	≤2xCRQL
Nickel	18.6	12.6	N	-	6	≤2xCRQL
Potassium	443	509	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	0.88	ND	N	-	0.34	≤2xCRQL
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.3	12.1	N	-	1.8	≤2xCRQL
Zinc	175	143	Y	20.1	-	-

6. ICP ANALYSIS

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RS3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RS7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RS8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RT3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RT4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4RS0	Calcium
ME4RS1	Calcium
ME4RS3	Calcium
ME4RS4	Calcium
ME4RS5	Calcium

ME4RS6	Calcium
ME4RS7	Calcium
ME4RS8	Calcium
ME4RS9	Calcium
ME4RT0	Calcium
ME4RT1	Calcium
ME4RT3	Calcium
ME4RT4	Calcium
ME4RT5	Calcium
ME4RT6	Calcium
ME4RY2	Calcium
ME4RY3	Calcium
ME4RY4	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL).

All results below the CRQL are qualified "J".

ME4RS0	Arsenic, Cadmium, Cobalt, Potassium
ME4RS1	Cobalt, Mercury, Potassium
ME$RS2	Cobalt, Mercury, Potassium
ME4RS4	Arsenic, Cadmium, Cobalt, Potassium
ME4RS5	Arsenic, Cobalt, Mercury, Potassium, Silver
ME4RS6	Cobalt, Potassium
ME4RS7	Cobalt, Mercury, Potassium
ME4RS8	Potassium
ME4RS9	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4RT0	Cobalt, Mercury, Potassium
ME4RT1	Cobalt, Mercury, Potassium, Silver
ME4RT2	Cobalt, Potassium, Silver
ME4RT3	Beryllium
ME4RT4	Arsenic, Cadmium, Cobalt, Nickel, Potassium
ME4RT5	Cobalt, Potassium, Silver
ME4RT6	Cobalt, Mercury, Potassium

ME4RY2	Arsenic, Cobalt, Mercury, Potassium
ME4RY3	Beryllium, Cobalt, Potassium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/1/2010

SUBJECT: Review of Data
Received for Review on: 3/24/2010

FROM: Cris Robinson
Environmental Scientist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4RT7

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4RT7, ME4RT8, ME4RT9, ME4RW0, ME4RW0, ME4RW1, ME4RW2, ME4RW3, ME4RW4, ME4RW5, ME4RW6, ME4RW7, ME4RW8, ME4RW9, ME4RX0, ME4RX1, ME4RX2, ME4RX3, ME4RX4, ME4RX5, ME4RX6

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4RT7-ME4RT 9, ME4RW0-ME4RW 9, ME4RX0-ME4RX 6 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 2/25/2010, and were received at the facility on 2/27/2010, intact and at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, sample ME4RT8 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4RT9/ME4RW0, MERW1/MERW2, and MERW3/MERW4 as field duplicate sets. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to also perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No defects were found for the calibration blanks or preparation blank.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RT7	Barium, Potassium
ME4RT8	Barium, Potassium
ME4RT9	Barium, Potassium
ME4RW0	Barium, Potassium
ME4RW1	Barium, Potassium
ME4RW2	Barium, Potassium
ME4RW3	Barium, Potassium
ME4RW4	Barium, Potassium
ME4RW5	Barium, Potassium
ME4RW6	Barium, Potassium
ME4RW7	Barium, Potassium
ME4RW8	Barium, Potassium
ME4RW9	Barium, Potassium
ME4RX0	Barium, Potassium
ME4RX1	Barium, Potassium
ME4RX2	Barium, Potassium

ME4RX3 Barium, Potassium

ME4RX4 Barium, Potassium

ME4RX5 Barium, Potassium

ME4RX6 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Each of the following tables contains data for a sample/field duplicate pair in this SDG.

Metal analytes	ME4RT9 mg/kg	ME4RW0 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3750	4390	Y	15.7	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.2	2.1	N	-	0.1	≤2xCRQL
Barium	66	70.6	N	-	4.6	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.65	0.61	NA	NA	NA	NA
Calcium	90600	96800	Y	6.6	-	-
Chromium	13.1	15.2	Y	14.8	-	-
Cobalt	4.9	6.1	NA	NA	NA	NA
Copper	40.5	21.7	Y	60.5	-	-
Iron	8580	10000	Y	15.3	-	-
Lead	37.5	45.9	Y	20.1	-	-
Magnesium	28900	31800	Y	9.6	-	-
Manganese	390	408	Y	4.5	-	-
Mercury	0.13	0.12	NA	NA	NA	NA
Nickel	10.7	13	N	-	2.3	≤2xCRQL
Potassium	575	723	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.9	12.2	N	-	1.3	≤2xCRQL
Zinc	262	121	Y	73.6	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

Metal analytes	ME4RW1 mg/kg	ME4RW2 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	7450	6180	Y	18.6	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.3	3.8	N	-	0.5	≤2xCRQL
Barium	56.6	54.4	N	-	2.2	≤2xCRQL
Beryllium	0.36	0.31	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA

Metal analytes	ME4RW1 mg/kg	ME4RW2 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Calcium	74300	71500	Y	3.8	-	-
Chromium	14.1	12.1	Y	15.3	-	-
Cobalt	10	9.9	N	-	0.1	≤2xCRQL
Copper	22.9	35.2	Y	42.3	-	-
Iron	15200	13400	Y	12.6	-	-
Lead	10.6	13.4	Y	23.3	-	-
Magnesium	35500	35000	Y	1.4	-	-
Manganese	399	373	Y	6.7	-	-
Mercury	0.061	0.056	NA	NA	NA	NA
Nickel	25	23.2	N	-	1.8	≤2xCRQL
Potassium	1530	1350	N	-	180	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	20.3	17.5	N	-	2.8	≤2xCRQL
Zinc	51	45.5	Y	11.4	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

Metal analytes	ME4RW3 mg/kg	ME4RW4 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	5840	5300	Y	9.7	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	4.1	3.4	N	-	0.7	≤2xCRQL
Barium	55.5	52.5	N	-	3	≤2xCRQL
Beryllium	0.3	0.27	NA	NA	NA	NA
Cadmium	0.21	0.19	NA	NA	NA	NA
Calcium	80700	82800	Y	2.6	-	-
Chromium	12.3	12.2	Y	0.8	-	-
Cobalt	8.5	8.3	N	-	0.2	≤2xCRQL
Copper	22	51.5	Y	80.3	-	-
Iron	12900	11600	Y	10.6	-	-
Lead	18.7	19.3	Y	3.2	-	-
Magnesium	37600	34900	Y	7.4	-	-
Manganese	349	335	Y	4.1	-	-
Mercury	0.065	0.068	NA	NA	NA	NA
Nickel	20.6	19.5	N	-	1.1	≤2xCRQL
Potassium	1270	1090	N	-	180	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	16	15	N	-	1	≤2xCRQL
Zinc	63.8	64.6	Y	1.2	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4RT9/ME4RW0 Copper, Zinc

ME4RW1/ME4RW2 Copper

ME4RW3/ME4RW4 Copper

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4RT8 Potassium

ME4RW1 Potassium

ME4RW2 Potassium

ME4RW3 Potassium

ME4RW5 Potassium

ME4RW6 Potassium

ME4RW7 Potassium

ME4RW8 Potassium

ME4RW9 Potassium

ME4RX4 Potassium

ME4RX5 Potassium

ME4RX6 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RT8 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RW1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RW2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RX6 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

The following inorganic samples are associated with an ICP serial dilution percent difference which is > 10% but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4RT7 Calcium, Manganese

ME4RT8 Calcium, Manganese

ME4RT9 Calcium, Manganese

ME4RW0 Calcium, Manganese

ME4RW1 Calcium, Manganese

ME4RW2 Calcium, Manganese

ME4RW3 Calcium, Manganese

ME4RW4 Calcium, Manganese

ME4RW5 Calcium, Manganese

ME4RW6 Calcium, Manganese

ME4RW7 Calcium, Manganese

ME4RW8 Calcium, Manganese

ME4RW9 Calcium, Manganese

ME4RX0 Calcium, Manganese

ME4RX1 Calcium, Manganese

ME4RX2 Calcium, Manganese

ME4RX3 Calcium, Manganese

ME4RX4 Calcium, Manganese

ME4RX5 Calcium, Manganese

ME4RX6 Calcium, Manganese

7. SAMPLE RESULTS

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because

calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4RT7	Calcium
ME4RT8	Calcium
ME4RT9	Calcium
ME4RW0	Calcium
ME4RW1	Calcium
ME4RW2	Calcium
ME4RW3	Calcium
ME4RW4	Calcium
ME4RW5	Calcium
ME4RW6	Calcium
ME4RW7	Calcium
ME4RW8	Calcium
ME4RW9	Calcium
ME4RX0	Calcium
ME4RX1	Calcium
ME4RX2	Calcium
ME4RX3	Calcium
ME4RX4	Calcium
ME4RX5	Calcium
ME4RX6	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4RT7	Cadmium, Mercury
ME4RT8	Beryllium, Mercury
ME4RT9	Cobalt, Mercury, Potassium
ME4RW0	Cadmium, Cobalt, Mercury, Potassium
ME4RW1	Beryllium, Mercury
ME4RW2	Beryllium, Mercury
ME4RW3	Beryllium, Cadmium, Mercury
ME4RW4	Beryllium, Mercury
ME4RW5	Beryllium, Mercury
ME4RW6	Beryllium, Cadmium
ME4RW7	Beryllium, Mercury
ME4RW8	Beryllium, Mercury
ME4RW9	Beryllium, Mercury
ME4RX0	Cobalt, Potassium
ME4RX1	Beryllium, Cadmium, Mercury
ME4RX2	Beryllium, Cadmium, Cobalt, Potassium
ME4RX3	Beryllium, Mercury
ME4RX4	Beryllium, Mercury
ME4RX5	Beryllium, Mercury
ME4RX6	Beryllium, Mercury

Case Number: 39494
Site Name: Lincoln Park
SDG Number: ME4RT7
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/2/2010

SUBJECT: Review of Data
Received for Review on: 3/24/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39494 SDG Number: ME4RX7

Number and Type of Samples: 5 Sediment Samples (Metals)

Sample Numbers: ME4RX7, ME4RX8, ME4RX9, ME4RY0, ME4RY1

Laboratory: A4 Scientific

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Five (5) sediment samples labeled ME4RX7, ME4RX8, ME4RX9 ME4RY0, and ME4RY were shipped to A4 Scientific, Inc. All five (5) samples were collected on February 25, 2010,and were received at the facility at 4°C on February 27, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4RX8 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicates were identified.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that samples ME4RX7 and ME4RY1 had more than 20 mL of free standing liquid on top. EPA directed the laboratory to decant the standing water and proceed with the analysis of the samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

Laboratory blanks for mercury had a negative concentration greater or equal to the MDL, but less than or equal to the CRQL. Samples reported as detected (ME4X8, ME4X9, ME4Y1), may have a negative bias and were therefore flagged as “J-”. The sample reported as not found (ME4RY0) may possibly be a false negative, but this cannot be determined from the data.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects found.

3. BLANKS

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL), but less than or equal to the CRQL. Detects may have a negative bias and are qualified as "J-".

ME4RX8 Mercury

ME4RX9 Mercury

ME4RY0 Mercury

ME4RY1 Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

The following inorganic sediment samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RX7 Barium, Potassium

ME4RX8 Barium, Potassium

ME4RX9 Barium, Potassium

ME4RY0 Barium, Potassium

ME4RY1 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) primary criteria. All associated sample results ≥ MDL but < 5× CRQL, and with an absolute difference between sample and duplicate > 2 × CRQL, are qualified "J". Non-detects are qualified "UJ".

ME4RX7 Chromium, Lead, Zinc

ME4RX8 Chromium, Lead, Zinc

ME4RX9 Chromium, Lead, Zinc

ME4RY0 Chromium, Lead, Zinc

ME4RY1 Chromium, Lead, Zinc

6. ICP ANALYSIS

The following inorganic samples have one or more interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RX7 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RX8 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RX9 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RY0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RY1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

No defects were found due to ICP serial dilution.

7. SAMPLE RESULTS

The following inorganic sample has analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4RY0 Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but

on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

ME4RX7	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4RX8	Cobalt, Potassium
ME4RX9	Cobalt, Mercury, Potassium
ME4RY0	Cadmium, Cobalt, Potassium
ME4RY1	Cadmium, Cobalt, Mercury, Potassium

Case Number: 39494 SDG Number: ME4RX7
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 5/4/2010

SUBJECT: Review of Data Received for Review on: 3/25/2010

FROM: Andrew Hahn, Environmental Analyst
CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4RY5

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4RY5, ME4RY6, ME4RY7, ME4RY8, ME4RY9, ME4RZ0, ME4RZ1, ME4RZ2, ME4RZ3, ME4RZ4, ME4RZ5, ME4RZ6, ME4RZ7, ME4RZ8, ME4RZ9, ME4S00, ME4S01, ME4S02, ME4S03, ME4S05

Laboratory: A4 Scientific, Inc

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4RY5 - ME4S05 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 2/26/2010 and were received on 3/2/2010, intact at the facility at 4 ºC.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4RZ1 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4RZ3 and ME4RZ4 as field duplicates.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No issues were identified.

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RY5	Barium, Sodium
ME4RY6	Barium, Potassium
ME4RY7	Barium, Potassium
ME4RY8	Barium, Potassium
ME4RY9	Barium, Potassium
ME4RZ0	Barium, Potassium
ME4RZ1	Barium, Potassium
ME4RZ2	Barium, Potassium
ME4RZ3	Barium, Potassium
ME4RZ4	Barium, Potassium
ME4RZ5	Barium, Potassium
ME4RZ6	Barium, Potassium
ME4RZ7	Barium, Potassium
ME4RZ8	Barium, Potassium
ME4RZ9	Barium, Potassium
ME4S00	Barium, Potassium
ME4S01	Barium, Potassium
ME4S02	Barium
ME4S03	Barium, Potassium
ME4S05	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

Analyte	ME4RZ3 Result (mg/kg)	ME4RZ4 Result (mg/kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	5920	5180	Y	13.3	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	4.1	3.5	N	-	0.6	≤2xCRQL
Barium	92.1	85.4	N	-	6.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	1.9	1.6	N	-	0.3	≤2xCRQL
Calcium	88000	86600	Y	1.6	-	-
Chromium	27.6	28.5	Y	3.2	-	-
Cobalt	6.1	5.6	NA	NA	NA	NA
Copper	27.2	25.7	Y	5.7	-	-
Iron	11800	11200	Y	5.2	-	-
Lead	99.2	94.1	Y	5.3	-	-
Magnesium	31800	32400	Y	1.9	-	-
Manganese	475	450	Y	5.4	-	-
Mercury	0.16	0.16	N	-	0	≤2xCRQL
Nickel	15.1	13.3	N	-	1.8	≤2xCRQL
Potassium	690	615	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	0.62	0.71	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	15.7	14.5	N	-	1.2	≤2xCRQL
Zinc	154	138	Y	11	-	-

6. ICP ANALYSIS

No issues were found with the serial dilution samples.

The following inorganic samples have one or more interferents present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RY5 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RY6 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RZ0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RZ1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RZ5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RZ6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RZ9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S00	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S01	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S02	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S05	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium and not to perform diluted analyses solely to address calcium. Sample results are qualified "J".

ME4RY5	Calcium
ME4RY6	Calcium
ME4RY7	Calcium
ME4RY8	Calcium

ME4RY9	Calcium
ME4RZ0	Calcium
ME4RZ1	Calcium
ME4RZ2	Calcium
ME4RZ3	Calcium
ME4RZ4	Calcium
ME4RZ5	Calcium
ME4RZ6	Calcium
ME4RZ7	Calcium
ME4RZ8	Calcium
ME4RZ9	Calcium
ME4S00	Calcium
ME4S01	Calcium
ME4S02	Calcium
ME4S03	Calcium
ME4S05	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4RY5	Copper, Mercury, Nickel
ME4RY6	Arsenic, Barium, Nickel, Vanadium
ME4RY7	Barium, Cobalt, Potassium, Vanadium
ME4RY8	Barium, Nickel, Vanadium
ME4RY9	Arsenic, Barium, Cadmium, Mercury, Nickel, Vanadium
ME4RZ0	Mercury, Vanadium
ME4RZ1	Cobalt
ME4RZ2	Mercury, Nickel, Vanadium
ME4RZ3	Vanadium
ME4RZ4	Vanadium
ME4RZ5	Arsenic, Barium, Cadmium, Cobalt, Mercury, Nickel, Vanadium
ME4RZ6	Barium, Cobalt, Potassium
ME4RZ7	Mercury, Nickel, Vanadium
ME4RZ8	Arsenic, Cadmium, Mercury, Nickel, Vanadium
ME4RZ9	Mercury, Nickel, Vanadium
ME4S00	Cobalt, Potassium

ME4S01	Cobalt, Potassium
ME4S03	Cadmium, Mercury, Vanadium
ME4S05	Barium, Cobalt, Potassium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 5/5/2010

SUBJECT: Review of Data
Received for Review on: 3/25/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: None SDG Number: ME4S06

Number and Type of Samples: 5 Sediment Samples (Metals)

Sample Numbers: ME4S06, ME4S07, ME4S08, ME4S09, ME4S10,

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Five (5) sediment samples labeled ME4S06, ME4S07, ME4S08 ME4S09, and ME4S10 were shipped to A4 Scientific, Inc. All five (5) samples were collected on February 26, 2010, and were received at the facility at 4 °C on March 2, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4S07 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4S07/ME4S08 as a field duplicate set.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that sample ME4S06 contained < 50% solids. EPA directed the laboratory to proceed with the analysis of the sample and report the results on a dry-weight basis using the percent solids determination.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found.

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is also less than or equal to the CRQL. Detects are qualified "U" and the sample result was raised to the CRQL.

ME4S06 Mercury

ME4S10 Mercury

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. The sample result is greater than the CRQL. No sample results are qualified based on this issue.

ME4S06 Aluminum, Iron

ME4S07 Aluminum, Iron, Mercury

ME4S08 Aluminum, Iron, Mercury

ME4S09 Aluminum, Iron, Mercury

ME4S10 Aluminum, Iron

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

The following inorganic sediment samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S06 Barium, Potassium

ME4S07 Barium, Potassium

ME4S08 Barium, Potassium

ME4S09 Barium, Potassium

ME4S10 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found with the laboratory duplicate analysis.

Metal analytes	MES07 mg/kg	MES08 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Aluminum	6890	6920	Y	0.4	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.9	4.8	N	-	1.9	≤2xCRQL
Barium	101	105	N	-	4	≤2xCRQL
Beryllium	0.37	0.37	NA	NA	NA	NA
Cadmium	1.8	1.8	N	-	0	≤2xCRQL
Calcium	97200	95500	Y	1.8	-	-
Chromium	25.9	26	Y	0.4	-	-
Cobalt	6.2	6.7	NA	NA	NA	NA
Copper	32.2	31.4	Y	2.5	-	-
Iron	13400	13500	Y	0.7	-	-
Lead	80.6	87	Y	7.6	-	-
Magnesium	30900	30200	Y	2.3	-	-
Manganese	528	543	Y	2.8	-	-
Mercury	0.22	0.27	N	-	0.05	≤2xCRQL
Nickel	14.7	15.5	N	-	0.8	≤2xCRQL
Potassium	751	763	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	17.1	17	N	-	0.1	≤2xCRQL
Zinc	166	177	Y	6.4	-	-

6. ICP ANALYSIS

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S09 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S10 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

No defects were found for the ICP serial dilution.

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium and not perform diluted analyses solely to address calcium.. Sample results are qualified "J".

ME4S06	Calcium
ME4S07	Calcium
ME4S08	Calcium
ME4S09	Calcium
ME4S10	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

ME4S06	Cadmium, Cobalt, Mercury, Potassium
ME4S07	Beryllium, Cobalt, Potassium
ME4S08	Beryllium, Cobalt, Potassium
ME4S09	Beryllium, Cobalt, Potassium
ME4S10	Beryllium, Mercury

Case Number: 39494
Site Name: Lincoln Park
SDG Number: ME4S06
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/4/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Sarah Bentley
Environmental Analyst

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S11

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4S11, ME4S12, ME4S13, ME4S14, ME4S15, ME4S16, ME4S17, ME4S18, ME4S19, ME4S20, ME4S21, ME4S22, ME4S23, ME4S24, ME4S41, ME4S42, ME4S43, ME4S44, ME4S46, ME4S48

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4S11- ME4S24, ME4S41-ME4S44, ME4S46, and ME4S48 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 03/01/2010, and were received at the facility on 03/03/2010, intact, and at 4 ºC.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4S20 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4S14 and ME4S15 as field duplicates. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgement, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No issues were identified.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S11	Barium, Potassium
ME4S12	Barium, Potassium
ME4S13	Barium, Potassium
ME4S14	Barium, Potassium
ME4S15	Barium, Potassium
ME4S16	Barium, Potassium
ME4S17	Barium, Potassium
ME4S18	Barium, Potassium
ME4S19	Barium
ME4S20	Barium
ME4S20D	Barium
ME4S21	Barium
ME4S22	Barium
ME4S23	Barium
ME4S24	Barium, Potassium
ME4S41	Barium, Potassium

ME4S42 Barium, Potassium

ME4S43 Barium, Potassium

ME4S44 Barium, Potassium

ME4S46 Barium

ME4S48 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

Metal analytes	ME4S14 mg/Kg	ME4S15 mg/Kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3460	3260	Y	6	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	1.8	1.8	N	-	0	≤2xCRQL
Barium	43.7	40.4	N	-	3.3	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.33	0.26	NA	NA	NA	NA
Calcium	92800	86200	Y	7.4	-	-
Chromium	13.1	10.2	Y	24.9	-	-
Cobalt	5.1	5.7	NA	NA	NA	NA
Copper	13.8	12.1	N	-	1.7	≤2xCRQL
Iron	7810	7920	Y	1.4	-	-
Lead	14	11.9	Y	16.2	-	-
Magnesium	44800	40200	Y	10.8	-	-
Manganese	405	442	Y	8.7	-	-
Mercury	0.042	0.051	NA	NA	NA	NA
Nickel	10	10.6	N	-	0.6	≤2xCRQL
Potassium	465	528	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	11.5	11.4	N	-	0.1	≤2xCRQL
Zinc	51.5	47.1	Y	8.9	-	-

6. ICP ANALYSIS

No issues were found with the serial dilution samples.

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher

than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest in this project, the laboratory was instructed to report the initial analyses for calcium. All results which exceed the linear range are qualified "J".

ME4S11	Calcium
ME4S12	Calcium
ME4S13	Calcium
ME4S14	Calcium
ME4S15	Calcium
ME4S16	Calcium
ME4S17	Calcium
ME4S18	Calcium
ME4S19	Calcium
ME4S20	Calcium
ME4S20D	Calcium
ME4S21	Calcium
ME4S22	Calcium
ME4S23	Calcium
ME4S24	Calcium
ME4S41	Calcium
ME4S42	Calcium
ME4S43	Calcium
ME4S44	Calcium
ME4S46	Calcium
ME4S48	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4S11	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4S12	Cobalt, Mercury, Potassium
ME4S13	Cobalt, Mercury, Potassium, Silver
ME4S14	Cadmium, Cobalt, Mercury, Potassium
ME4S15	Cadmium, Cobalt, Mercury, Potassium
ME4S16	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4S17	Arsenic, Cobalt, Potassium
ME4S18	Cadmium, Cobalt, Mercury
ME4S19	Barium, Copper, Nickel

ME4S20	Barium, Copper, Nickel, Vanadium
ME4S21	Barium, Copper, Nickel, Vanadium
ME4S22	Barium, Copper, Nickel, Vanadium
ME4S23	Barium, Copper, Nickel, Vanadium
ME4S24	Cobalt, Potassium
ME4S41	Potassium
ME4S42	Potassium
ME4S43	Cadmium, Cobalt, Mercury, Potassium
ME4S44	Cobalt, Mercury, Potassium
ME4S46	Arsenic, Cobalt, Mercury, Nickel, Vanadium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/18/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Joshua Vinson
Environmental Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S25

Number and Type of Samples: 16 Sediment Samples (Metals)

Sample Numbers: ME4S25, ME4S26, ME4S27, ME4S29, ME4S30, ME4S31, ME4S32, ME4S33, ME4S34, ME4S35, ME4S36, ME4S38, ME4S39, ME4S40, ME4S49, ME4S50

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Sixteen (16) sediment samples labeled ME4S25-ME4S27, ME4S29-ME4S36, ME4S38-ME4S40, ME4S49, and ME4S50 were shipped to A4 Scientific, Inc. All sixteen samples were collected on 03/01/2010 and were received at the facility on 03/03/2010, intact and at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, sample ME4S35 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4S39/ME4S40 as a field duplicate set. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples."

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

No problems were found

2. CALIBRATION

No problems were found

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. Because sample results are significantly greater than the CRQL no sample results were qualified based on this issue.

ME4S27	Aluminum
ME4S29	Aluminum
ME4S30	Aluminum
ME4S31	Aluminum
ME4S32	Aluminum
ME4S33	Aluminum
ME4S34	Aluminum
ME4S36	Aluminum
ME4S38	Aluminum
ME4S39	Aluminum
ME4S40	Aluminum
ME4S49	Aluminum
ME4S50	Aluminum

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No Defects were found for matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S25	Barium, Potassium
ME4S26	Barium, Potassium
ME4S27	Barium, Potassium
ME4S29	Barium, Potassium
ME4S30	Barium, Potassium
ME4S31	Barium, Potassium
ME4S32	Barium, Potassium
ME4S33	Barium, Potassium
ME4S34	Barium, Potassium
ME4S35	Barium, Potassium
ME4S36	Barium, Potassium
ME4S38	Barium, Potassium
ME4S39	Barium, Potassium
ME4S40	Barium, Potassium

ME4S49 Barium
ME4S50 Barium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

The following table contains data for a sample/field duplicate pair in this SDG.

Analyte	ME4S39 (mg/kg)	ME4S40 (mg/kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3360	2770	Y	19.2	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.1	2.6	N	-	0.5	≤2xCRQL
Barium	32.5	31.8	N	-	0.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.29	0.41	NA	NA	NA	NA
Calcium	105000	83500	Y	22.8	-	-
Chromium	8	7.7	Y	3.8	-	-
Cobalt	7.7	5.4	N	-	2.3	≤2xCRQL
Copper	13.7	11	N	-	2.7	≤2xCRQL
Iron	9240	6960	Y	28.1	-	-
Lead	12.9	19.8	Y	42.2	-	-
Magnesium	54300	41600	Y	26.5	-	-
Manganese	606	444	Y	30.9	-	-
Mercury	0.042	ND	N	-	0.01	≤2xCRQL
Nickel	13.2	9.4	N	-	3.8	≤2xCRQL
Potassium	580	416	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	13.9	10.5	N	-	3.4	≤2xCRQL
Zinc	43.6	50.5	Y	14.7	-	-

The following inorganic sample/field duplicate results are > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4S39/ME4S40 Lead

6. ICP ANALYSIS

The following inorganic samples have one or more interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S33	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S34	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S38	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S39	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S40	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S49	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S50	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4S25	Calcium
ME4S26	Calcium
ME4S27	Calcium
ME4S29	Calcium
ME4S30	Calcium
ME4S31	Calcium
ME4S32	Calcium
ME4S33	Calcium
ME4S35	Calcium
ME4S36	Calcium
ME4S38	Calcium
ME4S39	Calcium
ME4S40	Calcium
ME4S49	Calcium
ME4S50	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4S25	Cadmium, Cobalt, Mercury, Potassium
ME4S26	Cadmium, Cobalt, Mercury, Potassium
ME4S30	Cadmium, Cobalt, Mercury, Potassium
ME4S29	Potassium
ME4S31	Cobalt, Mercury, Potassium
ME4S32	Cobalt, Mercury, Potassium
ME4S38	Cobalt, Mercury, Potassium
ME4S33	Cadmium, Potassium
ME4S34	Arsenic, Cobalt, Mercury, Potassium
ME4S35	Cobalt, Mercury, Potassium, Silver
ME4S36	Cobalt, Mercury, Potassium, Silver
ME4S39	Cadmium, Mercury, Potassium
ME4S40	Cadmium, Cobalt, Potassium
ME4S49	Arsenic, Barium, Copper, Nickel, Vanadium
ME4S50	Arsenic, Barium, Nickel

Case Number: 39494 SDG Number: ME4S25
Site Name: Lincoln Park Laboratory: A4 Scientific, Inc.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/4/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S51

Number and Type of Samples: 16 Sediment Samples (Metals)

Sample Numbers: ME4S51, ME4S52, ME4S53, ME4S54, ME4S55, ME4S56, ME4S57, ME4S58, ME4S59, ME4S60, ME4S61, ME4S62, ME4S63, ME4S64, ME4S65, ME4S66

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Sixteen (16) sediment samples labeled ME4S51-ME4S66 were shipped to A4 Scientific, Inc. All Sixteen (16) samples were collected on 3/2/2010, and were received at the facility on 3/4/2010, intact at 4° C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4S60 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4S56/ME4S57, and ME4S65/ME4S66 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic soil samples are associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4S51	Mercury
ME4S52	Mercury
ME4S53	Mercury
ME4S54	Mercury
ME4S55	Mercury
ME4S56	Mercury
ME4S57	Mercury
ME4S58	Mercury
ME4S59	Mercury
ME4S60	Mercury
ME4S61	Mercury
ME4S62	Mercury
ME4S63	Mercury
ME4S64	Mercury
ME4S65	Mercury
ME4S66	Mercury

The following inorganic soil samples are associated with an CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4S51	Mercury
ME4S52	Mercury
ME4S53	Mercury
ME4S54	Mercury
ME4S55	Mercury
ME4S56	Mercury
ME4S57	Mercury
ME4S58	Mercury
ME4S59	Mercury
ME4S60	Mercury
ME4S61	Mercury
ME4S62	Mercury
ME4S63	Mercury
ME4S64	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S51	Barium, Potassium
ME4S52	Barium, Potassium
ME4S53	Barium, Potassium
ME4S54	Barium, Potassium
ME4S55	Barium, Potassium
ME4S56	Potassium
ME4S57	Potassium
ME4S58	Barium, Potassium
ME4S59	Barium, Potassium
ME4S60	Barium, Potassium
ME4S61	Barium, Potassium
ME4S62	Barium, Potassium
ME4S63	Potassium
ME4S64	Potassium
ME4S65	Barium, Potassium
ME4S66	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Metal Analytes	ME4S56 (mg/kg)	ME4S57 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1440	1460	Y	1.4	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	ND	0.48	N	-	0.01	≤2xCRQL
Barium	12.2	10.2	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA
Calcium	114000	110000	Y	3.6	-	-
Chromium	3.8	3.6	N	-	0.2	≤2xCRQL
Cobalt	3.1	2.7	NA	NA	NA	NA
Copper	3.8	2.2	N	-	1.6	≤2xCRQL
Iron	4450	4400	Y	1.1	-	-
Lead	3.1	2.8	N	-	0.3	≤2xCRQL
Magnesium	NA	301	Y	11.2	-	-
Manganese	269	ND	NA	NA	NA	NA
Mercury	ND	3.8	NA	NA	NA	NA
Nickel	4.4	ND	NA	NA	NA	NA
Potassium	ND	ND	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA

Metal Analytes	ME4S56 (mg/kg)	ME4S57 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	6.7	N	-	1.6	≤2xCRQL
Vanadium	8.3	17.4	N	-	0.7	≤2xCRQL
Zinc	18.1	301	Y	11.2	-	-

Metal Analytes	ME4S65 (mg/kg)	ME4S66 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3100	2980	Y	3.9	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.6	2	N	-	0.6	≤2xCRQL
Barium	30	29.4	N	-	0.6	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA
Calcium	88100	100000	Y	12.7	-	-
Chromium	7.1	6.2	Y	13.5	-	-
Cobalt	6.7	5.6	N	-	1.1	≤2xCRQL
Copper	11.7	9.7	N	-	2	≤2xCRQL
Iron	8670	8620	Y	0.6	-	-
Lead	7.3	6.9	Y	5.6	-	-
Magnesium	47000	49200	Y	4.6	-	-
Manganese	520	450	Y	14.4	-	-
Mercury	ND	ND	NA	NA	NA	NA
Nickel	12.6	10.7	N	-	1.9	≤2xCRQL
Potassium	600	586	N	-	14	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	12.7	11.7	N	-	1	≤2xCRQL
Zinc	32.1	30.2	N	-	1.9	≤2xCRQL

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4S62 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S51	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S52	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S54	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S55	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S56	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S57	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S58	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S59	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S60	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S61	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S62	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S63	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S64	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S65	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S66	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4S51	Calcium
ME4S52	Calcium
ME4S53	Calcium
ME4S54	Calcium
ME4S55	Calcium
ME4S56	Calcium
ME4S57	Calcium
ME4S58	Calcium
ME4S59	Calcium
ME4S60	Calcium
ME4S61	Calcium
ME4S62	Calcium
ME4S63	Calcium
ME4S64	Calcium
ME4S65	Calcium
ME4S66	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4S51	Cobalt, Potassium
ME4S52	Barium, Potassium
ME4S53	Arsenic, Cobalt, Mercury, Potassium

ME4S54	Cobalt, Mercury, Potassium
ME4S55	Beryllium
ME4S56	Barium, Cobalt, Nickel
ME4S57	Arsenic, Barium, Cobalt, Copper, Nickel
ME4S59	Arsenic, Cadmium, Cobalt, Nickel, Potassium
ME4S60	Cobalt, Mercury, Potassium
ME4S61	Arsenic, Barium, Cobalt, Potassium
ME4S63	Barium, Cobalt, Nickel
ME4S64	Barium, Cadmium, Cobalt
ME4S66	Cobalt

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 5/4/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Andrew Hahn, Environmental Analyst
CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S67

Number and Type of Samples: 13 Sediment Samples (Metals)

Sample Numbers: ME4S67, ME4S68, ME4S69, ME4S70, ME4S71, ME4S72, ME4S73, ME4S74, ME4S75, ME4S76, ME4S77, ME4S78, ME4S79

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Thirteen (13) sediment samples labeled ME4S67-ME4S79 were shipped to A4 Scientific, Inc. All thirteen (13) samples were collected on 3/2/2010 and were received intact at the facility on 3/4/2010, at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4S67 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4S78 and ME4S79 as field duplicates.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. The following samples were qualified "UJ".

ME4S67	Mercury
ME4S68	Mercury
ME4S69	Mercury
ME4S70	Mercury
ME4S71	Mercury
ME4S72	Mercury
ME4S73	Mercury
ME4S74	Mercury
ME4S75	Mercury
ME4S76	Mercury
ME4S77	Mercury
ME4S78	Mercury
ME4S79	Mercury

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. The following samples were qualified "UJ"

ME4S67	Mercury
ME4S68	Mercury
ME4S69	Mercury
ME4S70	Mercury
ME4S71	Mercury
ME4S72	Mercury
ME4S73	Mercury
ME4S74	Mercury
ME4S75	Mercury
ME4S76	Mercury
ME4S77	Mercury
ME4S78	Mercury
ME4S79	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S67 Barium, Sodium

ME4S68 Barium, Potassium

ME4S69 Barium , Potassium

ME4S70 Barium

ME4S71 Barium

ME4S72 Barium, Potassium

ME4S73 Barium, Potassium

ME4S74 Barium

ME4S75 Barium

ME4S76 Barium

ME4S77 Barium

ME4S78 Barium, Potassium

ME4S79 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

Analyte	ME4S78 Result (mg/kg)	ME4S79 Result (mg/kg)	Both Results> 5x CRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	2730	3170	Y	14.9	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	1.8	2.3	N	-	0.5	≤2xCRQL
Barium	26.2	30.5	N	-	4.3	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA
Calcium	99000	90900	Y	8.5	-	-
Chromium	5.9	6.9	Y	15.6	-	-
Cobalt	4.9	5.7	NA	NA	NA	NA
Copper	8.1	10.2	N	-	2.1	≤2xCRQL
Iron	7510	8530	Y	12.7	-	-
Lead	5.2	6.8	N	-	1.6	≤2xCRQL
Magnesium	47400	47200	Y	0.4	-	-
Manganese	405	444	Y	9.2	-	-
Mercury	ND	ND	NA	NA	NA	NA
Nickel	9.5	11.6	N	-	2.1	≤2xCRQL

Analyte	ME4S78 Result (mg/kg)	ME4S79 Result (mg/kg)	Both Results> 5x CRQL	%RPD	Abs Diff	Abs Diff Range
Potassium	523	613	N	-	90	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.3	12.5	N	-	2.2	≤2xCRQL
Zinc	28.5	33.2	N	-	4.7	≤2xCRQL

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4S68 Potassium

The following inorganic samples have one or more interferents present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S67 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S68 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S69 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S70 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S71 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S72 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S73 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S75	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S76	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S77	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S78	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S79	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

The following inorganic samples are associated with an ICP serial dilution percent difference that is greater than 10%, but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4S67	Aluminum
ME4S68	Aluminum
ME4S69	Aluminum
ME4S70	Aluminum
ME4S71	Aluminum
ME4S72	Aluminum
ME4S73	Aluminum
ME4S74	Aluminum
ME4S75	Aluminum
ME4S76	Aluminum
ME4S77	Aluminum
ME4S78	Aluminum
ME4S79	Aluminum

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4S67	Calcium
ME4S68	Calcium
ME4S69	Calcium
ME4S70	Calcium
ME4S71	Calcium
ME4S72	Calcium
ME4S73	Calcium
ME4S74	Calcium
ME4S75	Calcium
ME4S76	Calcium
ME4S77	Calcium
ME4S78	Calcium
ME4S79	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J."

ME4S67	Arsenic, Barium, Cobalt, Sodium
ME4S68	Cobalt
ME4S69	Arsenic, Barium, Cadmium, Nickel, Vanadium
ME4S71	Nickel, Vanadium
ME4S72	Barium, Cobalt, Vanadium
ME4S73	Barium, Vanadium
ME4S74	Barium, Vanadium
ME4S75	Lead, Vanadium
ME4S76	Vanadium
ME4S77	Lead, Vanadium
ME4S78	Arsenic, Barium, Vanadium
ME4S79	Arsenic, Barium, Potassium

Case Number: 39494 SDG Number: ME4S67
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/8/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S80

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SA0, ME4S80, ME4S81, ME4S83, ME4S84, ME4S85, ME4S86, ME4S87, ME4S88, ME4S89, ME4S90, ME4S91, ME4S92, ME4S93, ME4S94, ME4S95, ME4S96, ME4S97, ME4S98, ME4S99

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4S80-ME4S81, ME4S83-ME4S99, and ME4SA0 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 3/3/2010, and were received at the facility on 3/05/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4S95 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4S88/ME4S89 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No defects were found for the calibration blanks or preparation blank.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S80	Barium
ME4S81	Barium
ME4S83	Barium, Potassium
ME4S84	Barium, Potassium
ME4S85	Barium, Potassium
ME4S86	Barium, Potassium
ME4S87	Barium, Potassium
ME4S88	Barium, Potassium
ME4S89	Barium, Potassium
ME4S90	Barium, Potassium
ME4S91	Barium, Potassium
ME4S92	Barium, Potassium
ME4S93	Barium, Potassium
ME4S94	Barium, Potassium
ME4S95	Barium, Potassium
ME4S96	Barium, Potassium
ME4S97	Barium, Potassium
ME4S98	Barium, Potassium
ME4S99	Barium, Potassium
ME4SA0	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

The following table contains data for a sample/field duplicate pair in this SDG.

Metal Analytes	ME4S88 (mg/kg)	ME4S89 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	4360	7110	Y	48	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.8	3.2	N	-	0.6	≤2xCRQL
Barium	69.7	86.4	N	-	16.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	1.2	1.5	N	-	0.3	≤2xCRQL
Calcium	85200	95800	Y	11.7	-	-
Chromium	18.4	20.4	Y	10.3	-	-
Cobalt	4.8	5.3	NA	NA	NA	NA
Copper	22.3	28.4	Y	24.1	-	-
Iron	9190	11000	Y	17.9	-	-
Lead	73.1	77.5	Y	5.8	-	-
Magnesium	35700	34700	Y	2.8	-	-
Manganese	359	433	Y	18.7	-	-
Mercury	0.15	0.19	N	-	0.04	≤2xCRQL
Nickel	10.6	12	N	-	1.4	≤2xCRQL
Potassium	554	570	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	13.5	14.7	N	-	1.2	≤2xCRQL
Zinc	119	143	Y	18.3	-	-

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue

ME4S97 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S81 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S83 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S84	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S85	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S86	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S90	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S91	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S95	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S96	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S97	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4S80	Calcium
ME4S81	Calcium
ME4S83	Calcium

ME4S84	Calcium
ME4S85	Calcium
ME4S86	Calcium
ME4S87	Calcium
ME4S88	Calcium
ME4S89	Calcium
ME4S90	Calcium
ME4S91	Calcium
ME4S93	Calcium
ME4S94	Calcium
ME4S95	Calcium
ME4S96	Calcium
ME4S97	Calcium
ME4S99	Calcium
ME4SA0	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL).

All results below the CRQL are qualified "J".

ME4S80	Arsenic, Barium, Copper, Nickel
ME4S81	Barium, Cobalt, Nickel
ME4S83	Arsenic, Cadmium, Cobalt, Potassium
ME4S84	Cadmium, Cobalt, Mercury, Potassium
ME4S85	Cobalt, Potassium
ME4S86	Barium, Cobalt, Potassium
ME4S87	Cobalt, Mercury, Potassium
ME4S88	Cobalt, Mercury, Potassium
ME4S89	Cobalt, Potassium
ME4S90	Cadmium, Cobalt, Mercury, Potassium
ME4S91	Beryllium
ME4S92	Cobalt, Mercury, Potassium
ME4S93	Cobalt, Mercury, Potassium
ME4S94	Beryllium, Cobalt, Mercury, Potassium
ME4S95	Beryllium, Cadmium, Cobalt, Mercury

ME4S96	Cobalt, Potassium
ME4S97	Beryllium
ME4S98	Beryllium, Cobalt, Mercury, Potassium
ME4S99	Cobalt, Potassium
ME4SA0	Beryllium, Cobalt, Potassium, Silver

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/15/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Andrew Hahn, Environmental Analyst
CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4SA1

Number and Type of Samples: 18 Sediment Samples (Metals)

Sample Numbers: ME4SA1, ME4SA2, ME4SA3, ME4SA4, ME4SA5, ME4SA6, ME4SA7, ME4SA8, ME4SA9, ME4SB0, ME4SB1, ME4SB2, ME4SB3, ME4SB4, ME4SB5, ME4SB6, ME4SB7, ME4SB8

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Eighteen (18) sediment samples labeled ME4SA1-ME4SB8 were shipped to A4 Scientific, Inc. All eighteen (18) samples were collected on 3/3/2010 and were received intact at the facility on 3/5/2010, at 4° C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4SB6 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4SA3 and ME4SA6 as field duplicates, and ME4SB2 and ME4SB4 as a field duplicates.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is also less than or equal to the CRQL. Hits are qualified "U". Sample result is raised to the CRQL.

ME4SA8	Mercury
ME4SB0	Mercury
ME4SB1	Mercury
ME4SB2	Mercury
ME4SB3	Mercury
ME4SB4	Mercury
ME4SB5	Mercury
ME4SB6	Mercury
ME4SB7	Mercury
ME4SB8	Mercury

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than CRQL. No samples were qualified based on this issue.

ME4SA1	Aluminum, Iron
ME4SA2	Aluminum, Iron
ME4SA3	Aluminum, Iron
ME4SA4	Aluminum, Iron
ME4SA5	Aluminum, Iron
ME4SA6	Aluminum, Iron
ME4SA7	Aluminum, Iron
ME4SA8	Aluminum, Iron
ME4SB6	Aluminum, Iron
ME4SA9	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

The following inorganic samples are associated with a matrix spike recovery which is outside expanded low criteria. However, post-digest spike percent recovery was more than or equal to the low limit. Results greater than the MDL are flagged "J". Results less than the MDL are flagged "UJ".

ME4SA1	Selenium
ME4SA2	Selenium
ME4SA3	Selenium
ME4SA4	Selenium

ME4SA5	Selenium
ME4SA6	Selenium
ME4SA7	Selenium
ME4SA8	Selenium
ME4SA9	Selenium
ME4SB0	Selenium
ME4SB1	Selenium
ME4SB2	Selenium
ME4SB3	Selenium
ME4SB4	Selenium
ME4SB5	Selenium
ME4SB6	Selenium
ME4SB7	Selenium
ME4SB8	Selenium

The following inorganic samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SA1	Barium, Potassium
ME4SA2	Barium, Potassium
ME4SA3	Barium, Potassium
ME4SA4	Barium, Potassium
ME4SA5	Barium, Potassium
ME4SA6	Barium, Potassium
ME4SA8	Barium, Potassium
ME4SA9	Barium, Potassium
ME4SB0	Barium, Potassium
ME4SB1	Barium, Potassium
ME4SB2	Barium, Potassium
ME4SB3	Barium, Potassium
ME4SB4	Barium, Potassium
ME4SB5	Barium, Potassium
ME4SB6	Barium, Potassium
ME4SB7	Barium, Potassium
ME4SB8	Barium, Potassium

ME4SA7	Barium

5. LABORATORY AND FIELD DUPLICATES

ME4SA3 and ME4SA6

Analyte	ME4SA3 (mg/Kg)	ME4SA6 (mg/Kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	2740	2950	Y	7.4	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	1.9	2.1	N	-	0.2	≤2xCRQL
Barium	50.6	41.5	N	-	9.1	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.49	0.57	NA	NA	NA	NA
Calcium	108000	105000	Y	2.8	-	-

Analyte	ME4SA3 (mg/Kg)	ME4SA6 (mg/Kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Chromium	13.5	12.8	Y	5.3	-	-
Cobalt	3.9	3.7	NA	NA	NA	NA
Copper	10.8	12.1	N	-	1.3	≤2xCRQL
Iron	6630	7820	Y	16.5	-	-
Lead	25.1	30.9	Y	20.7	-	-
Magnesium	45400	45000	Y	0.9	-	-
Manganese	397	430	Y	8	-	-
Mercury	0.12	0.1	NA	NA	NA	NA
Nickel	7.7	7.8	N	-	0.1	≤2xCRQL
Potassium	363	384	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.2	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	8.3	10.2	N	-	1.9	≤2xCRQL
Zinc	68.9	80.6	Y	15.7	-	-

ME4SB2 and ME4SB4

Analyte	ME4SB2 (mg/Kg)	ME4SB4 (mg/Kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	4250	3300	Y	25.2	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.3	2.3	N	-	0	≤2xCRQL
Barium	42.5	30.8	N	-	11.7	≤2xCRQL
Beryllium	0.27	ND	N	-	0.01	≤2xCRQL
Cadmium	0.97	0.76	N	-	0.21	≤2xCRQL
Calcium	62800	65400	Y	4.1	-	-
Chromium	13	13.6	Y	4.5	-	-
Cobalt	4.5	4	NA	NA	NA	NA
Copper	20	17.2	N	-	2.8	≤2xCRQL
Iron	7040	6630	Y	6	-	-
Lead	35	27.2	Y	25.1	-	-
Magnesium	27400	29200	Y	6.4	-	-
Manganese	258	240	Y	7.2	-	-
Mercury	0.12	0.11	NA	NA	NA	NA
Nickel	11.1	10	N	-	1.1	≤2xCRQL
Potassium	661	497	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.6	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	12.6	13.1	N	-	0.5	≤2xCRQL
Zinc	87.7	87.8	Y	0.1	-	-

6. ICP ANALYSIS

The following inorganic samples have one or more interferents present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SA1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SB2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4SA1	Calcium
ME4SA2	Calcium
ME4SA3	Calcium
ME4SA4	Calcium
ME4SA5	Calcium
ME4SA6	Calcium
ME4SA7	Calcium
ME4SA8	Calcium
ME4SA9	Calcium
ME4SB0	Calcium

ME4SB2	Calcium
ME4SB3	Calcium
ME4SB5	Calcium
ME4SB6	Calcium
ME4SB7	Calcium
ME4SB8	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SA1	Antimony, Cobalt, Mercury, Potassium
ME4SA2	Cadmium, Cobalt, Mercury, Potassium
ME4SA3	Cadmium, Cobalt, Mercury, Potassium
ME4SA6	Cadmium, Cobalt, Mercury, Potassium
ME4SB1	Cadmium, Cobalt, Mercury, Potassium
ME4SB4	Cadmium, Cobalt, Mercury, Potassium
ME4SA4	Beryllium, Cobalt, Potassium
ME4SA5	Antimony, Barium, Mercury, Potassium
ME4SA7	Arsenic, Barium, Mercury, Nickel
ME4SA8	Antimony, Barium, Cadmium, Cobalt, Mercury, Potassium
ME4SA9	Beryllium, Cobalt, Potassium, Silver
ME4SB0	Cobalt, Mercury, Potassium
ME4SB2	Beryllium, Cobalt, Mercury, Potassium
ME4SB3	Arsenic, Barium, Cobalt, Copper, Mercury, Nickel, Potassium
ME4SB5	Arsenic, Barium, Mercury, Nickel, Potassium
ME4SB6	Barium, Mercury, Nickel, Potassium
ME4SB7	Arsenic, Barium, Copper, Lead, Mercury, Nickel, Potassium
ME4SB8	Antimony, Beryllium, Mercury

Case Number: 39494 SDG Number: ME4SA1
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/14/2010

SUBJECT: Review of Data
Received for Review on: 4/06/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 SDG Number: ME4SB9

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SB9, ME4SC0, ME4SC2, ME4SC3, ME4SC4, ME4SC5, ME4SC6, ME4SC7, ME4SC8, ME4SC9, ME4SD0, ME4SD2, ME4SD3, ME4SD4, ME4SD5, ME4SD6, ME4SD7, ME4SD9, ME4SE0, ME4SE1

Laboratory: A4 Scientific

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SB9, ME4SC0, ME4SC2, ME4SC3, ME4SC4, ME4SC5, ME4SC6, ME4SC7, ME4SC8, ME4SC9, ME4SD0, ME4SD2, ME4SD3, ME4SD4, ME4SD5, ME4SD6, ME4SD7, ME4SD9, ME4SE0, and ME4SE1 were shipped to A4 Scientific, Inc. All twenty samples were collected on March 4, 2010, and were received at the facility at 4 °C on March 5, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SD2 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution). The relative percent difference (RPD) for aluminum and manganese exceeded the QC limits. In addition, the percent difference for aluminum exceeded the QC limits in the serial dilution. Interferences are suspected.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4SC5/ME4SC6 as a field duplicate pair.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

Although the automated NFG reports noted that sample ME4SD6 was associated with ICV and CCV standards that were not analyzed in the required frequency, examination of the hard copy reporting forms and the raw data showed no such discrepancy. No defects were found.

3. BLANKS

Although the automated NFG reports noted that sample ME4SD6 was associated with initial or continuing calibration blanks that were not analyzed in the required frequency, examination of the hard copy reporting forms and the raw data showed no such discrepancy. No defects were found.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

For the matrix spike, the RPD for aluminum and manganese exceeded the QC limits. Interferences are suspected.

Although the automated NFG reports noted that sample ME4SD6 was associated with matrix spikes and other laboratory control samples (LCS) that were not analyzed in the required frequency, examination of the hard copy reporting forms and the raw data showed no such discrepancy. Detects and non-detects are not flagged.

The following inorganic soil samples are associated with a solid LCS with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SB9	Barium, Potassium
ME4SC0	Barium, Potassium
ME4SC2	Barium, Potassium
ME4SC3	Barium, Potassium
ME4SC4	Barium, Potassium
ME4SC5	Barium, Potassium
ME4SC6	Barium, Potassium
ME4SC7	Barium, Potassium
ME4SC8	Barium, Potassium
ME4SC9	Barium, Potassium
ME4SD0	Barium, Potassium
ME4SD2	Barium, Potassium
ME4SD3	Barium, Potassium
ME4SD4	Barium, Potassium
ME4SD5	Barium, Potassium
ME4SD6	Barium, Potassium
ME4SD7	Barium, Potassium
ME4SD9	Barium, Potassium
ME4SE0	Barium, Potassium
ME4SE1	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

For the laboratory duplicate, the RPD for aluminum and manganese exceeded the quality control QC limits. Interferences are suspected.

Metal analytes	ME4SC5 mg/kg	ME4SC6 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Aluminum	8520	8370	Y	1.8	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	5.9	4.9	N	-	1	=2xCRQL
Barium	122	111	N	-	11	=2xCRQL
Beryllium	0.44	0.44	NA	NA	NA	NA
Cadmium	3.6	3.2	N	-	0.4	=2xCRQL
Calcium	90100	94500	Y	4.8	-	-
Chromium	72	54.6	Y	27.5	-	-
Cobalt	7.6	6.7	NA	NA	NA	NA
Copper	55	49.9	Y	9.7	-	-
Iron	17500	15500	Y	12.1	-	-
Lead	163	163	Y	0	-	-
Magnesium	33000	34200	Y	3.6	-	-
Manganese	497	495	Y	0.4	-	-
Mercury	0.31	0.27	N	-	0.04	=2xCRQL
Nickel	33	21.3	N	-	11.7	>2xCRQL
Potassium	1000	993	N	-	7	=2xCRQL
Selenium	2.8	2.5	NA	NA	NA	NA
Silver	0.69	ND	N	-	0.02	=2xCRQL
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	20.2	19.6	N	-	0.6	=2xCRQL
Zinc	265	236	Y	11.6	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

6. ICP ANALYSIS

The percent difference for aluminum exceeded the QC limits in the serial dilution. Interferences are suspected.

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SC3 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SB9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following inorganic sample has analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4SB9	Calcium
ME4SC0	Calcium
ME4SC2	Calcium
ME4SC3	Calcium
ME4SC4	Calcium
ME4SC5	Calcium
ME4SC6	Calcium
ME4SC7	Calcium
ME4SC8	Calcium
ME4SC9	Calcium
ME4SD0	Calcium
ME4SD2	Calcium
ME4SD3	Calcium
ME4SD4	Calcium
ME4SD5	Calcium
ME4SD6	Calcium
ME4SD7	Calcium
ME4SD9	Calcium
ME4SE0	Calcium
ME4SE1	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD. The following inorganic samples have analyte concentrations reported below the CRQL and are qualified "J".

ME4SB9	Antimony, Cadmium, Cobalt, Mercury, Potassium,
ME4SC0	Cadmium, Cobalt, Mercury, Potassium
ME4SC2	Cobalt, Mercury, Potassium
ME4SC3	Antimony, Beryllium, Cadmium, Mercury, Selenium
ME4SC4	Cobalt, Mercury, Potassium, Selenium
ME4SC5	Beryllium, Cobalt, Selenium, Silver

ME4SC6	Beryllium, Cobalt, Selenium
ME4SC7	Antimony, Beryllium, Cobalt, Selenium, Silver
ME4SC8	Cobalt, Potassium
ME4SC9	Cobalt, Mercury, Potassium
ME4SD0	Cobalt, Mercury, Potassium
ME4SD2	Antimony, Barium, Cobalt, Mercury, Potassium
ME4SD3	Antimony, Beryllium, Cadmium, Mercury, Selenium
ME4SD4	Barium, Cobalt, Mercury, Nickel, Potassium
ME4SD5	Cadmium, Cobalt, Mercury, Potassium
ME4SD6	Antimony, Barium, Cobalt, Mercury, Potassium
ME4SD7	Antimony, Beryllium, Cadmium, Mercury, Selenium
ME4SD9	Cobalt, Mercury, Potassium, Selenium
ME4SE0	Beryllium, Cobalt, Selenium, Silver
ME4SE1	Beryllium, Cobalt, Selenium, Silver

Case Number: 39494 SDG Number: ME4SB9
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/09/2010

SUBJECT: Review of Data
Received for Review on: 3/30/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 SDG Number: ME4SC1

Number and Type of Samples: 7 Sediment Samples (Metals)

Sample Numbers: ME4SC1, ME4SG0, ME4SG1, ME4SG2, ME4SG3, ME4SG4, ME4SG7

Laboratory: A4 Scientific

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Seven (7) sediment samples labeled ME4RX7, ME4RX8, ME4RX9 ME4RY0, and ME4RY were shipped to A4 Scientific, Inc. All seven samples were collected on March 5, 2010, and were received at the facility at 4 °C on March 6, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SC1 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4SG1/ME4SG4 as a field duplicate pair.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found.

3. BLANKS

No defects were found.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SC1	Barium, Potassium
ME4SG0	Barium, Potassium
ME4SG1	Barium, Potassium
ME4SG2	Barium, Potassium
ME4SG3	Barium, Potassium
ME4SG4	Barium, Potassium
ME4SG7	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found with the laboratory duplicate analysis.

Metal analytes	ME4SG1 mg/kg	ME4SG4 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Aluminum	5050	5920	Y	15.9	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.2	7.9	N	-	4.7	>4xCRQL
Barium	73.1	109	N	-	35.9	≤2xCRQL
Beryllium	0.31	0.39	NA	NA	NA	NA
Cadmium	1.1	2.1	N	-	1	≤2xCRQL
Calcium	84700	77100	Y	9.4	-	-
Chromium	26.8	33.8	Y	23.1	-	-
Cobalt	5.3	6.1	NA	NA	NA	NA
Copper	25.3	29	Y	13.6	-	-
Iron	11300	15300	Y	30.1	-	-
Lead	59.9	127	Y	71.8	-	-

Metal analytes	ME4SG1 mg/kg	ME4SG4 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Magnesium	36200	37400	Y	3.3	-	-
Manganese	363	460	Y	23.6	-	-
Mercury	0.067	0.16	N	-	0.09	≤2xCRQL
Nickel	14.2	15.7	N	-	1.5	≤2xCRQL
Potassium	620	719	N	-	99	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	16.2	21.8	N	-	5.6	≤2xCRQL
Zinc	128	171	Y	28.8	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

The following inorganic sample/field duplicate pair has results > 5×CRQL and RPD ≥ 35% but < 120%. These results are qualified "J."

ME4SG1/ME4SG4 Lead

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SG7 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SC1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SG0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SG1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SG2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

No defects were found for the ICP serial dilution.

7. SAMPLE RESULTS

The following inorganic sample has analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4SC1	Calcium
ME4SG0	Calcium
ME4SG1	Calcium
ME4SG2	Calcium
ME4SG3	Calcium
ME4SG4	Calcium
ME4SG7	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the CRQL and are qualified "J".

ME4SC1	Beryllium, Cobalt
ME4SG0	Cobalt, Mercury
ME4SG1	Beryllium
ME4SG2	Cadmium, Cobalt

ME4SG3	Cobalt
ME4SG4	Beryllium, Cobalt
ME4SG7	Beryllium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/8/2010

SUBJECT: Review of Data
Received for Review on: 3/30/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4SE2

Number and Type of Samples: 17 Sediment Samples (Metals)

Sample Numbers: ME4SE2, ME4SE3, ME4SE4, ME4SE5, ME4SE6, ME4SE7, ME4SE8, ME4SE9, ME4SF0, ME4SF1, ME4SF2, ME4SF3, ME4SF4, ME4SF5, ME4SF6, ME4SF7, ME4SF8

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Seventeen (17) sediment samples labeled ME4SE2 - ME4SE9 and ME4SF0 - ME4SF8 were shipped to A4 Scientific, Inc. Thirteen of the seventeen samples were collected on 3/4/2010 and the remaining four samples were collected on 3/5/2010. All seventeen (17) samples were received on 3/6/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SE2 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4SE1/ME4SE2 as a field duplicate pair. Sample ME4SE1, the field duplicate for ME4SE2, was analyzed in SDG ME4SB9 and is qualified based on any QC failures in that SDG (as detailed in the data review report for SDG ME4SB9). Sample ME4SE2 was analyzed in the SDG reported here. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.”

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample.

The laboratory noted that the chain-of-custody only specified analysis of “total metals.” EPA directed that the laboratory also perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, ‘J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No defects were found for the calibration blanks or preparation blank

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SE2	Barium, Potassium
ME4SE3	Barium, Potassium
ME4SE4	Barium, Potassium
ME4SE5	Barium, Potassium
ME4SE6	Barium, Potassium
ME4SE7	Barium
ME4SE8	Barium
ME4SE9	Barium
ME4SF0	Barium, Potassium
ME4SF1	Barium, Potassium
ME4SF2	Barium, Potassium
ME4SF3	Barium, Potassium
ME4SF4	Barium, Potassium
ME4SF5	Barium, Potassium
ME4SF6	Barium, Potassium
ME4SF7	Barium, Potassium
ME4SF8	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Sample ME4SE1, field duplicate for ME4SE2, was analyzed in SDG ME4SB9 and is qualified based on any QC failures in that SDG (as detailed in the data review report for SDG ME4SB9).

The following table contains data for a sample/field duplicate pair in this SDG.

Metal Analytes	ME4SE1 (mg/kg)	ME4SE2 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	7300	6090	Y	18.1	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	6.6	6.5	N	-	0.1	≤2xCRQL
Barium	116	107	N	-	9	≤2xCRQL
Beryllium	0.38	0.38	NA	NA	NA	NA
Cadmium	3.1	2.8	N	-	0.3	≤2xCRQL
Calcium	79400	72900	Y	8.5	-	-
Chromium	81	59.4	Y	30.8	-	-
Cobalt	6.5	6.8	NA	NA	NA	NA
Copper	52.9	45	Y	16.1	-	-
Iron	15300	12600	Y	19.4	-	-
Lead	170	166	Y	2.4	-	-
Magnesium	32800	30200	Y	8.3	-	-
Manganese	519	525	Y	1.1	-	-
Mercury*	NA	NA	NA	NA	NA	NA
Nickel	25.7	22.8	N	-	2.9	≤2xCRQL
Potassium	902	762	N	-	140	≤2xCRQL
Selenium	3.2	ND	N	-	1.2	≤2xCRQL
Silver	1.6	ND	N	-	0.99	≤2xCRQL
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	18.2	18.8	N	-	0.6	≤2xCRQL
Zinc	239	215	Y	10.6	-	-

*CSC was unable to locate data for mercury in SDG ME4SB9 for sample **ME4SE1** for this field duplicate comparison.

6. ICP ANALYSIS

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. .

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SE2 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE3 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE7 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE8 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4SE3	Calcium
ME4SE4	Calcium
ME4SE5	Calcium

ME4SE6	Calcium
ME4SE7	Calcium
ME4SE8	Calcium
ME4SE9	Calcium
ME4SF0	Calcium
ME4SF1	Calcium
ME4SF2	Calcium
ME4SF3	Calcium
ME4SF4	Calcium
ME4SF6	Calcium
ME4SF7	Calcium
ME4SF8	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL).

All results below the CRQL are qualified "J".

ME4SE2	Beryllium, Cobalt, Potassium
ME4SE3	Mercury, Potassium
ME4SE4	Cobalt, Mercury, Potassium
ME4SE5	Beryllium, Cobalt, Potassium
ME4SE6	Cobalt, Potassium
ME4SE7	Antimony, Arsenic, Barium, Cadmium, Cobalt, Mercury, Nickel
ME4SE8	Arsenic, Barium, Cobalt, Copper, Mercury, Nickel
ME4SE9	Antimony, Arsenic, Barium, Cobalt, Copper, Mercury, Nickel
ME4SF0	Antimony, Arsenic, Barium, Cobalt, Mercury, Nickel, Potassium
ME4SF1	Cadmium, Cobalt, Mercury, Nickel, Potassium
ME4SF2	Cobalt, Potassium
ME4SF3	Cobalt, Potassium
ME4SF4	Cobalt, Mercury, Potassium
ME4SF5	Antimony, Beryllium, Silver
ME4SF6	Barium, Cadmium, Cobalt, Mercury, Potassium
ME4SF7	Barium, Cobalt, Mercury, Potassium
ME4SF8	Beryllium, Cadmium, Mercury

Case Number: 39494
SDG Number: ME4SE2
Site Name: Lincoln Park
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/8/2010

SUBJECT: Review of Data
Received for Review on: 3/30/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4SG5

Number and Type of Samples: 2 Water Samples (Metals)

Sample Numbers: ME4SG5, ME4SG6

Laboratory: A4 Scientific, Inc.:

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Two (2) water samples labeled ME4SG5, and ME4SG6 were shipped to A4 Scientific, Inc. Both water samples were collected on 3/5/2010, and were received at the facility on 3/6/2010, intact, and at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As per the scheduling notification lab QC (i.e., matrix spike, duplicate, and serial dilution) was not required for these two water samples. Because these samples are equipment blanks, no samples were designated to be used for laboratory QC.

No field duplicates were collected for this SDG.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-“. In the special case where a result is affected by a “J+” and a “J-“ flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is ≥ MDL, but ≤ CRQL. The detected sample results are also ≥ MDL, but ≤ CRQL and are qualified "U" and the sample results are raised to the CRQL.

ME4SG5 Mercury
ME4SG6 Mercury

The following inorganic samples are associated with an CCB concentration which is ≥ MDL, but ≤ CRQL. The detected sample results are also ≥ MDL, but ≤ CRQL and are qualified "U" and the sample results are raised to the CRQL.

ME4SG5 Mercury
ME4SG6 Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic samples were found in the SMO NFG report to have aqueous laboratory control sample percent recoveries above the upper limit of the expanded criteria. We were unable to confirm that the recoveries were above the upper limit of the expanded criteria and therefore no sample results are qualified based on this issue.

ME4SG5 Mercury
ME4SG6 Mercury

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

6. ICP ANALYSIS

No defects were found for the ICP analysis.

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".
ME4SG5 Mercury
ME4SG6 Mercury

Case Number: 39494
SDG Number: ME4SG5
Site Name: Lincoln Park
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/10/2010

SUBJECT: Review of Data
Received for Review on: 5/6/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: NA SDG Number: ME4SG8

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SG8, ME4SG9, ME4SH0, ME4SH1, ME4SH2, ME4SH3, ME4SH4, ME4SH5, ME4SH6. ME4SH7, ME4SH8, ME4SH9, ME4SJ0, ME4SJ1, ME4SJ2, ME4SJ3, ME4SJ4, ME4SJ5, ME4SJ6, ME4SJ7

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SG8-ME4SG9, ME4SH0-ME4SH9, and ME4SJ0-ME4SJ7 were shipped to Bonner Analytical Testing Company. All twenty sediment samples were collected on 4/14/2010. Samples ME4SG80-ME4SG9 and ME4SH0-ME4SH3 were received at the facility on 4/15/2010, intact at 4 °C, and samples ME4SH4-ME4SH9 and ME4SJ0-ME4SJ7 were received at the facility on 4/16/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SH9 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SG9/ME4SH0, ME4SH2/ME4SH3, and ME4SJ3/ME4SH4 as a field duplicate pairs. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SG8	Sodium
ME4SG9	Sodium
ME4SH0	Sodium
ME4SH2	Sodium
ME4SJ2	Sodium
ME4SJ5	Sodium

ME4SH1	Potassium, Sodium
ME4SH3	Potassium, Sodium
ME4SH4	Potassium, Sodium
ME4SH5	Potassium, Sodium
ME4SH6	Potassium, Sodium
ME4SH7	Potassium, Sodium
ME4SH8	Potassium, Sodium
ME4SH9	Potassium, Sodium
ME4SJ0	Potassium, Sodium
ME4SJ1	Potassium, Sodium
ME4SJ3	Potassium, Sodium
ME4SJ4	Potassium, Sodium
ME4SJ6	Potassium, Sodium
ME4SJ7	Potassium, Sodium

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SG8	Potassium
ME4SG9	Potassium
ME4SH0	Potassium
ME4SH2	Potassium
ME4SJ2	Potassium
ME4SJ5	Potassium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SG8	Cadmium
ME4SG9	Cadmium
ME4SH0	Cadmium
ME4SH2	Cadmium
ME4SH7	Cadmium
ME4SH8	Cadmium
ME4SH9	Cadmium
ME4SJ5	Cadmium
ME4SJ6	Cadmium
ME4SJ7	Cadmium

ME4SH1	Barium, Cadmium, Nickel, Potassium
ME4SH3	Barium, Cadmium, Nickel, Potassium
ME4SH4	Barium, Cadmium, Nickel, Potassium

ME4SH5	Barium, Cadmium, Potassium

ME4SJ0	Barium, Cadmium
ME4SJ3	Barium, Cadmium
ME4SJ4	Barium, Cadmium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SG8	Barium, Nickel, Potassium, Zinc
ME4SG9	Barium, Nickel, Potassium, Zinc
ME4SH0	Barium, Nickel, Potassium, Zinc
ME4SH2	Barium, Nickel, Potassium, Zinc

ME4SH1	Zinc
ME4SH3	Zinc
ME4SH4	Zinc

ME4SH5	Nickel, Zinc

ME4SH6	Cadmium

ME4SJ1	Barium, Cadmium
ME4SJ2	Barium, Cadmium

ME4SJ5	Barium
ME4SJ6	Barium
ME4SJ7	Barium

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

The following inorganic soil samples are associated with a matrix spike recovery which is outside primary low criteria. Sample results < MDL are flagged “UJ”.

ME4SG8	Antimony

ME4SG9	Antimony
ME4SH0	Antimony
ME4SH1	Antimony
ME4SH2	Antimony
ME4SH3	Antimony
ME4SH4	Antimony
ME4SH5	Antimony
ME4SH6	Antimony
ME4SH7	Antimony
ME4SH8	Antimony
ME4SH9	Antimony
ME4SJ0	Antimony
ME4SJ1	Antimony
ME4SJ2	Antimony
ME4SJ3	Antimony
ME4SJ4	Antimony
ME4SJ5	Antimony
ME4SJ6	Antimony
ME4SJ7	Antimony

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) of ≤ 35%. Associated sample results ≥ CRQL are flagged "J".

ME4SG8	Chromium
ME4SG9	Chromium
ME4SH0	Chromium
ME4SH1	Chromium
ME4SH2	Chromium
ME4SH3	Chromium
ME4SH4	Chromium
ME4SH5	Chromium
ME4SH6	Chromium
ME4SH7	Chromium
ME4SH8	Chromium
ME4SH9	Chromium
ME4SJ0	Chromium
ME4SJ1	Chromium
ME4SJ2	Chromium
ME4SJ3	Chromium
ME4SJ4	Chromium
ME4SJ5	Chromium
ME4SJ6	Chromium
ME4SJ7	Chromium

Samples ME4SG9/ME4SH0, ME4SH2/ME4SH3, and ME4SJ3/ME4SH4 were identified as field duplicates**.** Results are summarized in the following tables.

ME4SG9 and ME4SH0

Metal Analytes	ME4SG9 (mg/kg)	ME4SH0 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	6190	7510	Y	19.3	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	2.6	3.1	N	-	0.5	≤2xCRQL
Barium	41	68.1	N	-	27.1	≤2xCRQL
Beryllium	ND	0.08	N	-	0.03	≤2xCRQL
Cadmium	0.33	0.35	NA	NA	NA	NA
Calcium	76400	81200	Y	6.1	-	-
Chromium	14.7	16.3	Y	10.3	-	-
Cobalt	5.2	5.8	NA	NA	NA	NA
Copper	11.7	18.6	N	-	6.9	>2xCRQL
Iron	9930	10900	Y	9.3	-	-
Lead	8.8	10.1	Y	13.8	-	-
Magnesium	33900	33500	Y	1.2	-	-
Manganese	278	278	Y	0	-	-
Mercury	0.16	0.19	N	-	0.03	≤2xCRQL
Nickel	11.4	13.2	N	-	1.8	≤2xCRQL
Potassium	1500	1900	N	-	400	≤2xCRQL
Selenium	0.96	0.92	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	208	236	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	18.7	21.4	N	-	2.7	≤2xCRQL
Zinc	34.3	38.1	N	-	3.8	≤2xCRQL

ME4SH2 and ME4SH3

Metal Analytes	ME4SH2 (mg/kg)	ME4SH3 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3760	2160	Y	54.1	-	-
Antimony	ND	ND	N	-	0	≤2xCRQL
Arsenic	2.4	1.4	N	-	1	≤2xCRQL
Barium	30.7	15	N	-	15.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.31	0.22	NA	NA	NA	NA
Calcium	22.6	6.3	N	-	16.3	>4xCRQL
Chromium	4.1	2.5	NA	NA	NA	NA
Cobalt	6.4	4.9	N	-	1.5	≤2xCRQL
Copper	8550	5550	Y	42.6	-	-
Iron	7.5	6	N	-	1.5	≤2xCRQL
Lead	38900	57500	Y	38.6	-	-
Magnesium	306	368	Y	18.4	-	-
Manganese	0.18	0.18	N	-	0	≤2xCRQL
Mercury	12.9	4.3	N	-	8.6	>2xCRQL
Nickel	755	437	N	-	318	≤2xCRQL
Potassium	0.83	0.83	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	179	231	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	12.6	10.4	N	-	2.2	≤2xCRQL
Vanadium	34.4	26.9	N	-	7.5	≤2xCRQL
Zinc	3760	2160	Y	54.1	-	-

ME4SJ3 and ME4SJ4

Metal Analytes	ME4SJ3 (mg/kg)	ME4SJ4 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1770	2920	Y	49	-	-
Antimony	ND	ND	N	-	0.1	≤2xCRQL
Arsenic	1.3	1.3	N	-	0	≤2xCRQL
Barium	18.3	18.3	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.24	0.25	NA	NA	NA	NA
Calcium	98200	69300	Y	34.5	-	-
Chromium	7	16.9	Y	82.8	-	-
Cobalt	2.8	3.1	NA	NA	NA	NA
Copper	3.5	6.3	N	-	2.8	≤2xCRQL
Iron	5010	6620	Y	27.7	-	-
Lead	12.8	6.2	Y	69.5	-	-
Magnesium	30700	26800	Y	13.6	-	-
Manganese	225	228	Y	1.3	-	-
Mercury	0.21	0.19	N	-	0.02	≤2xCRQL
Nickel	5	6.2	N	-	1.2	≤2xCRQL
Potassium	325	291	NA	NA	NA	NA
Selenium	0.59	0.56	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	183	141	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	12.5	14.5	N	-	2	≤2xCRQL
Zinc	52.7	49	Y	7.3	-	-

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4SH2/ME4SH3 Aluminum, Copper, Lead, Zinc

ME4SJ3/ME4SJ4 Aluminum, Chromium, Lead

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SG8 Potassium
ME4SG9 Potassium
ME4SH0 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SG8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SJ1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SG8	Beryllium, Cadmium, Selenium, Sodium
ME4SG9	Cadmium, Cobalt, Selenium, Sodium
ME4SH0	Beryllium, Cadmium, Cobalt, Selenium, Sodium
ME4SH1	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SH2	Cadmium, Cobalt, Selenium, Sodium
ME4SH3	Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SH4	Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SH5	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SH6	Cobalt, Potassium, Selenium, Sodium
ME4SH7	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SH8	Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium

ME4SH9	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ0	Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Selenium, Sodium
ME4SJ1	Cobalt, Potassium, Selenium, Sodium
ME4SJ2	Beryllium, Cobalt, Selenium, Sodium
ME4SJ3	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ4	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ5	Cadmium, Cobalt, Selenium, Sodium
ME4SJ6	Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ7	Cadmium, Cobalt, Potassium, Selenium, Sodium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/24/2010

SUBJECT: Review of Data
Received for Review on: May 6, 2010

FROM: Sarah Bentley
Environmental Analyst

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 SDG Number: ME4SJ8

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SJ8, ME4SJ9, ME4SK0, ME4SK1, ME4SK2, ME4SK3, ME4SK4, ME4SK5, ME4SK6, ME4SK8, ME4SK9, ME4SK9D, ME4SK9S, ME4SL0, ME4SL1, ME4SL2, ME4SL3, ME4SL4, ME4SL5, ME4SL6, ME4SL7, ME4SL8

Laboratory: Bonner Analytical Testing

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SJ8, ME4SJ9, ME4SK0 - ME4SK9, ME4SK9D, ME4SK9S, and ME4SL0 - ME4SL8 were shipped to Bonner Analytical Testing Company. The samples were collected on April 14, 2010 and April 15, 2010, and were received at the facility on April 16, 2010, intact, and at 4 °C

Sample Analysis and Data Review: The sample was analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SK9 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SL2/ME4L3 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1 and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.”

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SJ8	Potassium
ME4SJ9	Potassium
ME4SK0	Potassium
ME4SK2	Potassium
ME4SK3	Potassium
ME4SK4	Potassium
ME4SK5	Potassium
ME4SK6	Potassium
ME4SK8	Potassium
ME4SK9	Potassium
ME4SL0	Potassium
ME4SL2	Potassium
ME4SL3	Potassium
ME4SL4	Potassium
ME4SL5	Potassium
ME4SL6	Potassium
ME4SL7	Potassium
ME4SL8	Potassium

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SK1	Potassium
ME4SL1	Potassium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SK6	Barium
ME4SK8	Barium
ME4SL2	Barium, Cadmium
ME4SL3	Barium, Cadmium
ME4SL4	Barium, Cadmium
ME4SL5	Barium, Cadmium
ME4SL7	Barium, Cadmium

ME4SL6 Cadmium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SK9 Barium
ME4SL0 Barium, Cadmium
ME4SL1 Barium, Cadmium
ME4SL6 Barium
ME4SL8 Barium, Cadmium

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4SJ8 Mercury
ME4SJ9 Mercury
ME4SK0 Mercury
ME4SK1 Mercury
ME4SK2 Mercury
ME4SK3 Mercury
ME4SK4 Mercury
ME4SK5 Mercury
ME4SK6 Mercury
ME4SK8 Mercury
ME4SK9 Mercury
ME4SL0 Mercury
ME4SL1 Mercury
ME4SL2 Mercury
ME4SL3 Mercury
ME4SL4 Mercury
ME4SL5 Mercury
ME4SL6 Mercury
ME4SL7 Mercury
ME4SL8 Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

The following inorganic samples are associated with a matrix spike recovery which is outside of the expanded low criteria. Sample results > MDL are flagged "J", and sample results ≤ MDL are flagged "UJ".

ME4SJ8 Antimony
ME4SJ9 Antimony
ME4SK0 Antimony
ME4SK1 Antimony
ME4SK2 Antimony
ME4SK3 Antimony
ME4SK4 Antimony
ME4SK5 Antimony

ME4SK6	Antimony
ME4SK8	Antimony
ME4SK9	Antimony
ME4SL0	Antimony
ME4SL1	Antimony
ME4SL2	Antimony
ME4SL3	Antimony
ME4SL4	Antimony
ME4SL5	Antimony
ME4SL6	Antimony
ME4SL7	Antimony
ME4SL8	Antimony

The following inorganic samples are associated with a matrix spike recovery which is outside of the primary low criteria. However, post-digest spike recovery was more than or equal to the low limit. Sample results > MDL are flagged "J".

ME4SJ8	Chromium, Zinc
ME4SJ9	Chromium, Zinc
ME4SK0	Chromium, Zinc
ME4SK1	Chromium, Zinc
ME4SK2	Chromium, Zinc
ME4SK3	Chromium, Zinc
ME4SK4	Chromium, Zinc
ME4SK5	Chromium, Zinc
ME4SK6	Chromium, Zinc
ME4SK8	Chromium, Zinc
ME4SK9	Chromium, Zinc
ME4SL0	Chromium, Zinc
ME4SL1	Chromium, Zinc
ME4SL2	Chromium, Zinc
ME4SL3	Chromium, Zinc
ME4SL4	Chromium, Zinc
ME4SL5	Chromium, Zinc
ME4SL6	Chromium, Zinc
ME4SL7	Chromium, Zinc
ME4SL8	Chromium, Zinc

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) of ≤ 35%. Associated sample results ≥ CRQL are flagged "J".

ME4SJ8	Lead, Zinc
ME4SJ9	Lead, Zinc
ME4SK0	Lead, Zinc
ME4SK1	Lead, Zinc
ME4SK2	Lead, Zinc
ME4SK3	Lead, Zinc

ME4SK4	Lead, Zinc
ME4SK5	Lead, Zinc
ME4SK6	Lead, Zinc
ME4SK8	Lead, Zinc
ME4SK9	Lead, Zinc
ME4SL0	Lead, Zinc
ME4SL1	Lead, Zinc
ME4SL2	Lead, Zinc
ME4SL3	Lead, Zinc
ME4SL4	Lead, Zinc
ME4SL5	Lead, Zinc
ME4SL6	Lead, Zinc
ME4SL7	Lead, Zinc
ME4SL8	Lead, Zinc

Samples ME4SL2/ME4SL3 were identified as a field duplicate pair. Results are summarized in the following table:

ME4SL2 and ME4SL3

Metal	ME4SL2 (mg/kg)	ME4SL3 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1610	1240	Y	26	-	-
Antimony	ND	ND	N	-	0	≤2xCRQL
Arsenic	0.89	1	NA	NA	NA	NA
Barium	23.6	23.8	N	-	0.2	≤2xCRQL
Beryllium	0.057	0.065	NA	NA	NA	NA
Cadmium	0.59	0.59	N	-	0	≤2xCRQL
Calcium	75700	82000	Y	8	-	-
Chromium	8.1	7.6	Y	6.4	-	-
Cobalt	2.4	2.3	NA	NA	NA	NA
Copper	4.8	4.6	N	-	0.2	≤2xCRQL
Iron	4020	3560	Y	12.1	-	-
Lead	10.8	15.9	Y	38.2	-	-
Magnesium	34500	34900	Y	1.2	-	-
Manganese	272	227	Y	18	-	-
Mercury	ND	0.058	N	-	0.01	≤2xCRQL
Nickel	4	3.3	NA	NA	NA	NA
Potassium	590	594	N	-	4	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	134	147	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	5.4	5.5	NA	NA	NA	NA
Zinc	30.4	23.3	N	-	7.1	≤2xCRQL

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4SL2/ME4SL3 Lead

6. ICP ANALYSIS

The following inorganic samples are associated with an ICP serial dilution percent difference which is > 10% but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4SJ8	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SJ9	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK0	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK1	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK2	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK3	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK4	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK5	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK6	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK8	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK9	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL0	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL1	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL2	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL3	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL4	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL5	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL6	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL7	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL8	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SJ8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SL1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SJ8	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SJ9	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK0	Beryllium, Cobalt, Mercury, Sodium
ME4SK1	Beryllium, Cobalt, Silver, Sodium
ME4SK2	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK3	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK4	Arsenic, Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK5	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK6	Arsenic, Beryllium, Cadmium, Cobalt, Nickel, Sodium
ME4SK8	Beryllium, Cadmium, Cobalt, Mercury, Sodium, Vanadium
ME4SK9	Beryllium, Cobalt, Mercury, Sodium
ME4SK9D	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SL0	Beryllium, Cobalt, Mercury, Sodium
ME4SL1	Beryllium, Cobalt, Sodium

ME4SL2	Arsenic, Beryllium, Cobalt, Nickel, Sodium, Vanadium
ME4SL3	Arsenic, Beryllium, Cobalt, Mercury, Nickel, Sodium, Vanadium
ME4SL4	Arsenic, Beryllium, Cobalt, Mercury, Nickel, Sodium, Vanadium
ME4SL5	Beryllium, Cobalt, Mercury, Nickel, Sodium, Vanadium
ME4SL6	Beryllium, Cobalt, Mercury, Sodium
ME4SL7	Arsenic, Beryllium, Cobalt, Nickel, Sodium, Vanadium
ME4SL8	Beryllium, Cobalt, Mercury, Sodium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 06/18/2010

SUBJECT: Review of Data
Received for Review on: 05/10/2010

FROM: Joshua Vinson
Environmental Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: NA SDG Number: ME4SL9

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SL9, ME4SM0, ME4SM1, ME4SM2, ME4SM3, ME4SM4, ME4SM5, ME4SM6, ME4SM7, ME4SM8, ME4SM9, ME4SN0, ME4SN1, ME4SN2, ME4SN3, ME4SN4, ME4SN5, ME4SN6, ME4SN7, ME4SN8

Laboratory: Bonner Analytical Testing Co.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SL, ME4SM0-ME4SM9, and ME4SN0-ME4SN8 were shipped to Bonner Analytical Testing Co. Six (6) samples labeled ME4SL, ME4SM0-ME4SM4 were collected on 04/15/2010 and were received at the facility on 04/16/2010, intact and at 4 °C. Fourteen (14) samples labeled ME4SM5-ME4SM9 and ME4SN0-ME4SN8 were collected on 04/15/2010 and were received at the facility on 04/17/2010, intact and at 4 °C

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, sample ME4SM9 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SM0/ME4SM, ME4SM6/ME4SM71 and ME4SN5/ME4SN6 as field duplicate pairs. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1a and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.”

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. Samples > CRQL are qualified "J-". Samples < MDL are qualified "UJ-".

ME4SL9	Mercury
ME4SM0	Mercury
ME4SM1	Mercury
ME4SM2	Mercury
ME4SM3	Mercury
ME4SM4	Mercury
ME4SM5	Mercury
ME4SM6	Mercury
ME4SM7	Mercury
ME4SM8	Mercury
ME4SM9	Mercury
ME4SN0	Mercury
ME4SN1	Mercury
ME4SN2	Mercury
ME4SN3	Mercury
ME4SN4	Mercury
ME4SN5	Mercury
ME4SN6	Mercury
ME4SN7	Mercury
ME4SN8	Mercury

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. Samples > CRQL are qualified "J-". Samples < MDL are qualified "UJ-".

ME4SL9	Mercury
ME4SM0	Mercury
ME4SM1	Mercury
ME4SM2	Mercury
ME4SM3	Mercury
ME4SM4	Mercury
ME4SM5	Mercury
ME4SM6	Mercury
ME4SM7	Mercury
ME4SM8	Mercury
ME4SM9	Mercury
ME4SN0	Mercury

ME4SN1	Mercury
ME4SN2	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found with the lab control sample. The following inorganic samples are associated with a matrix spike recovery outside primary high criteria. Post-digest spike sample was either not required or it was required but not analyzed. Hits are qualified "J+".

ME4SM4	Mercury
ME4SM5	Mercury
ME4SM6	Mercury
ME4SM9	Mercury
ME4SN2	Mercury
ME4SN3	Mercury
ME4SN4	Mercury
ME4SN5	Mercury
ME4SN7	Mercury

The following inorganic samples are associated with a matrix spike recovery which is outside primary low criteria. Non-detects are flagged "UJ".

ME4SL9	Selenium
ME4SM0	Selenium
ME4SM1	Selenium
ME4SM2	Selenium
ME4SM3	Selenium
ME4SM4	Selenium
ME4SM5	Selenium
ME4SM6	Selenium
ME4SM7	Selenium
ME4SM8	Selenium
ME4SM9	Selenium
ME4SN0	Selenium
ME4SN1	Selenium
ME4SN2	Selenium
ME4SN3	Selenium
ME4SN4	Selenium
ME4SN5	Selenium
ME4SN6	Selenium
ME4SN7	Selenium
ME4SN8	Selenium

The following inorganic samples are associated with a matrix spike recovery which is outside primary low criteria. However, post-digest spike percent recovery was more than or equal to the low limit. Detects are flagged "J".

ME4SL9	Cobalt, Nickel
ME4SM0	Cobalt, Nickel
ME4SM1	Cobalt, Nickel
ME4SM2	Cobalt, Nickel

ME4SM3	Cobalt, Nickel
ME4SM4	Cobalt, Nickel
ME4SM5	Cobalt, Nickel
ME4SM6	Cobalt, Nickel
ME4SM7	Cobalt, Nickel
ME4SM8	Cobalt, Nickel
ME4SM9	Cobalt, Nickel
ME4SN0	Cobalt, Nickel
ME4SN1	Cobalt, Nickel
ME4SN2	Cobalt, Nickel
ME4SN3	Cobalt, Nickel
ME4SN4	Cobalt, Nickel
ME4SN5	Cobalt, Nickel
ME4SN6	Cobalt, Nickel
ME4SN7	Cobalt, Nickel
ME4SN8	Cobalt, Nickel

The following inorganic samples are associated with a matrix spike recovery which is outside expanded low criteria. Post-digest spike percent recovery was also less than the low limit. Detects are flagged "J-" and non-detects are flagged "R".

ME4SL9	Antimony
ME4SM0	Antimony
ME4SM1	Antimony
ME4SM2	Antimony
ME4SM3	Antimony
ME4SM4	Antimony
ME4SM5	Antimony
ME4SM6	Antimony
ME4SM7	Antimony
ME4SM8	Antimony
ME4SM9	Antimony
ME4SN0	Antimony
ME4SN1	Antimony
ME4SN2	Antimony
ME4SN3	Antimony
ME4SN4	Antimony
ME4SN5	Antimony
ME4SN6	Antimony
ME4SN7	Antimony
ME4SN8	Antimony

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

The following tables contain data for a field duplicate pair in this SDG.

ME4SM0 and ME4SM1

Metal	ME4SM0 (mg/kg)	ME4SM1 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	908	933	Y	2.7	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	0.88	1	NA	NA	NA	NA
Barium	11.4	15	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.084	0.11	NA	NA	NA	NA
Chromium	3.4	3.6	N	-	0.2	≤2xCRQL
Cobalt	1.5	1.5	NA	NA	NA	NA
Copper	1.9	2	NA	NA	NA	NA
Iron	2600	2920	Y	11.6	-	-
Lead	6	5.1	N	-	0.9	≤2xCRQL
Magnesium	32600	31200	Y	4.4	-	-
Manganese	197	226	Y	13.7	-	-
Mercury	ND	ND	NA	NA	NA	NA
Nickel	2.3	2.4	NA	NA	NA	NA
Potassium	151	190	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.1	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	108	121	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	3.7	5.4	N	-	1.7	≤2xCRQL
Zinc	18	42.5	N	-	24.5	>4xCRQL

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

ME4SM6 and ME4SM7

Metal	ME4SM6 (mg/kg)	ME4SM7 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3700	2710	Y	30.9	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	3.1	3.1	N	-	0	≤2xCRQL
Barium	43.7	34.8	N	-	8.9	≤2xCRQL
Beryllium	0.17	0.13	NA	NA	NA	NA
Cadmium	0.31	0.31	NA	NA	NA	NA
Calcium	80200	77000	Y	4.1	-	-
Chromium	15	12.4	Y	19	-	-
Cobalt	3.9	3.5	NA	NA	NA	NA
Copper	11.2	9	N	-	2.2	≤2xCRQL
Iron	6560	6020	Y	8.6	-	-
Lead	18	17	Y	5.7	-	-
Magnesium	31100	31000	Y	0.3	-	-
Manganese	392	334	Y	16	-	-
Mercury	0.068	ND	N	-	0.02	≤2xCRQL
Nickel	9.1	7.7	N	-	1.4	≤2xCRQL

Metal	ME4SM6 (mg/kg)	ME4SM7 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Potassium	523	423	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.1	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	155	136	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.4	8.8	N	-	1.6	≤2xCRQL
Zinc	46.1	71.6	Y	43.3	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

ME4SN5 and ME4SN6

Metal	ME4SN5 (mg/kg)	ME4SN6 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1590	1510	Y	5.2	-	-
Antimony	ND	ND	N	-	0	≤2xCRQL
Arsenic	1.2	1.2	NA	NA	NA	NA
Barium	32.9	19.5	N	-	13.4	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.41	0.2	NA	NA	NA	NA
Calcium	74100	70700	Y	4.7	-	-
Chromium	9.5	10.4	Y	9	-	-
Cobalt	2.5	2.4	NA	NA	NA	NA
Copper	6.8	17.3	N	-	10.5	>4xCRQL
Iron	4060	3720	Y	8.7	-	-
Lead	27.5	20.2	Y	30.6	-	-
Magnesium	31600	29000	Y	8.6	-	-
Manganese	212	198	Y	6.8	-	-
Mercury	0.078	ND	N	-	0.02	≤2xCRQL
Nickel	5.1	3.8	NA	NA	NA	NA
Potassium	258	252	NA	NA	NA	NA
Selenium	ND	ND	N	-	0	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	133	128	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	7.2	5.3	N	-	1.9	≤2xCRQL
Zinc	47.8	46.5	Y	2.8	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

The following inorganic sample/field duplicate pairs have a result > 5xCRQL and an absolute difference ≥ 4xCRQL. These results are qualified “R”.

ME4SM0/ ME4SM1 Zinc

ME4SN5/ ME4SN6 Copper

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results were qualified based on this issue.

ME4SM4	Potassium
ME4SN7	Sodium

The following inorganic samples have one or more interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥MDL for all analytes (except mercury) are qualified "J+". Results <MDL are not qualified.

ME4SL9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SM8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SL9	Barium, Beryllium, Cadmium, Cobalt, Sodium
ME4SM3	Barium, Beryllium, Cadmium, Cobalt, Sodium

ME4SM0	Arsenic, Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Sodium, Vanadium
ME4SM1	Arsenic, Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Sodium
ME4SN5	Arsenic, Cadmium, Cobalt, Mercury, Nickel, Potassium, Sodium
ME4SM2	Beryllium, Cadmium, Cobalt, Sodium
ME4SM4	Beryllium, Cobalt, Mercury, Sodium
ME4SM5	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SM6	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SN2	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SM7	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SM8	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SN0	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SN1	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SN8	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SM9	Beryllium, Cobalt, Potassium, Silver, Sodium
ME4SN3	Beryllium, Cobalt, Potassium, Sodium
ME4SN4	Beryllium, Cobalt, Potassium, Sodium
ME4SN6	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium, Vanadium
ME4SN7	Beryllium, Cobalt

8. Serial Dilution

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in criteria. The detected serial dilution result is less than the initial sample result. Hits are qualified "J" and non-detects are qualified "UJ".

ME4SL9	Arsenic
ME4SM0	Arsenic
ME4SM1	Arsenic
ME4SM2	Arsenic
ME4SM3	Arsenic
ME4SM4	Arsenic
ME4SM5	Arsenic
ME4SM6	Arsenic
ME4SM7	Arsenic
ME4SM8	Arsenic
ME4SM9	Arsenic
ME4SN0	Arsenic
ME4SN1	Arsenic
ME4SN2	Arsenic
ME4SN3	Arsenic
ME4SN4	Arsenic

ME4SN5	Arsenic
ME4SN6	Arsenic
ME4SN7	Arsenic
ME4SN8	Arsenic

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in criteria. The serial dilution result is greater than the sample result, indicating a potential negative interference. Hits are qualified "J-" and non-detects are qualified "UJ-".

ME4SL9	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM0	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM1	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM2	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM3	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM4	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM5	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM6	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM7	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM8	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM9	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN0	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN1	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN2	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN3	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN4	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN5	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN6	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN7	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN8	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/14/2010

SUBJECT: Review of Data
Received for Review on: 5/11/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: NA SDG Number: ME4SN9

Number and Type of Samples: 17 Sediment Samples (Metals)

Sample Numbers: ME4SN9, ME4SP0, ME4SP1, ME4SP2, ME4SP3, ME4SP4, ME4SP5, ME4SP6, ME4SP7. ME4SP8, ME4SP9, ME4SQ0, ME4SQ1, ME4SQ2, ME4SQ3, ME4SQ4, ME4SQ5

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Seventeen (17) sediment samples labeled ME4SN9, ME4SP0-ME4SP9, and ME4SQ0-ME4SQ5 were shipped to Bonner Analytical Testing Company. All seventeen sediment samples were collected on 4/16/2010 and were received at the facility on 4/17/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SP6 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SP0/ME4SP1 and ME4SP8/ME4SP9 as a field duplicate pairs. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SN9	Potassium, Sodium
ME4SP0	Potassium, Sodium
ME4SP1	Potassium, Sodium
ME4SP2	Potassium, Sodium
ME4SP3	Potassium, Sodium
ME4SP4	Potassium, Sodium
ME4SP5	Potassium, Sodium
ME4SQ2	Potassium, Sodium
ME4SP6	Antimony, Sodium
ME4SQ1	Potassium
ME4SP7	Sodium
ME4SP8	Sodium
ME4SP9	Sodium
ME4SQ0	Sodium
ME4SQ3	Sodium
ME4SQ4	Sodium
ME4SQ5	Sodium

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SP6	Potassium
ME4SP7	Potassium
ME4SP8	Potassium
ME4SP9	Potassium
ME4SQ0	Potassium
ME4SQ3	Potassium
ME4SQ4	Potassium
ME4SQ5	Potassium
ME4SQ1	Sodium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SN9	Barium, Potassium

ME4SP0	Barium, Potassium
ME4SP1	Barium, Potassium
ME4SP3	Barium, Potassium
ME4SP4	Barium, Potassium
ME4SP2	Potassium
ME4SP5	Potassium
ME4SP6	Antimony

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SN9	Iron
ME4SP0	Iron
ME4SP1	Iron
ME4SP3	Iron
ME4SP4	Iron
ME4SP2	Barium, Iron
ME4SP5	Barium, Iron
ME4SP6	Barium, Iron, Potassium
ME4SP7	Barium
ME4SP8	Barium
ME4SP9	Barium
ME4SQ0	Barium

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

The following inorganic soil samples are associated with a matrix spike recovery which is outside of the expanded low criteria. Sample results > MDL are flagged "J", and sample results ≤ MDL are flagged "UJ".

ME4SN9	Antimony
ME4SP0	Antimony
ME4SP1	Antimony
ME4SP2	Antimony
ME4SP3	Antimony
ME4SP4	Antimony
ME4SP5	Antimony
ME4SP7	Antimony
ME4SP8	Antimony
ME4SP9	Antimony
ME4SQ0	Antimony
ME4SQ1	Antimony
ME4SQ2	Antimony
ME4SQ3	Antimony
ME4SQ4	Antimony
ME4SQ5	Antimony

The following inorganic sample results are associated with a matrix spike recovery which is below low criteria. However, the sample result is also associated with a blank contamination, for

which it has been qualified "U" and its result raised to the CRQL. Therefore, the result for this sample was not further qualified for the matrix spike recovery.

ME4SP6 Antimony

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results that have an absolute difference (AD) of greater than 2X the CRQL between the sample and duplicate values. Associated sample results ≥ MDL and < 5X CRQL are flagged "J" and samples < MDL are flagged "UJ".

ME4SN9 Mercury
ME4SP0 Mercury
ME4SP1 Mercury
ME4SP2 Mercury
ME4SP3 Mercury
ME4SP4 Mercury
ME4SP5 Mercury
ME4SP6 Mercury
ME4SP7 Mercury
ME4SP8 Mercury
ME4SP9 Mercury
ME4SQ0 Mercury
ME4SQ1 Mercury
ME4SQ2 Mercury
ME4SQ3 Mercury
ME4SQ4 Mercury
ME4SQ5 Mercury

Samples ME4SP0/ME4SP1 and ME4SP8/ME4SP9 were identified as field duplicates**.** Results are summarized in the following tables.

ME4SP0/ME4SP1

Metal Analytes	ME4SP0 (mg/kg)	ME4SP1 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1380	1400	Y	1.4	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	1.2	1.1	NA	NA	NA	NA
Barium	15.8	13	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.18	0.19	NA	NA	NA	NA
Calcium	71600	79000	Y	9.8	-	-
Chromium	8.9	8.3	Y	7	-	-
Cobalt	2.6	3.8	NA	NA	NA	NA
Copper	3.8	4	N	-	0.2	≤2xCRQL
Iron	4090	4190	Y	2.4	-	-
Lead	35.1	138	Y	118.9	-	-

Metal Analytes	ME4SP0 (mg/kg)	ME4SP1 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Manganese	208	241	Y	14.7	-	-
Mercury	ND	0.063	N	-	0.07	≤2xCRQL
Nickel	3.8	3.9	NA	NA	NA	NA
Potassium	228	267	NA	NA	NA	NA
Selenium	0.62	ND	N	-	0.17	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	139	175	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	6.5	6.3	N	-	0.2	≤2xCRQL
Zinc	32.8	25.2	N	-	7.6	≤2xCRQL

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4SP0/ME4SP1 Lead

ME4SP8/ME4SP9

Metal Analytes	ME4SP8 (mg/kg)	ME4SP9 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	8180	8450	Y	3.2	-	-
Antimony	ND	ND	N	-	0.5	≤2xCRQL
Arsenic	4.5	4.8	N	-	0.3	≤2xCRQL
Barium	121	133	N	-	12	≤2xCRQL
Beryllium	0.14	0.14	NA	NA	NA	NA
Cadmium	2.3	2.6	N	-	0.3	≤2xCRQL
Calcium	86900	89700	Y	3.2	-	-
Chromium	51.4	57.6	Y	11.4	-	-
Cobalt	7.3	7.7	NA	NA	NA	NA
Copper	67.4	70.1	Y	3.9	-	-
Iron	15700	16500	Y	5	-	-
Lead	130	154	Y	16.9	-	-
Magnesium	34200	34900	Y	2	-	-
Manganese	475	500	Y	5.1	-	-
Mercury	0.24	0.27	N	-	0.03	≤2xCRQL
Nickel	19.8	22	N	-	2.2	≤2xCRQL
Potassium	1250	1300	N	-	50	≤2xCRQL
Selenium	2	2.2	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	826	859	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	20.5	20.7	N	-	0.2	≤2xCRQL
Zinc	286	315	Y	9.7	-	-

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SP6	Potassium
ME4SQ5	Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SN9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SQ5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

The following inorganic samples are associated with an ICP serial dilution percent difference which is > 10% but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4SN9	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP0	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP1	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP2	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP3	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP4	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP5	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP6	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP7	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP8	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP9	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ0	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ1	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ2	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ3	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ4	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ5	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SN9	Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium, Vanadium
ME4SP0	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SP1	Arsenic, Barium, Cadmium, Cobalt, Mercury, Nickel, Potassium, Sodium, Vanadium
ME4SP2	Cadmium, Cobalt, Mercury, Potassium, Selenium, Sodium
ME4SP3	Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Selenium, Sodium
ME4SP4	Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium
ME4SP5	Cobalt, Potassium, Selenium, Sodium
ME4SP6	Antimony, Beryllium, Selenium, Sodium, Thallium
ME4SP7	Beryllium, Mercury, Selenium, Silver, Sodium
ME4SP8	Beryllium, Cobalt, Selenium, Sodium

ME4SP9	Beryllium, Cobalt, Selenium, Sodium
ME4SQ0	Beryllium, Selenium, Sodium
ME4SQ1	Cobalt, Potassium, Selenium
ME4SQ2	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium, Vanadium
ME4SQ3	Beryllium, Cobalt, Selenium, Silver, Sodium
ME4SQ4	Beryllium, Selenium, Sodium
ME4SQ5	Beryllium, Selenium, Silver, Sodium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/17/2010

SUBJECT: Review of Data
Received for Review on: 5/17/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 SDG Number: ME4SQ6

Number and Type of Samples: 1Water Sample (Metals)

Sample Numbers: ME4SQ6

Laboratory: Bonner Analytical Testing

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: ME4SQ6
Site Name: Lincoln Park Laboratory: Bonner

SDG Summary

Sample Completeness and Receipt: One (1) sediment sample labeled ME4SQ6 was shipped to Bonner Analytical Testing Company. The sample was collected on April 16, 2010, and was received at the facility on April 17, 2010, intact, and at 4 °C

Sample Analysis and Data Review: The sample was analyzed for metals according to CLP SOW ILM05.4. Mercury analysis was performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no field duplicate sets were identified.

As per the scheduling notification, laboratory QC (i.e., matrix spike, duplicate, and serial dilution) was not required for the water sample. The laboratory did analyze a laboratory control sample (LCS), per the CLP SOW, and its recoveries were well within the acceptance limits, indicating that laboratory performance was under control. No results were flagged due to the lack of MS or DUP analysis.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment sample was reviewed for holding time violations using criteria developed for water samples. Data on sample pH was not available. No defects were found.

2. CALIBRATION

No defects were found.

3. BLANKS

The sample is associated with an ICB concentration which is less than or equal to the CRQL. The detected sample results was also less than or equal to the CRQL. Detects are qualified "U." Sample results are raised to the CRQL.

ME4SQ6 Sodium

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

Laboratory QC (i.e., matrix spike) was not required for the water sample. No defects were found with the laboratory control sample (LCS).

5. LABORATORY AND FIELD DUPLICATE

Laboratory QC (i.e., duplicate) was not required for the water sample.

6. ICP ANALYSIS

No defects were found.

7. SAMPLE RESULTS

The sample in this SDG was analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD. The following inorganic samples have analyte concentrations reported below the CRQL and are qualified "J".

ME4SQ6 Sodium, Zinc

Case Number: 39668 SDG Number: ME4SQ6
Site Name: Lincoln Park Laboratory: Bonner

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/17/2010

SUBJECT: Review of Data
Received for Review on: 6/16/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: MA 1705.0 SDG Number: ME4SQ7

Number and Type of Samples: 1 Sediment Sample (Metals)

Sample Numbers: ME4SQ7

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: ME4SQ7
Site Name: Lincoln Park Laboratory: Bonner

SDG SUMMARY

Sample Completeness and Receipt: One (1) Sediment sample labeled ME4SQ7 was shipped to Bonner Analytical Testing Company. The sediment sample was collected on 4/19/2010, and was received at the facility on 4/20/2010, intact, and at 4.5 °C.

Sample Analysis and Data Review: The sample was prepared using the Toxicity Characteristic Leaching Procedure (TCLP) according to MA1705.0 and analyzed for the 8 "TC" metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure. Because the sample was subjected to TCLP, and the aqueous leachate was analyzed, the results were reported in weight/volume (w/v) units, as required by the TCLP.

Sample ME4SQ7 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicate sets were identified.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

Case Number: 39668 SDG Number: ME4SQ7
Site Name: Lincoln Park Laboratory: Bonner

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard

3. BLANKS

The sample is associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4SQ7 Barium

The sample is associated with an CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4SQ7 Barium, Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

No defects were found for the lab control sample.

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the duplicate sample.

6. ICP ANALYSIS

No defects were found for the ICP analysis.

7. SAMPLE RESULTS

The sample has analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified “J”.

ME4SQ7 Arsenic, Cadmium, Chromium, Lead

Case Number: 39668 SDG Number: ME4SQ7
Site Name: Lincoln Park Laboratory: Bonner

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/17/2010

SUBJECT: Review of Data
Received for Review on: 6/16/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: MA 1705.0 SDG Number: ME4SQ9

Number and Type of Samples: 1 Water Sample (Metals)

Sample Numbers: ME4SQ9

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: ME4SQ9
Site Name: Lincoln Park Laboratory: Bonner

SDG SUMMARY

Sample Completeness and Receipt: One (1) water sample labeled ME4SQ9 was shipped to Bonner Analytical Testing Company. The water sample was collected on 4/23/2010, and was received at the facility on 4/24/2010, intact, and at 6.7 °C.

Sample Analysis and Data Review: The sample was prepared using the Toxicity Characteristic Leaching Procedure (TCLP) according to MA1705.0 and analyzed for the 8 "TC" metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure. Because the sample was subjected to TCLP, and the aqueous leachate was analyzed, the results were reported in weight/volume (w/v) units, as required by the TCLP.

Although MA1705.0 specified that a matrix spike sample be prepared and analyzed, the laboratory did not provide matrix spike results, noting in the data package narrative that "As per scheduling no MS and DUP are required." CSC has not located any scheduling information that confirms the laboratory's assertion about the MS and DUP, but we have not flagged the results due to the lack of an MS or DUP analysis. The laboratory did analyze a laboratory control sample (LCS), per the CLP SOW, and its recoveries were within the acceptance limits, indicating that laboratory performance was under control.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no field duplicate sets were identified.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

Case Number: 39668 SDG Number: ME4SQ9
Site Name: Lincoln Park Laboratory: Bonner

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard

3. BLANKS

The sample is associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SQ9 Barium, Cadmium

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

Matrix spike was not performed for TCLP. No results were qualified.

No defects were found for the lab control sample.

5. LABORATORY AND FIELD DUPLICATE

Laboratory duplicates were not performed for TCLP. No results were qualified.

6. ICP ANALYSIS

No defects were found for the ICP analysis.

7. SAMPLE RESULTS

No defects were found for the sample result verification.

Case Number: 39668 SDG Number: ME4SQ9

Site Name: Lincoln Park Laboratory: Bonner

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Attachment 2

Data Usability Evaluation — Lincoln Park/Milwaukee River Channel Sediments Site — Phase 2 Remedial Investigation

2010 Data Quality Evaluation
Lincoln Park/Milwaukee River Channel Sediments Site—Milwaukee, Wisconsin
WA No. 064-RICO-2508 / Contract No. EP-S5-06-01

PREPARED FOR: Brenda Jones /USEPA, GLNPO
Louis Blume/USEPA, GLNPO

PREPARED BY: Heather Hodach/CH2M HILL

COPIES TO: Dan Plomb/CH2M HILL
Huck Raddemann/CH2M HILL
Adrienne Korpela/CH2M HILL

DATE: August 27, 2010

Introduction

The objective of the Data Quality Evaluation memorandum is to assess the data quality of analytical results for samples collected at the Lincoln Park/Milwaukee River Channel Sediment site, during February, March, and April 2010. Samples were collected and analyzed with the objective to verify existing data, fill identified data gaps, and collect site-specific information to support the evaluation of remedial alternatives and the subsequent development of a remedial design. Individual method requirements and guidelines from the *Quality Assurance Project Plan* (CH2M HILL, 2010), *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, 2008), and *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, 2004) were used in this assessment.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

The following are the analytical laboratory analyses for samples collected:

- 267 sediment samples from 88 locations (exclusive of field quality control [QC] samples) were analyzed for one or more of the following: polychlorinated biphenyl (PCB) Aroclors, pesticides, semivolatile organic compounds (SVOCs), metals, total organic carbon (TOC), and grain size.
- 27 field duplicate samples were collected at 25 locations for the same analyses as the sediment sample at the given location.

- 29 sediment samples from 23 locations were selected for PCB congener analysis. The congener data were sent for analysis in August 2010 and will be evaluated separately at a later date.
- Three equipment blanks were collected during the sampling events to evaluate field sampling and decontamination procedures.
- Waste characterization analysis (toxicity characteristic leaching procedure [TCLP]) samples were collected from each of the two 55-gallon waste drums. One sediment and one aqueous sample were collected.

The PCB Aroclor, PCB congener, metals, pesticide, and SVOC data were analyzed by the USEPA Contract Laboratory Program (CLP) and subsequently reviewed by CSC. Appendix A contains the case narratives prepared by CSC during data reviews. The findings of the reviews are summarized in the following paragraphs.

The TOC and grain size data were analyzed by the USEPA Central Regional Laboratory (CRL) and reviewed by CH2M HILL. See Appendix B for the TOC and grain size data summary.

Samples were collected and shipped by overnight carrier to the laboratories for analysis. Selected samples were analyzed for one or more of the analytes/methods in Table 1.

TABLE 1
Analytical Parameters

Parameter	Method	Laboratory
PCB Aroclors	SOM01.2 Modified	CLP
PCB Congeners	CBC01.2	CLP
SVOCs	SOM01.2 Modified	CLP
Pesticides	SOM01.2 Modified	CLP
Target Analyte List Metals	ILM05.4	CLP
Total Organic Carbon	SOP – AIG009 Rev#5.1	CRL
Grain Size	SOP – AIG038A Rev#00&Rev#02	CRL
Waste Characterization		
Total PCB Aroclors	SOM01.2 Modified	CLP
TCLP Volatile Organic Compounds	SOM01.2 Modified	CLP
TCLP SVOC	SOM01.2 Modified	CLP
TCLP Pesticides	SOM01.2 Modified	CLP
TCLP Metals	ILM05.4 Modified	CLP

The assessment of data included a review of the following:

- Chain-of-custody documentation

- Holding-time compliance
- Required QC samples at the specified frequencies
- Flagging for method blanks
- Laboratory control spiking samples
- Surrogate spike recoveries for organic analyses
- Analytical spike data
- Matrix spike/matrix spike duplicate samples on a site/location basis
- Equipment blank samples
- Field duplicate samples
- Trip blank samples

Findings

The following sections summarize the data validation findings and usability of the final reportable results. The sample numbers and locations do not include quality assurance/QC samples.

PCB Aroclor and PCB Congener Data

PCB Aroclor data were assessed for nine Aroclors from 267 sediment samples collected at 88 locations, resulting in 2,403 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the PCB Aroclor data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the method detection limit (MDL) and the reporting limit (RL).

Thirty eight of the PCB Aroclor results (1.6%) from 29 samples were rejected, which consisted of one or more of the following nine analytes: Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, Aroclor 1260, Aroclor 1262, and Aroclor 1268, and should not be used to make project decisions. Most of the data were rejected due to a percent difference (>100%) between the primary and confirmation columns. With a variation of >100%, the concentration could not be reliably established. Some parameters that were nondetects were rejected due to extremely low surrogate recoveries, which could result in the data being biased very low.

The PCB congener data were sent to the laboratory for analysis at the beginning of August 2010. The analytical results will be reviewed and reported at a later date.

Pesticide Data

Pesticide data were assessed for 21analytes from 267 sediment samples collected at 88 locations, resulting in 5,607 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the pesticide data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the MDL and the RL.

Three-hundred and fifty-one of the pesticide results (6.3%) from 127 samples were rejected, which consisted of one or more of the following 17 analytes: 4,4'-DDD, 4,4'-DDT, 4,4'-DDE, alpha-BHC, alpha-chlordane, beta-BHC, beta-chlordane, delta-BHC, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, endrin aldehyde, endrin ketone, gamma-BHC, heptachlor, heptachlor epoxide, and methoxychlor, and should not be used to make project decisions. Most of the data were rejected due to a percent difference (>100%) between the primary and confirmation columns. With a variation of >100%, the concentration could not be reliably established.

Semivolatile Data

Polycyclic aromatic hydrocarbon data were assessed for 17 analytes from 267 sediment samples collected at 88 locations resulting in 4,539 results. In addition, 68 of the samples from 44 locations were assessed for 50 semivolatile analytes resulting in 3,400 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the semivolatile data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the MDL and the RL.

None of the reported SVOC results were rejected. One hundred percent of the SVOC data, as qualified, can be used to make project decisions.

Metals Data

Metals data were assessed for 23 analytes from 267 sediment samples collected at 88 locations, resulting in 6,141 results. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

In summary of the metals data, J or UJ qualifiers were applied to sample results that were potentially affected by QC deficiencies. J qualifiers were also applied to sample results that were reported between the MDL and the RL.

Nineteen of the metals results (0.3%) from 17 samples were rejected, which consisted of one or more of the following analytes: antimony, copper, and zinc, and should not be used to make project decisions. Most of the data were rejected due to a matrix spike recovery outside the expanded low criteria and/or a post-digestion spike less than the low limit, which could result in the data being biased very low. The copper and zinc results were rejected due to a sample in a field duplicate pair having >5 times the contract-required quantification limit and an absolute difference of >4 times the contract-required quantification limit, which could result in the data being biased very high.

TCLP Data

One sample was collected from each of the two 55-gallon waste drums: one sediment, one aqueous. The data were analyzed through the CLP and reviewed by the USEPA contractor, CSC.

Both sample results for PCB Aroclor 1254 were rejected and should not be used to make project decisions. The data were rejected due to a percent difference >100 percent between the primary and confirmation columns. With a variation of >100 percent, the

concentration could not be reliably established. Some parameters that were nondetects were rejected due to extremely low surrogate recoveries, which could result in the data being biased very low

Overall Assessment

The final activity in the data quality evaluation is an assessment of whether the data meets the data quality objectives. The goal of the assessment was to demonstrate that a sufficient number of representative samples were collected, and the resulting analytical data can be used to support the decision making process. The following summary highlights the data evaluation findings for the above-defined events:

1. The completeness objective of 90 percent was met for all method/analyte combinations.
2. The precision and accuracy of the data, as measured by field and laboratory QC indicators, indicate that the data quality objectives were met.

References

CH2M HILL. 2010. *Quality Assurance Project Plan, Lincoln Park/Milwaukee River Channel, Milwaukee, Wisconsin.* February.

USEPA. 2008. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. June.

USEPA. 2004. *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*. October.

Appendix A
CSC Narratives

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 4, 2010

SUBJECT: Review of Data
Received for Review on: 7 April 2010

FROM: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0

SDG Number: E4RS0

Number and Type of Samples: Sixteen (16) sediment samples

Sample Numbers: E4RS0 - E4RS2, E4RS4-E4RS9, E4RT2 - E4RT6, E4RX0 and E4RX1

Laboratory: ALS Laboratory Group (DATAC)

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SDG SUMMARY

Sample Completeness and Receipt: Sixteen (16) sediment samples, labeled E4RS0 through E4RS2, E4RS4 through E4RS9, E4RT2 through E4RT6, E4RX0 and E4RX1, were shipped to ALS Laboratory Group (DataChem) located in Salt Lake City, Utah. All samples were collected on 2/25/2010 and were received intact on 2/27/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 8 ºC. No data have been qualified based on receipt temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Sample results were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 data validation SOPs.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually sediment samples.

Some samples in this SDG were originally reported with some sample results below the sample specific MDLs with a "J" flag. The EDD, Form 1s and other data summary forms for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s

There is a slight difference between the CRQL values reported on the Form 1s and the values reported in the EDD for several samples, due to rounding errors. In addition, the Forms 1, 3 and 10 for some samples report compound concentrations below the MDL. The EDD contains the correct values. Specific instances are detailed in the Additional Information section of this review narrative.

GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data based on these discrepancies.

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples E4RT5 and E4RT6 as field duplicates. No field blanks are associated with this SDG.

This report is ordered by fraction as follows: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "NJ", "UJ", "U", "J".

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

All semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for Benzo(b)fluoranthene and Benzo(k)fluoranthene. Detected Benzo(b)fluoranthene and Benzo(k)fluoranthene are qualified J. Nondetected Benzo(b)fluoranthene and Benzo(k) remain unchanged.

E4RS0, E4RS1, E4RS1MS, E4RS1MSD, E4RS2, E4RS4, E4RS5, E4RS6, E4RS7, E4RS8, E4RS9, E4RT2, E4RT3, E4RT4, E4RT5, E4RT6, E4RT6DL, E4RX0, E4RX1

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria for the compound Benzo(b)fluoranthene. Detected Benzo(b)fluoranthene are qualified J. Nondetected Benzo(b)fluoranthene are qualified UJ.

E4RS7, E4RT5, E4RT6, E4RT6DL, E4RX1

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table:

Semivolatile analytes	E4RT5 µg/Kg	E4RT6 µg/Kg	%RPDs
Naphthalene	ND	ND	NA
2-Methylnaphthalene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Acenaphthene	130	150	14
Fluorene	200	260	26
Phenanthrene	1100	1600	37
Anthracene	240	290	19
Fluoranthene	1500	1900	24
Pyrene	1400	2600	60
Benzo(a)anthracene	900	1200	29
Chrysene	850	1200	34
Benzo(b)fluoranthene	1100	1600	37
Benzo(k)fluoranthene	290	490	51
Benzo(a)pyrene	800	1000	22
Indeno(1,2,3-cd)pyrene	390	420	7.4
Dibenzo(a,h)anthracene	120	120	0
Benzo(g,h,i)perylene	420	510	19

Benzo (k) fluoranthene has a % RPD exceeding 50%. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds remain unchanged.

E4RS1 Benzo(k)fluoranthene
E4RS1MS Phenanthrene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS1MSD Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene
E4RS2 Fluorene, Anthracene
E4RS4 Anthracene, Benzo(k)fluoranthene
E4RS5 Phenanthrene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo (g,h,i)perylene
E4RS6 Anthracene
E4RS7 Acenaphthene, Fluorene, Anthracene, Benzo(k)fluoranthene
E4RS8 Fluoranthene

E4RS9 Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT2 Acenaphthene, Dibenzo(a,h)anthracene
E4RT4 Anthracene, Benzo(k)fluoranthene
E4RT5 Acenaphthene, Dibenzo(a,h)anthracene
E4RT6 Acenaphthene, Dibenzo(a,h)anthracene
E4RT6DL Acenaphthene, Fluorene, Anthracene
E4RX0 Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX1 Anthracene, Benzo(k)fluoranthene

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS4, E4RS5, ER4S7, E4RT6DL, E4RX1, E4RS1MS, E4RS1MSD

The following original semivolatile sample reported a concentration that exceeded the calibration range of the instrument and was flagged “E” by the laboratory. As per the NFG, the result was flagged “J”. A diluted sample analysis was performed as required. The results from the diluted sample should be used for result validation.

E4RT6 Pyrene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile SIM sample has an analyte concentration reported less than the CRQL. The associated method blank concentration is less than the CRQL. The detected compound is qualified U at the CRQL.

E4RT3 Benzo(k)fluoranthene

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

The semivolatile SIM matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Sample levels were greater than10 times the spiking level; detected compounds are qualified J.

E4RS1, E4RS1MS, E4RS1MSD Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are field duplicates according to the field sampling plan**.** Results are summarized in the following tables:

Semivolatile SIM analytes	**E4RT5** µg/Kg	**E4RT6** µg/Kg	**%RPDs**
Naphthalene	10	22	75
2-Methylnaphthalene	24	37J	43

Semivolatile SIM analytes	E4RT5 µg/Kg	E4RT6 µg/Kg	%RPDs
Acenaphthylene	5.7	6.3	10
Acenaphthene	50J	70J	33
Fluorene	73J	98J	29
Phenanthrene	320J	590J	59
Anthracene	73J	130J	56
Fluoranthene	400J	710J	56
Pyrene	860J	1200J	33
Benzo(a)anthracene	500J	650J	26
Chrysene	490J	600J	20
Benzo(b)fluoranthene	690J	1000J	37
Benzo(k)fluoranthene	190J	260J	31
Benzo(a)pyrene	500J	700J	33
Indeno(1,2,3-cd)pyrene	360J	580J	47
Dibenzo(a,h)anthracene	82J	130J	45
Benzo(g,h,i)perylene	290J	460J	45

Semivolatile SIM analytes	E4RT5DL µg/Kg	E4RT6DL µg/Kg	%RPDs
Naphthalene	ND	ND	NA
2-Methylnaphthalene	23J	33	36
Acenaphthylene	9.9J	10J	1.0
Acenaphthene	76	110	37
Fluorene	120	160	29
Phenanthrene	820J	1100J	29
Anthracene	160	210	27
Fluoranthene	1100J	1500J	31
Pyrene	1300J	1700J	27
Benzo(a)anthracene	690J	930J	30
Chrysene	700J	890J	24
Benzo(b)fluoranthene	870J	1100J	23
Benzo(k)fluoranthene	250	330J	28
Benzo(a)pyrene	630J	770J	20
Indeno(1,2,3-cd)pyrene	400J	490J	20
Dibenzo(a,h)anthracene	81	97	18
Benzo(g,h,i)perylene	350J	410J	16

Phenanthrene, Anthracene, and Fluoranthene had a % RPD exceeding 50% in the original analysis. All % RPDs are less than 50% in the diluted analyses. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile SIM sample has a compound concentration below the MDL reported on the Form 1. Detected compounds are qualified U and sample results reported at the CRQL. The EDD is correct.

E4RS1DL	Naphthalene, 2-Methylnaphthalene

The following semivolatile SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds remain unchanged.

E4RS0	Acenaphthylene
E4RS0DL	Acenaphthene, Fluorene
E4RS1	2-Methylnaphthalene, Acenaphthylene
E4RS1DL	Acenaphthene, Fluorene
E4RS1MS	Naphthalene, 2-Methylnaphthalene, Acenaphthylene
E4RS1MSD	Naphthalene, 2-Methylnaphthalene, Acenaphthylene
E4RS4	2-Methylnaphthalene, Acenaphthylene
E4RS4DL	Acenaphthene, Fluorene
E4RS5	2-Methylnaphthalene, Acenaphthylene
E4RS5DL	Anthracene Dibenzo(a,h)anthracene
E4RS6DL	Acenaphthylene
E4RS7DL	Acenaphthylene
E4RS8	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RS8DL	Anthracene, Dibenzo(a,h)anthracene
E4RS9	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene
E4RS9DL	Anthracene
E4RT2DL	Acenaphthylene
E4RT3	Anthracene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene
E4RT4DL	Acenaphthylene
E4RT5DL	2-Methylnaphthalene, Acenaphthylene
E4RT6DL	Acenaphthylene
E4RX0	Naphthalene, 2-Methylnaphthalene, Acenaphthylene
E4RX0DL	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RX1	2-Methylnaphthalene, Acenaphthylene
E4RX1DL	Acenaphthene

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS1DL, E4RS8, E4RS8DL, E4RX0DL, E4RX1DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4RS0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS4	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS5	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS7	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RS8	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4RS9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RT2	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT4	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT5	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT6	2-Methylnaphthalene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RX0	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX1	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed.

E4RS0DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS1DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS2DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS4DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS5DL	Fluoranthene

E4RS6DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RS7DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT2DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT4DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT6DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX1DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(b)fluoranthene,

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference exceeding criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Despite the CCV issue, the Decachlorobiphenyl recoveries in the associated samples met the acceptance criteria.

E4RT6, E4RX1DL

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL.

E4RS8	Endrin aldehyde
E4RT3	Endrin aldehyde
E4RT5DL	4,4'-DDD, Endrin aldehyde
E4RX0	Endrin aldehyde
E4RX1	Endrin aldehyde
E4RX1DL	Endrin, 4,4'-DDD, 4,4'-DDE

6. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

In all cases, samples had acceptable surrogate recoveries on one or both columns. No data were qualified based on surrogate recovery.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

The pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit on one column. Detected compounds reported from that column are qualified J. Nondetected compounds remain unchanged.

E4RS6, E4RS6DL, E4RT2, E4RT2DL, E4RT3, E4RT6, E4RT6DL gamma-BHC (Lindane)

E4RS1, E4RS8, E4RX1 Heptachlor

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are field duplicates according to the field sampling plan**.** Results are summarized in the following table:

Pesticide analytes	**E4RT5** µg/Kg	**E4RT6** µg/Kg	**%RPDs**
alpha-BHC	ND	ND	NA
beta-BHC	ND	ND	NA
delta-BHC	ND	ND	NA
gamma-BHC (Lindane)	13	12	8
Heptachlor	34	24	34
Aldrin	ND	ND	
Heptachlor epoxide	5.6	4.7	17
Endosulfan I	4.3	ND	NA
Dieldrin	ND	ND	NA
4,4'-DDE	19	19	0
Endrin	3.2	3.3	3.1
Endosulfan II	3.2	3.3	3.1
4,4'-DDD	20	23	14
Endosulfan sulfate	ND	ND	NA
4,4'-DDT	18	19	5.4
Methoxychlor	16	4.2	120
Endrin ketone	ND	ND	NA
Endrin aldehyde	3.2	3.3	3.1
alpha-Chlordane	ND	1.6	NA
gamma-Chlordane	ND	ND	NA
Toxaphene	ND	ND	NA

Methoxychlor has a %RPD greater than 50%. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4RS0	gamma-BHC (Lindane), Dieldrin, 4,4'-DDD
E4RS1	Endosulfan I
E4RS4	Endosulfan I, Dieldrin
E4RS6DL	Aldrin
E4RS7DL	alpha-BHC, beta-BHC, Dieldrin, Endrin ketone
E4RS8	beta-BHC, delta-BHC, gamma-BHC (Lindane), Dieldrin, Endosulfan II, Endrin aldehyde
E4RS9	gamma-BHC (Lindane), Endosulfan I, Dieldrin, alpha-Chlordane
E4RT2DL	alpha-BHC, beta-BHC, Aldrin
E4RT3	beta-BHC, Dieldrin, Endosulfan sulfate, Endrin aldehyde
E4RT4	beta-BHC
E4RT5	Aldrin, Endrin ketone
E4RT6DL	Aldrin
E4RX0	gamma-BHC (Lindane), Endosulfan I, Endosulfan II, Endrin ketone Endrin aldehyde
E4RX1	gamma-BHC (Lindane), Aldrin, Endosulfan I, Endrin ketone, Endrin aldehyde
E4RX1DL	Dieldrin

The following pesticide samples have percent differences between analyte results on the two GC columns in the range of 26-50%. Detected compounds are qualified J.

E4RS1	4,4'-DDE, Endrin aldehyde
E4RS1MSD	4,4'-DDE, gamma-Chlordane
E4RS2	Dieldrin, 4,4'-DDD
E4RS4	4,4'-DDE, 4,4'-DDT, Methoxychlor
E4RS5	4,4'-DDE, gamma-Chlordane
E4RS6	Endosulfan I, Dieldrin, 4,4'-DDD
E4RS6DL	4,4'-DDD
E4RS7	Methoxychlor
E4RS9	gamma-Chlordane
E4RT2	Endosulfan I, Methoxychlor, alpha-Chlordane
E4RT2DL	4,4'-DDE
E4RT3	4,4'-DDT
E4RT4	Dieldrin, 4,4'-DDE
E4RT5	Endosulfan I, 4,4'-DDE, 4,4'-DDD
E4RX0	Dieldrin, 4,4'-DDD, 4,4'-DDT
E4RX1	Heptachlor, Heptachlor epoxide
E4RX1DL	Heptachlor epoxide

The following pesticide samples have percent differences between analyte results on the two GC columns in the range of 51-100%. Detected compounds are qualified NJ.

E4RS0	gamma-Chlordane
E4RS1	Heptachlor epoxide, alpha-Chlordane, gamma-Chlordane
E4RS1MS	Heptachlor, Aldrin, alpha-Chlordane, gamma-Chlordane

E4RS1MSD	gamma-BHC (Lindane), Heptachlor, Aldrin, Methoxychlor, alpha-Chlordane
E4RS2	Endosulfan I, Methoxychlor
E4RS4	gamma-Chlordane
E4RS5	4,4'-DDT, Methoxychlor
E4RS6	gamma-BHC (Lindane), 4,4'-DDE
E4RS6DL	gamma-BHC (Lindane), 4,4'-DDE
E4RS7	4,4'-DDE
E4RS8	Heptachlor epoxide
E4RS9	Heptachlor epoxide, 4,4'-DDE, 4,4'-DDT
E4RT4	4,4'-DDD, gamma-Chlordane
E4RT5	Heptachlor
E4RT5DL	Heptachlor
E4RT6	Dieldrin, 4,4'-DDE, 4,4'-DDD, Endrin ketone, alpha-Chlordane
E4RT6DL	4,4'-DDD
E4RX0	Heptachlor epoxide
E4RX1	4,4'-DDD

The following pesticide samples have percent differences between analyte results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified U, and reported as not detected at the CRQL. Nondetected compounds remain unchanged.

E4RS0	Endrin, Endosulfan II, Methoxychlor
E4RS1MS	Endosulfan II
E4RS1MSD	alpha-BHC, Endosulfan II
E4RS2	Endosulfan II, Endrin aldehyde, alpha-Chlordane
E4RS4	Endrin, alpha-Chlordane
E4RS5	Heptachlor, Endrin
E4RS6	Endosulfan II
E4RS6DL	Endosulfan II, Methoxychlor, Endrin ketone, Endrin aldehyde, alpha-Chlordane
E4RS7	Endosulfan II
E4RS7DL	Endosulfan I, Endrin Endosulfan II, Methoxychlor
E4RS8	4,4'-DDE, Endrin, Methoxychlor
E4RS9	Endrin, Endosulfan II, Methoxychlor
E4RT2	Endosulfan II, Endrin aldehyde
E4RT2DL	Endosulfan II, Methoxychlor, Endrin ketone, Endrin aldehyde
E4RT3	gamma-BHC (Lindane), Endosulfan I, 4,4'-DDE, Endrin, Endosulfan II, Endrin ketone
E4RT4	Endrin Endosulfan II
E4RT5	Endrin Endosulfan II, Methoxychlor, Endrin aldehyde
E4RT5DL	Heptachlor epoxide, 4,4'-DDD
E4RT6	Endosulfan II, Endrin aldehyde
E4RT6DL	Endrin, Endosulfan II, Endrin aldehyde, alpha-Chlordane
E4RX0	Endrin, Methoxychlor, alpha-Chlordane
E4RX1	Endrin, Methoxychlor, alpha-Chlordane
E4RX1DL	Heptachlor, Endrin

The following pesticide samples have percent differences between analyte results on the two GC columns exceeding 100%. Detected compounds are qualified R.

E4RS0	4,4'-DDE, 4,4'-DDT

E4RS1	Endrin, 4,4'-DDD, 4,4'-DDT, Methoxychlor
E4RS1MS	alpha-BHC, gamma-BHC (Lindane), Heptachlor epoxide, 4,4'-DDD, Methoxychlor
E4RS1MSD	Heptachlor epoxide, 4,4'-DDD
E4RS2	Heptachlor, Heptachlor epoxide, 4,4'-DDE, Endrin, 4,4'-DDT, gamma-Chlordane
E4RS4	Heptachlor, Heptachlor epoxide
E4RS5	Heptachlor epoxide, 4,4'-DDD
E4RS6	Heptachlor, Endrin, Endrin aldehyde
E4RS6DL	Endosulfan I, Endrin
E4RS7	beta-BHC, Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDD, 4,4'-DDT
E4RS7DL	Heptachlor, Heptachlor epoxide, 4,4'-DDD, 4,4'-DDT
E4RT2	gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, Endrin, Endosulfan II, 4,4'-DDD
E4RT2DL	gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDD
E4RT3	Heptachlor, Heptachlor epoxide, 4,4'-DDD
E4RT4	Heptachlor, Heptachlor epoxide, Methoxychlor, Endrin ketone
E4RT5	gamma-BHC (Lindane), Heptachlor epoxide
E4RT6	gamma-BHC (Lindane), Heptachlor epoxide, Endosulfan I, Endrin, Methoxychlor
E4RT6DL	gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide
E4RX0	beta-BHC

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS0, E4RS2, E4RS4, E4RS5, E4RS7, E4RS7DL, E4RS9, E4RT4, E4RT6, E4RT6DL, E4RX1, E4RX1DL

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. A diluted sample analysis was performed for all these samples, placing the concentrations within the calibration range. The results from the diluted sample should be used for result validation.

E4RS6 gamma-BHC (Lindane), Heptachlor, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT
E4RS7 4,4'-DDD
E4RT2 gamma-BHC (Lindane), Heptachlor, 4,4'-DDE, 4,4'-DDT
E4RT5 Heptachlor
E4RT6 gamma-BHC (Lindane), 4,4'-DDE, 4,4'-DDD, 4,4'-DDT
E4RX1 Heptachlor epoxide

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

In all cases, undiluted samples had acceptable surrogate recoveries on one or both columns. No data were qualified based on surrogate recovery.

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. All target Aroclors are affected. Detected and nondetected compounds remain unchanged.

E4RS2DL, E4RS6DL, E4RT2DL, E4RT6DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

As designated by the samplers, Sample E4RS1 was used for laboratory QC, i.e., MS/MSD.

The relative percent difference (RPD) of Aroclor-1260 between the matrix spike and matrix spike duplicate recoveries of Aroclor-1260 is outside criteria. Detected compounds are qualified J. Nondetected compounds remain unchanged.

The Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit on the RTXCLP2 column. All sample results for the compounds listed below reported from this column are affected. Detected compounds are qualified J. Nondetected compounds remain unchanged.

E4RS9 Aroclor-1016
E4RS1MSD, E4RS4, E4RS5, E4RS9, E4RX1 Aroclor-1260

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT5 and E4RT6 are field duplicates according to the field sampling plan**.** Results are summarized in the following table:

Aroclor Analytes	**E4RT5DL** µg/Kg	**E4RT6DL** µg/Kg	**%RPDs**
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	2400	2100	13
Aroclor-1254	ND	ND	
Aroclor-1260	ND	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results on the two GC columns in the range of 26-50%. Detected compounds are qualified J.

E4RS1 Aroclor-1260
E4RT2DL, E4RT5, E4RT5DL, E4RT6DL Aroclor-1248

The following Aroclor samples have percent differences between analyte results on the two GC columns in the range of 51-100%. Detected compounds are qualified NJ.

E4RS9 Aroclor-1260
E4RS1, E4RS5 Aroclor-1248

The following Aroclor samples have percent differences between analyte results on the two GC columns exceeding 100%. Detected compounds are qualified R.

E4RS4 Aroclor-1260
E4RS1MS, E4RS1MSD, E4RS4 Aroclor-1016

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples, due to rounding errors which do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS1, E4RS8, E4RS9, E4RT5, E4RT6, E4RX0, E4RX1

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". A diluted sample analysis was performed for all these samples, placing the concentrations within the calibration range. The results from the diluted sample should be used for result validation.

E4RS2 Aroclor-1248
E4RS6 Aroclor-1248
E4RS7 Aroclor-1248
E4RT2 Aroclor-1248
E4RT5 Aroclor-1248
E4RT6 Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 11, 2010

SUBJECT: Review of Data
Received for Review on: March 29, 2010

FROM: Julie Rest
Environmental Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4RS3

Number and Type of Samples: 16 Sediment Samples

Sample Numbers: E4RS3, E4RT0, E4RT1, E4RT7, E4RT8, E4RT9, E4RW0, E4RW1, E4RW2, E4RW3, E4RW4, E4RW5, E4RW6, E4RW7, E4RW8, E4RW9

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Sixteen (16) sediment samples labeled E4RS3, E4RT0, E4RT1, E4RT7 - E4RT9, E4RW0 – E4RW9 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All sixteen (16) samples were collected on 2/25/2010 and were received on 2/27/2010, intact. Samples exceeded the proper shipping temperature of 2 - 6 ºC, and were received at the facility at 8 ºC. No data have been qualified based on temperature. For samples E4RW1 – E4RW7, the recipient signature is missing from the traffic report; no sample results were qualified for this non-compliance.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4RT8 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4, as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a

particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified "J". Nondetected compounds are not qualified.

E4RS3, E4RT0, E4RT1, E4RT7, E4RT8, E4RT9, E4RW0, E4RW0DL, E4RW1, E4RW2, E4RW3, E4RW4, E4RW5, E4RW6, E4RW7, E4RW8, E4RW9
Benzo(b)fluoranthene
Benzo(k)fluoranthene

The following semivolatile samples are associated with an opening continuing calibration percent difference (%D) outside criteria. Detected compounds are qualified "J". Nondetected compounds are qualified "UJ"

E4RT8, E4RW0, E4RW2, E4RW7, E4RW8, E4RW9
2-Methylnaphthalene

Benzo(g,h,i)perylene in sample E4RW1 was flagged "J" during the automated flagging process for a %D in the closing calibration. Examination of the data showed that the %D was within the criteria. The "J" flag has been removed from the "B" and "Z" files.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile sample with a dilution factor greater than 5 has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4RW0DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4RT9 and E4RW0

Semivolatile compounds	E4RT9 µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Naphthalene	ND	1	440	10	
2-Methylnaphthalene	ND	1	550	10	
Acenaphthylene	ND	1	ND	10	
Acenaphthene	ND	1	3000	10	
Fluorene	ND	1	2800	10	
Phenanthrene	520	1	17000	10	190
Anthracene	120	1	5000	10	190
Fluoranthene	1100	1	22000	10	180
Pyrene	660	1	16000	10	180
Benzo(a)anthracene	480	1	10000	10	180
Chrysene	470	1	9300	10	180
Benzo(b)fluoranthene	590	1	13000	10	180
Benzo(k)fluoranthene	190	1	5500	10	190
Benzo(a)pyrene	380	1	11000	10	190
Indeno(1,2,3-cd)pyrene	190	1	4600	10	180
Dibenzo(a,h)anthracene	ND	1	1000	10	
Benzo(g,h,i)perylene	210	1	4800	10	180

For field duplicates E4RT9 and E4RW0, all detected compounds had RPD values above 50%. Note that the original analysis of E4RW0 was analyzed using a ten-fold dilution.

E4RW1 and E4RW2

Semivolatile compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	160	1	52	1	100
Anthracene	51	1	ND	1	
Fluoranthene	280	1	110	1	90
Pyrene	220	1	69	1	100
Benzo(a)anthracene	150	1	ND	1	
Chrysene	150	1	ND	1	
Benzo(b)fluoranthene	260	1	64	1	120

Semivolatile compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Benzo(k)fluoranthene	120	1	ND	1	
Benzo(a)pyrene	230	1	ND	1	
Indeno(1,2,3-cd)pyrene	170	1	ND	1	
Dibenzo(a,h)anthracene	110	1	ND	1	
Benzo(g,h,i)perylene	190	1	ND	1	

For field duplicate samples E4RW1 And E4RW2, compounds Phenanthrene, Fluoranthene, Pyrene, and Benzo(b)fluoranthene have RPD values above 50%.

E4RW3 and E4RW4

Semivolatile compounds	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	240	1	320	1	30
Anthracene	62	1	85	1	30
Fluoranthene	510	1	430	1	20
Pyrene	350	1	330	1	6
Benzo(a)anthracene	210	1	200	1	5
Chrysene	220	1	180	1	20
Benzo(b)fluoranthene	360	1	210	1	50
Benzo(k)fluoranthene	95	1	90	1	5
Benzo(a)pyrene	210	1	160	1	30
Indeno(1,2,3-cd)pyrene	110	1	67	1	50
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	130	1	72	1	60

For field duplicate samples E4RW3 and E4RW4, Benzo(g,h,i)perylene had an RPD value above 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified “J”.

E4RS3	Anthracene, Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene, Benzo(g,h,i)perylene
E4RT1	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene,
E4RT7	Anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RT9	Anthracene
E4RW0	Naphthalene, 2-Methylnaphthalene, Dibenzo(a,h)anthracene
E4RW1	Anthracene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene
E4RW2	Phenanthrene, Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4RW3	Anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW4	Anthracene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW6	Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW7	Fluoranthene, Pyrene, Benzo(b)fluoranthene

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile sample reported a concentration that exceeded the calibrated range of the instrument and was flagged “E” by the laboratory. As per the NFG, this result is flagged “J”. The result from the diluted sample should be used for result validation.

E4RW0	Fluoranthene

The nondetected results reported at the CRQL level for the following compounds in the samples below are incorrect in the EDD. These results were reported correctly on the Form 1s. The EDD has been updated to include the nondetected results at the correct CRQLs.

E4RT0	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Anthracene, Dibenzo(a,h)anthracene
E4RW0DL	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Dibenzo(a,h)anthracene
E4RW5	Naphthalene, 2-Methylnaphthalene, Acenaphthylene, Acenaphthene, Fluorene, Dibenzo(a,h)anthracene

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The original analysis of the following semivolatiles-SIM sample has a dilution factor greater than 5 and a deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4RW0

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4RT9 and E4RW0

Semivolatiles-SIM compounds	E4RT9DL µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Naphthalene	ND	10	350	10	
2-Methylnaphthalene	ND	10	430	10	
Acenaphthylene	7.1	10	9	10	23
Acenaphthene	29	10	1800	10	190
Fluorene	34	10	1800	10	190
Phenanthrene	360	10	7600	10	180
Anthracene	94	10	3000	10	190

Semivolatiles-SIM compounds	E4RT9DL µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Fluoranthene	720	10	9200	10	170
Pyrene	580	10	8600	10	170
Benzo(a)anthracene	390	10	7300	10	180
Chrysene	340	10	5000	10	170
Benzo(b)fluoranthene	620	10	5600	10	160
Benzo(k)fluoranthene	170	10	1900	10	170
Benzo(a)pyrene	400	10	4200	10	170
Indeno(1,2,3-cd)pyrene	290	10	2900	10	160
Dibenzo(a,h)anthracene	50	10	560	10	170
Benzo(g,h,i)perylene	220	10	2200	10	160

For field duplicate pair E4RT9 and E4RW0, all detected compounds except Acenaphthylene had RPD values above 50%. Note that sample E4RW0 was originally analyzed using a ten-fold dilution and that most of the detected analyte results exceeded the calibrated instrument range. No further semivolatiles-SIM dilution analysis was performed for sample E4RW0.

E4RW1 and E4RW2

Semivolatiles-SIM compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Naphthalene	5.7	1	4.5	1	24
2-Methylnaphthalene	2.7	1	1.6	1	51
Acenaphthylene	1	1	0.8	1	28
Acenaphthene	8	1	2.1	1	120
Fluorene	9.6	1	2.7	1	110
Phenanthrene	97	1	34	1	96
Anthracene	32	1	11	1	98
Fluoranthene	170	1	82	1	70
Pyrene	140	1	63	1	76
Benzo(a)anthracene	110	1	50	1	75
Chrysene	84	1	42	1	67
Benzo(b)fluoranthene	140	1	60	1	80
Benzo(k)fluoranthene	32	1	15	1	72
Benzo(a)pyrene	93	1	41	1	78
Indeno(1,2,3-cd)pyrene	91	1	35	1	89
Dibenzo(a,h)anthracene	14	1	5.5	1	87
Benzo(g,h,i)perylene	52	1	20	1	89

E4RW1DL and E4RW2DL

Semivolatiles-SIM compounds	E4RW1DL µg/kg	DF	E4RW2DL µg/kg	DF	%RPD
Naphthalene	ND	10	ND	5	
2-Methylnaphthalene	ND	10	ND	5	
Acenaphthylene	ND	10	ND	5	

Semivolatiles-SIM compounds	E4RW1DL µg/kg	DF	E4RW2DL µg/kg	DF	%RPD
Acenaphthene	10	10	ND	5	
Fluorene	12	10	ND	5	
Phenanthrene	110	10	35	5	100
Anthracene	31	10	11	5	95
Fluoranthene	190	10	81	5	80
Pyrene	160	10	66	5	83
Benzo(a)anthracene	98	10	43	5	78
Chrysene	85	10	42	5	68
Benzo(b)fluoranthene	120	10	61	5	65
Benzo(k)fluoranthene	48	10	19	5	87
Benzo(a)pyrene	89	10	43	5	70
Indeno(1,2,3-cd)pyrene	59	10	26	5	78
Dibenzo(a,h)anthracene	10	10	4.7	5	72
Benzo(g,h,i)perylene	46	10	22	5	71

For field duplicate pair E4RW1 and E4RW2, all compounds except Naphthalene and Acenaphthylene had RPD values above 50%. Note that most detected results in the neat analyses for these samples exceeded the calibrated instrument range. Diluted analyses were performed. The RPDs are also above than 50% for all detected compounds in the diluted analyses.

E4RW3 and E4RW4

Semivolatiles-SIM compounds	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Naphthalene	6.1	1	6.6	1	7.9
2-Methylnaphthalene	2.6	1	5.5	1	72
Acenaphthylene	5	1	4.5	1	11
Acenaphthene	14	1	17	1	19
Fluorene	13	1	20	1	42
Phenanthrene	140	1	180	1	25
Anthracene	38	1	61	1	47
Fluoranthene	280	1	280	1	0
Pyrene	240	1	240	1	0
Benzo(a)anthracene	170	1	180	1	5.7
Chrysene	150	1	140	1	6.9
Benzo(b)fluoranthene	200	1	160	1	22
Benzo(k)fluoranthene	51	1	38	1	29
Benzo(a)pyrene	120	1	110	1	8.7
Indeno(1,2,3-cd)pyrene	95	1	96	1	1
Dibenzo(a,h)anthracene	20	1	16	1	22
Benzo(g,h,i)perylene	74	1	54	1	31

E4RW3DL and E4RW4DL

Semivolatiles-SIM compounds	E4RW3DL µg/kg	DF	E4RW4DL µg/kg	DF	%RPD
Naphthalene	ND	10		10	
2-Methylnaphthalene	ND	10		10	
Acenaphthylene	6.6	10	5.7	10	15
Acenaphthene	18	10	21	10	15
Fluorene	16	10	25	10	44
Phenanthrene	160	10	180	10	12
Anthracene	39	10	56	10	36
Fluoranthene	340	10	290	10	16
Pyrene	250	10	200	10	22
Benzo(a)anthracene	140	10	130	10	7.4
Chrysene	130	10	120	10	8
Benzo(b)fluoranthene	210	10	160	10	27
Benzo(k)fluoranthene	64	10	45	10	35
Benzo(a)pyrene	140	10	110	10	24
Indeno(1,2,3-cd)pyrene	92	10	64	10	36
Dibenzo(a,h)anthracene	17	10	13	10	27
Benzo(g,h,i)perylene	77	10	53	10	37

For field samples E4RW3 and E4RW4, compounds 2-Methylnaphthalene, Fluorene, and Anthracene had RPD values that exceeded 50%. All RPDs are less than 50% in the diluted analyses.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that the semivolatiles-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatiles-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

E4RS3DL	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RT0	Acenaphthylene
E4RT0DL	Acenaphthene, Fluorene, Anthracene
E4RT1DL E4RT7DL	Acenaphthylene
E4RT8	2-Methylnaphthalene, Anthracene, Benzo(k)fluoranthene

E4RT9DL	Acenaphthylene, Acenaphthene,
E4RW0 E4RW1	Acenaphthylene
E4RW1DL	Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RW2	2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene,
ER4W2DL	Anthracene, Dibenzo(a,h)anthracene
E4RW3	2-Methylnaphthylene
E4RW3DL	Acenaphthylene, Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RW4DL	Acenaphthylene, Acenaphthene, Fluorene, Dibenzo(a,h)anthracene
E4RW5	2-Methylnaphthylene
E4RW5DL	Acenaphthene, Fluorene
E4RW6	Acenaphthylene
E4RW6DL	Acenaphthene, Fluorene, Anthracene, Dibenzo(a,h)anthracene
E4RW7	2-Methylnaphthylene, Acenaphthene, Fluorene
E4RW7DL	Acenaphthene, Anthracene, Dibenzo(a,h)anthracene
E4RW8	2-Methylnaphthalene, Anthracene, Benzo(k)fluoranthene, Dibenzo(a,h) anthracene
E4RW9	Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatiles-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

E4RS3	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RT0	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT1	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT7	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RT9	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RW1	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW2	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4RW3, E4RW4	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW5	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene.
E4RW6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RW7	Fluoranthene, Pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene

The following semivolatiles-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed.

E4RT0DL	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4RT1DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RT7DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene,
E4RT9DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene,
E4RW0	Naphthalene, 2-Methylnaphthalene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RW3DL E4RW4DL	Fluoranthene
E4RW5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene

The following semivolatile SIM samples have compound concentrations below the MDL reported on the Form 1s. Detected compounds were qualified U and reported at the CRQL. The results are reported correctly in the EDD.

E4RT1DL E4RT7DL E4RW4DL	Naphthalene, 2-Methylnaphthalene
E4RS3DL	Naphthalene, 2-Methylnaphthalene, Acenaphthylene
E4RT0DL E4RT9DL E4RW1DL E4RW3DL E4RW6DL	Naphthalene
E4RW2DL	Naphthalene, Acenaphthene, Fluorene
E4RW5DL	Naphthalene, Acenaphthylene
E4RW7DL	Naphthalene, Fluorene

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *initial* instrument blank concentration is less than the CRQL. Detected compounds are qualified "U". Nondetected compounds remain unchanged. Reported sample concentrations have been elevated to the CRQL.

E4RT8, E4RW1, E4RW7, E4RW8, E4RW9	4,4'-DDT
E4RS3, E4RT1DL, E4RT8, E4RW1, E4RW5, E4RW7, E4RW8, E4RW9	Methoxychlor
E4RT1DL, E4RT8, E4RT9, E4RW0, E4RW7	Endrin aldehyde

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the CRQL. Detected compounds are qualified "U" and the sample concentrations have been elevated to the CRQL. Nondetected compounds are not qualified.

E4RT8, E4RW1, E4RW8, E4RW9	beta-BHC
E4RT8, E4RW1, E4RW7, E4RW8, E4RW9	4,4'-DDT
E4RW5, E4RW6	alpha-Chlordane
E4RS3, E4RT1, E4RT1DL, E4RT7, E4RT8, E4RW1, E4RW4 - E4RW8	Methoxychlor
E4RW9	4,4'-DDD
E4RT1DL, E4RW3 E4RW4, E4RW5	Endrin aldehyde
E4RT0, E4RT8, E4RW0 – E4RW6, E4RW8	Heptachlor

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Samples E4RS3, E4RT0, E4RT1, E4RT7, E4RT8, E4RT9, E4RW0, E4RW1, E4RW2, E4RW3, E4RW4, E4RW6, E4RW7, E4RW8, and E4RW9 had acceptable surrogate recoveries on one or both columns. No data for these samples was qualified based on surrogate recovery.

However, a high surrogate recovery was obtained on one column for samples E4RT0, E4RW3, and E4RW6. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. As a result, for samples E4RT0, E4RW3, and E4RW6, the "J" flags applied during the automated check process have been removed for the affected compounds.

E4RT0	alpha-chlordane, Dieldrin
E4RW3	4,4'-DDE, Endrin ketone
E4RW6	4,4'-DDD, 4,4'-DDE

Pesticide sample E4RW5 had surrogate recoveries greater than the 200% on both columns. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4RT8, the pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit on the RTXCLP2 column. All sample results for the following compounds which were reported from the RTXCLP2 column are affected. Detected compounds reported from this column are qualified "J". Nondetected compounds remain unchanged

gamma-BHC, Heptachlor, Aldrin, Dieldrin

For sample E4RT8, the pesticide MSD had a percent recovery for Endrin that was greater than the upper acceptance limit on both columns. All samples results for Endrin are affected. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

For sample E4RT8, the pesticide MSD had a percent recovery for 4,4'-DDT that was greater than the upper acceptance limit on the RTXCLP column. All samples results for 4,4'-DDT which were reported from the RTXCLP column are affected. Detected compounds reported from this column are qualified "J". Nondetected compounds remain unchanged.

In addition, the relative percent difference (RPD) between the MS and MSD is outside criteria for Heptachlor and Endrin. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4RT9 and E4RW0

Pesticide compound	E4RT9 µg/kg	DF	E4RW0 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	0.14	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.27	1	0.14	1	63
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	0.25	1	
4,4'-DDE	1.1	1	1.6	1	37
Endrin		1	0.27	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	1	1	1.2	1	18
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.77	1	1.2	1	44
Methoxychlor		1		1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane		1	0.66	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4RT9 and E4RW0, Heptachlor epoxide had an RPD value greater than 50%. The Endrin, Methoxychlor, and gamma-chlordane results for sample E4RT9; and the Methoxychlor result for sample E4RW0 were associated with an “R” flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

E4RW1 and E4RW2

Pesticide compound	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	0.12	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	0.12	1	0.15	1	22
Aldrin	ND	1	ND	1	

Pesticide compound	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Heptachlor epoxide		1		1	
Endosulfan I	ND	1	ND	1	
Dieldrin	0.1	1	ND	1	
4,4'-DDE	0.5	1		1	
Endrin	0.24	1	2	1	160
Endosulfan II	0.24	1	ND	1	
4,4'-DDD	0.76	1	1.1	1	37
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.24	1		1	
Methoxychlor	1.2	1		1	
Endrin ketone	0.24	1	0.3	1	22
Endrin aldehyde	ND	1	0.45	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	1.3	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4RW1 and E4RW2, Endrin, 4,4'-DDT, and Methoxychlor had RPD values greater than 50%. Results for Heptachlor epoxide in sample E4RW1; and for Heptachlor epoxide, 4,4'-DDE, 4,4'-DDT, and Methoxychlor in sample E4RW2 were associated with an "R" flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

E4RW3 and E4RW4

Pesticide compound	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	0.15	1	0.13	1	14
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1	0.39	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	0.36	1	0.26	1	32
4,4'-DDE	1.6	1	1.2	1	29
Endrin	ND	1		1	
Endosulfan II	0.3	1	0.26	1	14
4,4'-DDD	3	1	2.2	1	31
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.64	1	0.27	1	82
Methoxychlor		1	1.3	1	
Endrin ketone	0.42	1	ND	1	

Pesticide compound	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Endrin aldehyde	0.3	1	0.26	1	14
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	1.3	1	0.17	1	150
Toxaphene	ND	1	ND	1	

For field duplicate samples E4RW3 and E4RW4, 4,4'-DDT and gamma-Chlordane had RPD values that were greater than 50%. Results for Heptachlor epoxide and Methoxychlor in sample E4RW3; and for Endrin in sample E4RW4 were associated with an "R" flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

E4RT8	Heptachlor epoxide
E4RW7	4,4'-DDE
E4RW0, E4RW1	Dieldrin
E4RW9	Dieldrin, 4,4'-DDE

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J".

E4RS3	4,4'-DDT, 4,4'-DDE
E4RT1	Heptachlor, Dieldrin, 4,4'-DDE
E4RT1DL	Dieldrin
E4RT7	Endrin, 4,4'-DDT
E4RT8	Heptachlor, Heptachlor epoxide
E4RT9	Heptachlor epoxide, 4,4'-DDE
E4RW2	gamma-chlordane

E4RW3	4,4'-DDD
E4RW8	4,4'-DDD, 4,4'-DDE, Methoxychlor

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ".

E4RS3	Endrin
E4RT0	4,4'-DDE, 4,4'-DDT
E4RT7	Heptachlor, 4,4'-DDE
E4RT9	4,4'-DDD
E4RW0	gamma-Chlordane
E4RW2	Endrin, 4,4'-DDD, Endrin aldehyde
E4RW3	Dieldrin, gamma-Chlordane, 4,4'-DDT
E4RW4	Heptachlor epoxide, 4,4'-DDT
E4RW5	Gamma-chlordane
E4RW6	Dieldrin, gamma-Chlordane
E4RW7	Heptachlor epoxide

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

E4RS3	Heptachlor epoxide, Endosulfan II, Methoxychlor,
E4RT0	Heptachlor
E4RT1	Endosulfan II, Methoxychlor
E4RT1DL	Heptachlor epoxide, Endrin, Endrin aldehyde, Methoxychlor
E4RT7	Endosulfan II, Methoxychlor, Endrin aldehyde
E4RT8	Alpha-BHC, beta-BHC, 4,4'-DDT, Endrin ketone, Methoxychlor
E4RW0	Heptachlor, Heptachlor epoxide, Endrin
E4RW1	beta-BHC, Heptachlor, Endrin, Endosulfan II, Methoxychlor, Endrin ketone
E4RW2	Heptachlor, Endrin ketone

E4RW3	Heptachlor, Endosulfan II, Endrin aldehyde
E4RW4	Heptachlor, Dieldrin, Endosulfan II, Methoxychlor, Endrin aldehyde
E4RW5	Heptachlor, Endosulfan II, Methoxychlor, Endrin aldehyde, alpha-Chlordane
E4RW6	Heptachlor, Endrin, Endosulfan II, Methoxychlor, Endrin ketone, alpha-Chlordane,
E4RW7	4,4'-DDT, Dieldrin, Methoxychlor, Endrin ketone
E4RW8	beta-BHC, Heptachlor epoxide, Endrin, Endrin ketone, gamma-Chlordane
E4RW9	beta-BHC, Heptachlor epoxide, 4,4'-DDD, 4,4'-DDT, gamma-Chlordane

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R".

E4RS3	Heptachlor
E4RT0	Heptachlor epoxide, Endrin, 4,4'-DDD, Methoxychlor
E4RT1	Heptachlor epoxide, Endrin, Endrin aldehyde
E4RT1DL	4,4'-DDD
E4RT7	Alpha-BHC, Heptachlor epoxide
E4RT9	Endrin, Methoxychlor, gamma-Chlordane
E4RW0	Methoxychlor
E4RW1	Heptachlor epoxide
E4RW2	4,4'-DDE, 4,4'-DDT, Heptachlor epoxide, Methoxychlor
E4RW3	Heptachlor epoxide, Methoxychlor
E4RW4	Endrin, gamma-Chlordane
E4RW5	Dieldrin, Endosulfan sulfate, Endrin ketone, Heptachlor epoxide
E4RW6	Heptachlor epoxide

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide sample had reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The result from the diluted sample should be used for result validation.

E4RT1 4,4'-DDE

The reported CRQLs listed on laboratory Form Is are incorrect for the following samples due to rounding errors, and do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

Alpha-chlordane and dieldrin in sample E4RW9 was reported as a detected result at the CRQL in the original "Z" file. Examination of the raw data showed that the value was a nondetected result. The "U" flag was added to the sample result.

E4RS3, E4RT0, E4RT1, E4RT1DL, E4RW2, E4RW6, E4RW7, ER4W9

The following pesticide samples were assigned the unique qualifier flags "U" and "J" during the automated check process. Based on review findings, the flag was adjusted to "U" in the "B" and "Z" files.

E4RT0, E4RT8, E4RW3, E4RW5, E4RW6	Heptachlor
E4RT1DL, E4RW0, E4RW1, E4RW6, E4RW8	Endrin
E4RT8, E4RW1, E4RW7 – E4RW9	4,4'-DDT
E4RT8MS	4,4'-DDE
E4RT8MSD	beta-BHC
E4RW3, E4RW5, E4RW6,	Endosulfan II
E4RW3, E4RW5	Endrin aldehyde
E4RW5, E4RW6	alpha-chlordane
E4RW6	Endrin ketone
E4RW5, E4RW6, E4RW8	Methoxychlor

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

Samples E4RS3, E4RT0, E4RT1, E4RT1DL, E4RT7, E4RT8, E4RT9, E4RW0, E4RW1, E4RW2, E4RW3, E4RW4, E4RW5, E4RW6, E4RW7, E4RW8, and E4RW9 had acceptable surrogate recoveries on one or both columns. No data for these samples was qualified based on surrogate recovery.

However, a high surrogate recovery was obtained on one column for samples E4RT0, E4RT1, E4RT9, E4RW0, E4RW2 - E4RW5. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. As a result, the "J" flags applied during the automated check process have been removed for the following compounds.

E4RT0, E4RT9 , E4RW4, E4RW5	Aroclor-1260
E4RW5	Aroclor-1016

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RT9 and E4RW0, E4RW1 and E4RW2, and E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4RT9 AND E4RW0

Aroclor compounds	E4RT9 µg/kg	DF	E4RW0 µg/kg	DF	%RPD
Aroclor-1016	5.7	1	5.3	1	7.3
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	5.7	1	5.7	1	0
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4RW1 and E4RW2

Aroclor compounds	E4RW1 µg/kg	DF	E4RW2 µg/kg	DF	%RPD
Aroclor-1016	2.7	1	7.6	1	95.1
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	2.1	1		1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For field duplicates E4RW1 and E4RW2, Aroclor-1016 had an RPD value above 50%. The result for Aroclor-1260 in sample E4RW2 was associated with an “R” flag applied for other reasons, and were removed from the EDD. Therefore, those results were not evaluated for field duplicate precision.

E4RW3 and E4RW4

Aroclor compounds	E4RW3 µg/kg	DF	E4RW4 µg/kg	DF	%RPD
Aroclor-1016	9.9	1	8.7	1	12.9
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	6.4	1	5.9	1	8.1
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

E4RT8, E4RW1, E4RW7, E4RW8, E4RW9 Aroclor-1260

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

E4RT8, E4RW3 Aroclor-1260

E4RS3, E4RW1 Aroclor-1016

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

E4RW0, E4RW6 Aroclor-1260

E4RT9, E4RW0, E4RW2, E4RW3, E4RW4 Aroclor-1016

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below the CRQL. Detected compounds are qualified "U". Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4RT8, E4RW7, E4RW8, E4RW9 Aroclor-1016

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R".

E4RW2 Aroclor-1260
E4RW6 Aroclor-1016

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4RT7	Aroclor-1016
E4RT1	Aroclor-1016, Aroclor-1260

The reported CRQLs listed on laboratory Form 1s are incorrect for the following samples, due to rounding errors, and do not match the EDD (Superset spreadsheet). Manual calculation of the data verified that the EDD has the correct values.

E4RS3, ER4T0, ER4T1, ER4T1DL, E4RW2, E4RW6, E4RW7, E4RW9

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: **August 3, 2010**

SUBJECT: **Revised Review Narrative Report**
Review of Data
Received for Review on: 16 April 2010

FROM: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

This data review narrative supersedes the narrative sent on June 14, 2010 for the review of data in SDG E4RX2. The changes made to this narrative include clarifications added to the Semivolatile-SIM and Pesticide sections of this narrative. The changes are highlighted in bold face type. The "reportable results" field in the 'Z" file has been updated to reflect the sample dilutions and reanalyses detailed in this narrative.

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0

SDG Number: E4RX2

Number and Type of Samples: Thirteen (13) soil samples

Sample Numbers: E4RX2 - E4RX9, and E4RY0-E4RY4

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
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Dan Plomb, CH2M Hill
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SDG Summary

Introduction: Thirteen (13) sediment samples, labeled E4RX2 through E4RX9, and E4RY0-through E4RY4 were shipped to ALS Laboratory Group located in Salt Lake City, Utah. All samples were collected on 2/24/2010 and 2/25/2010. All samples were received on 2/27/2010 intact. Samples exceeded the proper shipping temperature range of 2 – 6 ºC. Samples were received at the facility at 8 ºC. No data have been qualified based on temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The "U" values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

No sample was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses. The laboratory chose E4RY4 as the QC sample.

Using the field dup identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples that no samples from this SDG are field duplicates. No field blanks are associated with this SDG.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RY0, E4RY1, E4RY2, E4RY3, E4RY4, E4RY4MS, E4RY4MSD

Benzo(b)fluoranthene
Benzo(k)fluoranthene

4. BLANKS

The following semivolatile samples have reported analyte concentrations less than the CRQL. The associated method blank concentration of the analyte is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL.

Benzo(g,h,i)perylene:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Indeno(1,2,3-cd)pyrene:	E4RX2, E4RX3, E4RX4, E4RX6, E4RX7, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Benzo(b)fluoranthene:	E4RX2, E4RX3, E4RX4, E4RX7, E4RY0, E4RY4MS, E4RY4MSD
Benzo(k)fluoranthene:	E4RX2, E4RX3, E4RX4, E4RX7, E4RX9, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Benzo(a)pyrene:	E4RX2, E4RX3, E4RX4, E4RX7, E4RY0, E4RY4, E4RY4MS, E4RY4MSD
Dibenzo(a,h)anthracene:	E4RX2, E4RX3, E4RX4, E4RX6, E4RX7, E4RX8, E4RX9, E4RY0, E4RY1, E4RY2, E4RY3, E4RY4, E4RY4MS, E4RY4MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile sample has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RY1 Anthracene-d_{10} (affected compounds Anthracene, Phenanthrene)

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

The CRQLs specified in Modification Reference Number: 1888.0 were not achieved for sample E4RX7, due to limited sample volume. The CRQL is two times greater than requested, because 25 grams rather than 50 grams of sample was extracted.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4RX8, E4RX9, E4RY3 - Anthracene
E4RX7, E4RY0 - Pyrene
E4RX7, E4RY4 - Benzo(g,h,i)perylene
E4RX7, E4RY0 - Benzo(b)fluoranthene
E4RX7, E4RY0 - Fluoranthene
E4RX9 - Benzo (k) fluoranthene
E4RY4 - Chrysene
E4RX7, E4RY4 - Benzo(a)pyrene
E4RY3 - Dibenzo(a,h)anthracene
E4RY4 - Benzo(a)anthracene
E4RY4 - Phenanthrene
E4RY3 - Fluorene

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

No dilutions for semivolatiles are associated with this SDG. Due to suspected rounding differences, the reported CRQLs listed on laboratory Form 1s do not agree with the B-file Spreadsheet results.
E4RX7, E4RX9, E4RY0, E4RY2

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL.

Benzo(g,h,i)perylene:	E4RX4, E4RX5, E4RX6
Indeno(1,2,3-cd)pyrene:	E4RX4, E4RX5, E4RX6
Benzo(b)fluoranthene:	E4RX5, E4RX6
Benzo(a)pyrene:	E4RX5, E4RX6

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Acenaphthene spike recoveries and %RPD met criteria. Pyrene in the matrix/matrix spike duplicate samples had negative percent recovery because spiking levels of this compound were significantly lower than the levels of pyrene found in the unspiked sample. Results were not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatile SIM.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The CRQLs specified in Modification Reference Number: 1888.0 were not achieved for sample E4RX7 due to limited sample volume. The CRQL is two times greater than requested as 25 grams rather than 50 grams of sample was extracted.

The following semivolatile samples have compound concentrations below the MDL on the originally submitted Form 1s. Refer to the resubmitted corrected Form 1s when evaluating data. The EDD is correct.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX7DL, E4RX8DL, E4RX9DL, E4RY0, E4RY0DL, E4RY1DL, E4RY2DL, E4RY3DL, E4RY4DL, E4RY4MS, E4RY4MSD

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX7DL, E4RX8DL, E4RX9DL, E4RY0, E4RY0DL, E4RY1, E4RY1DL, E4RY3DL, E4RY4, E4RY4DL, E4RY4MS, E4RY4MSD

Anthracene:	E4RX2, E4RX3, E4RX7, E4RY0DL, E4RY1DL, E4RY4DL, E4RY4MS, E4RY4MSD
Pyrene;	E4RX5, E4RX6
Benzo(g,h,i)perylene:	E4RX4, E4RX5, E4RX6
Indeno(1,2,3-cd)pyrene:	E4RX4, E4RX5, E4RX6
Benzo(b)fluoranthene:	E4RX5, E4RX6
Fluoranthene:	E4RX5, E4RX6
Benzo(k)fluoranthene:	E4RX4
Acenaphthylene:	E4RY1, E4RY3DL, E4RY4
Chrysene:	E4RX5, E4RX6
Benzo(a)pyrene:	E4RX5, E4RX6
Dibenzo(a,h)anthracene:	E4RX2, E4RX3, E4RX7DL, E4RY0DL, E4RY4DL, E4RY4MS, E4RY4MSD
Benzo(a)anthracene:	E4RX4, E4RX5, E4RX6
Acenaphthene:	E4RX8DL, E4RX9DL, E4RY0, E4RY1DL, E4RY4
Phenanthrene:	E4RX5, E4RX6
Fluorene:	E4RX2, E4RX3, E4RX7, E4RX9DL, E4RY0DL, E4RY1DL
2-Methylnaphthalene:	E4RY4

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RX4, E4RX7DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4RX7	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RX8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RX9	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY0	Phenanthrene, Fluoranthene, Pyrene, Benzo(b)fluoranthene,
E4RY1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY3	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4RY4	**Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene**

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. **Results for the following samples provide qualified, but usable data, and should be used in result validation.**

E4RX8DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4RX9DL	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4RY1DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4RY2DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene

E4RY3DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference for Decachlorobiphenyl exceeding criteria. All detected compounds are qualified J. All nondetected compounds are qualified UJ.

E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

4. BLANKS

The following pesticide samples have Endrin aldehyde concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4, E4RY4MS, E4RY4MSD

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Reported sample concentrations have been elevated to the CRQL. Nondetected compounds are not qualified.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide:	E4RY3DL
Endosulfan sulfate:	E4RX4
Endosulfan II:	E4RX8, E4RX9, E4RX9DL, E4RY0
Dieldrin:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY0, E4RY1
4,4'-DDD:	E4RY4MS
4,4'-DDE:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7,
Endrin aldehyde:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY1, E4RY4, E4RY4MS, E4RY4MSD

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide:	E4RX2, E4RX5, E4RX6, E4RY3DL,
Endosulfan sulfate:	E4RX4,
Endosulfan II:	E4RX8, E4RX9, E4RX9DL, E4RY0
4,4'-DDT:	E4RY4
gamma-Chlordane:	E4RX2, E4RX3, E4RX4,
Dieldrin:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY0, E4RY1
Endrin:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4
Methoxychlor:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7
4,4'-DDD:	E4RY0, E4RY4MS
4,4'-DDE:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7
Endrin aldehyde:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY1, E4RY4, E4RY4MS, E4RY4MSD
Heptachlor:	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7
Endosulfan I:	E4RX7

6. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

In all cases, undiluted samples had acceptable surrogate recoveries on one or both columns. No data was qualified based on high surrogate recovery on one column.

The following pesticide samples have surrogate percent recoveries that are greater than 200%. The high surrogate recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The "J" flags applied to samples E4RY2 and E4RY3 during the automated check process would have been removed for all detected compounds, but the J flags have been retained for other reasons detailed in this report.

E4RY2 and E4RY3

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4RX9DL, E4RY3DL

The following pesticide samples have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected compounds are qualified J. Nondetected compounds are not qualified. The high surrogate recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The "J" flags applied to samples E4RX8 and E4RX9 during the automated check process would have been removed for all detected compounds, but the J flags have been retained for other reasons detailed in this report.

E4RX8, E4RX9

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

Not applicable for Pesticides.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The CRQLs specified in Modification Reference Number: 1886.0 were not achieved for sample E4RX7 due to limited sample volume. The CRQL is two times greater than requested as 30 grams rather than 50 grams of sample was extracted.

The following pesticide samples have compound concentrations below the MDL on the originally submitted Form 1. Refer to the resubmitted corrected Form 1 for data evaluation. The EDD is correct.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX9DL, E4RY3DL

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4RX2, E4RX5, E4RX6, E4RX7, E4RX9DL, E4RY0, E4RY1

beta-BHC	E4RX5, E4RX6
4,4’-DDD	E4RX5, E4RX6
4,4’-DDT	E4RX2, E4RX7
Aldrin	E4RY0
alpha-Chlordane	E4RX9DL

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Aldrin	E4RY0, E4RY4MSD
beta-BHC	E4RX6
Endosulfan II	E4RX2

4,4'-DDT	E4RX7, E4RY1, E4RY4MSD
alpha-Chlordane	E4RX8
gamma-Chlordane	E4RX4, E4RY0, E4RY1
Endrin ketone	E4RX4, E4RX6, E4RY2
Dieldrin	E4RX6, E4RX8, E4RY2, E4RY4MS, E4RY4MSD
Endrin	E4RX8, E4RY1, E4RY3, E4RY4MS, E4RY4MSD
4,4'-DDD	E4RX5, E4RX6, E4RX8, E4RX9DL, E4RY4, E4RY4MS, E4RY4MSD
4,4'-DDE	E4RX8, E4RY3, E4RY4MSD
Endosulfan I	E4RX9

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

E4RX3, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY2, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide	E4RX3, E4RX9, E4RX9DL, E4RY0
delta-BHC	E4RX7
4,4'-DDT	E4RY4MS
gamma-BHC (Lindane)	E4RX8, E4RY2, E4RY4MS, E4RY4MSD
4,4'-DDD	E4RX9, E4RY2
4,4'-DDE	E4RY3DL, E4RY4

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Reported sample concentrations have been elevated to the CRQL. Detected compounds are qualified U.

E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide	E4RX2, E4RX5, E4RX6, E4RY3DL
Endosulfan sulfate	E4RY0
Aldrin	E4RX2, E4RX3, E4RX5, E4RY4
alpha-BHC	E4RX9, E4RY1, E4RY4, E4RY4MS
beta-BHC	E4RX3, E4RY0, E4RY1
delta-BHC	E4RX2
Endosulfan II	E4RX3, E4RX5, E4RX8, E4RX9, E4RY0, E4RY2, E4RY3, E4RY4, E4RY4MSD
4,4'-DDT	E4RX4, E4RX5
alpha-Chlordane	E4RY3DL
gamma-Chlordane	E4RX2, E4RX3
Endrin ketone	E4RX2, E4RX3, E4RX5, E4RX8, E4RY0, E4RY1, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD
gamma-BHC (Lindane)	E4RX2, E4RY0, E4RY1, E4RY4
Dieldrin	E4RX2, E4RX4, E4RX5, E4RX7, E4RX9DL, E4RY1, E4RY3DL, E4RY4
Endrin	E4RX7, E4RX9
Methoxychlor	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

4,4'-DDD	E4RX2, E4RX3, E4RX4, E4RY0
4,4'-DDE	E4RX2, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4MS
Endrin aldehyde	E4RX2, E4RX3, E4RX4, E4RX5, E4RX6, E4RX7, E4RY4, E4RY4MS, E4RY4MSD
Heptachlor	E4RX7, E4RX9, E4RY1
Endosulfan I	E4RY3DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

E4RX4, E4RX7, E4RX8, E4RX9, E4RX9DL, E4RY0, E4RY1, E4RY2, E4RY3, E4RY3DL, E4RY4, E4RY4MS, E4RY4MSD

Heptachlor epoxide	E4RX4, E4RX7, E4RX8, E4RY1, E4RY2, E4RY3, E4RY4, E4RY4MS, E4RY4MSD
4,4'-DDT	E4RX8, E4RX9, E4RX9DL, E4RY2, E4RY3, E4RY3DL
alpha-Chlordane	E4RX9, E4RY2, E4RY3
gamma-Chlordane	E4RX7, E4RX9, E4RY2, E4RY3, E4RY4, E4RY4MSD
Dieldrin	E4RY3
4,4'-DDD	E4RX7, E4RY1, E4RY3, E4RY3DL
4,4'-DDE	E4RX9, E4RX9DL, E4RY1
Endrin aldehyde	E4RY0
Heptachlor	E4RX8, E4RY2
Endosulfan I	E4RX8, E4RY2, E4RY3

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RX7, E4RX8, E4RX9, E4RY0, E4RY1

Pesticide sample E4RX9 reported a concentration for 4,4'-DDD that exceeded the calibrated range of the instrument. The result was flagged "E" by the laboratory and, as per the NFG, is flagged estimated, "J". The result from diluted sample E4RX9DL should be used for result validation.

Pesticide sample E4RY3 had an R-flagged result for 4,4'-DDD and 4,4'-DDT in both the neat analysis and the dilution. Consequently, no results are available for 4,4'-DDD or 4,4'-DDT for this sample. The "reportable results" in the "Z" file remain the results from the neat analysis.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor samples have surrogate percent recoveries that are greater than 200%. The high surrogate recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected and nondetected compounds are not qualified.

E4RX9RE, E4RY2, E4RY2RE, E4RY3RE

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4RY2REDL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected and nondetected compounds are not qualified

E4RX9, E4RY1, E4RY3

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4RX9REDL, E4RY3REDL

The following undiluted Aroclor samples have surrogate percent recoveries less than 10%. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4RY1

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) of Aroclor-1016 between the following Aroclor matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. Only the unspiked sample, MS and MSD are affected.

E4RY4, E4RY4MS, E4RY4MSD

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries of Aroclor-1016 that are greater than the upper acceptance. The high spike recovery was obtained on only one column for these samples. The high recovery likely indicates a coelution or matrix interference on that column at the retention times for that Aroclor. Since the spike recovery was acceptable on the other column, the extraction procedure is not suspect. Detected and nondetected Aroclor-1016 results are not qualified for high recovery, but are qualified for %RPD.

E4RY4, E4RY4MS, E4RY4MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates associated with this SDG**.**

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The CRQLs specified in Modification Reference Number: 1887.0 were not achieved for sample E4RX7 due to limited sample volume. The CRQL is two times greater than requested as 30 grams rather than 50 grams of sample was extracted.

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

E4RX2, E4RX8RE, E4RY2RE, E4RY2REDL, E4RY4MS, E4RY4MSD

Aroclor-1260	E4RX2
Aroclor-1248	E4RX8RE, E4RY2RE, E4RY2REDL
Aroclor-1016	E4RY4MS, E4RY4MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

E4RX7, E4RX9, E4RY3RE, E4RY3REDL

Aroclor-1260 E4RX7
Aroclor-1254 E4RX9
Aroclor-1248 E4RY3RE, E4RY3REDL

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1254 E4RX9RE, E4RX9REDL, E4RY2RE, E4RY2REDL, E4RY3RE, E4RY3REDL

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4RX4, E4RX5, E4RX6, E4RX9, E4RY0, E4RY1

Samples E4RX8, E4RX9, E4RY2 and E4RY3 were analyzed and reported twice as undiluted analyses. During the first analysis, the laboratory determined the presence of an Aroclor for which a valid calibration was not in place. As a result, the “S” flag was applied by the laboratory and the sample was reanalyzed with a valid calibration. This analysis has a “RE” suffix. The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample (suffix DL) should be used for result validation.

E4RX8, E4RX8RE, E4RX9, E4RX9RE, E4RY2, E4RY2RE, E4RY3, E4RY3RE

However, in the case of Aroclor-1254, Samples E4RX9RE, E4RX9REDL, E4RY2RE, E4RY2REDL, E4RY3RE, and E4RY3REDL have all been flagged “R” (rejected, unusable) as the percent differences between column results exceeds 100%. Results for Aroclor-1254 from the original analysis of E4RX9, E4RY2 and E4RY3 provide qualified, but usable data.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 21, 2010

Subject: Review of Data
Received for Review on April 1, 2010

From: Caryn Wojtowicz
Senior Chemist

To: Data User GLNPO

We have reviewed the data for the following case

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN 1886.0, 1887.0, 1888.0 SDG Number E4RY5

Number and Type of Samples: Twenty (20) sediment samples

Sample Numbers: E4RY5-E4RY7, E4RZ7-E4RZ9, E4RS0-E4S03, E4S05, E4S07, E4S08, E4SB9, E4SC0, E4SC1, E4SC3, E4SC8, E4SD9 AND E4SE0

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction Twenty (20) sediment samples, labeled E4RY5 through E4RY7, E4RZ7 through E4RZ9, E4RS0 through E4S03, E4S05, E4S07, E4S08, E4SB9, E4SC0, E4SC1, E4SC3, E4SC8, E4SD9 and E4SE0 were shipped to ALS Laboratory Group located in Salt Lake City, Utah. The SDG consisted of two shipments of samples. The first shipment of samples was collected on 2/26/2010 and was received at the laboratory on 03/02/2010, intact at 9 ºC. The second shipment was collected on 03/04/2010 and received on 03/06/2010 intact at 5 ºC. Samples received 03/02/2010 exceeded the proper shipping temperature range of 2 – 6 ºC. No data have been qualified based on temperature.

Sample Analysis and Data Review All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually ”sediment” samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the “J” flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of “J” if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator “J” flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the “result value” in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file “quantitation limit” are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The “U” values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the “J” flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4S07 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Using the field dup identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples that Samples E4S07 and E4S08 are field duplicates. No field blanks are associated with this SDG.

This report is ordered by fraction in the following order Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S01, E4S02, E4S03, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08
Benzo(b)fluoranthene
Benzo(k)fluoranthene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table

Semivolatile analytes	**E4S07** µg/Kg	**E4S08** µg/Kg	**%RPD**
Naphthalene	ND	ND	NA
2-Methylnaphthalene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Acenaphthene	ND	ND	NA
Fluorene	ND	ND	NA
Phenanthrene	190	ND	#

Semivolatile analytes	E4S07 µg/Kg	E4S08 µg/Kg	%RPD
Anthracene	ND	ND	NA
Fluoranthene	480	100	131
Pyrene	530	94	140
Benzo(a)anthracene	240	ND	#
Chrysene	250	ND	#
Benzo(b)fluoranthene	360	72	133
Benzo(k)fluoranthene	160	ND	#
Benzo(a)pyrene	270	ND	#
Indeno(1,2,3-cd)pyrene	180	ND	#
Dibenzo(a,h)anthracene	ND	ND	NA
Benzo(g,h,i)perylene	110	ND	#

ND= Not Detected, NA= Not Applicable, #= Not Calculable

Fluoranthene, Pyrene and Benzo(b)fluoranthene have RPDs exceeding 50%. For several other compounds, RPDs cannot be calculated because the compound was present in the MS, but not detected in the MSD. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4RY5, E4S03, E4S07MS, E4SC8, E4SE0
Pyrene	E4S05, E4S08
Benzo(g,h,i)perylene	E4RY5, E4RY6, E4RZ7, E4RZ8, E4RZ9, E4S03, E4S07, E4S07MS, E4S07MSD
Indeno(1,2,3-cd)pyrene	E4RY5, E4RY6, E4RZ7, E4S03, E4S07, E4S07MSD
Benzo(b)fluoranthene	E4RZ8, E4S05, E4S08
Fluoranthene	E4S05, E4S08
Benzo(k)fluoranthene	E4RY5, E4RY6, E4S03, E4S07, E4S07MSD
Chrysene	E4RY6, E4RZ7, E4RZ8, E4RZ9
Benzo(a)pyrene	E4RZ7, E4RZ8, E4RZ9
Dibenzo(a,h)anthracene	E4SB9, E4SE0
Benzo(a)anthracene	E4RY6, E4RZ7, E4RZ8, E4RZ9
Acenaphthene	E4S02
Phenanthrene	E4RZ7, E4RZ8, E4RZ9, E4S07
Fluorene	E4S02
2-Methylnaphthalene	E4SC8

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RZ8, E4S02, E4S07MS, E4SE0

No dilutions for semivolatiles are associated with this SDG.

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile SIM samples are associated with a method blank (SBLK99) in which Indeno(1,2,3-cd)pyrene was at levels greater than the MDL but less than the CRQL. For samples in which Indeno(1,2,3-cd)pyrene is detected above the MDL but below the CRQL, reported sample concentrations have been elevated to the CRQL and qualified U. For samples in which Indeno(1,2,3-cd)pyrene is detected above the CRQL results are not qualified.

E4SB9, E4SC0, E4SC0DL, E4SC1, E4SC3, E4SC8, E4SC8DL, E4SD9, E4SD9DL, E4SE0, E4SE0DL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Samples E4RZ7DL and E4S08DL with dilution factors less than or equal to 5 have deuterated monitoring compound 2-Methylnaphthalene-d_{10} recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Affected compounds are

2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, Phenanthrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The RPD between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S07, E4S07MS, E4S07MSD Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table

Semivolatile analytes	E4S07 µg/Kg	E4S08 µg/Kg	%RPD
Naphthalene	ND	ND	NA
2-Methylnaphthalene	ND	ND	NA
Acenaphthylene	ND	ND	NA
Acenaphthene	12	ND	#
Fluorene	12	ND	#
Phenanthrene	150	26	141
Anthracene	29	5	141
Fluoranthene	410	79	135
Pyrene	340	66	135
Benzo(a)anthracene	190	37	135
Chrysene	190	41	129
Benzo(b)fluoranthene	280	60	129
Benzo(k)fluoranthene	70	16	126
Benzo(a)pyrene	180	41	126
Indeno(1,2,3-cd)pyrene	150	38	119
Dibenzo(a,h)anthracene	28	7.2	118
Benzo(g,h,i)perylene	91	26	111

ND= Not Detected, NA= Not Applicable, #= Not Calculable

With the exception of Naphthalene, 2-Methylnaphthalene and Acenaphthylene, all RPDs either exceed 50%, or cannot be calculated because the compound was present in the MS, but not detected in the MSD. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4RY6DL, E4RY7, E4RZ8DL, E4S05DL, E4S08DL, E4SC0DL, E4SC1, E4SC3, E4SD9DL
Pyrene	E4S01
Benzo(g,h,i)perylene	E4RY7, E4S01
Indeno(1,2,3-cd)pyrene	E4S00, E4S01
Benzo(b)fluoranthene	E4S01
Fluoranthene;	E4S01
Benzo(k)fluoranthene	E4RY7, E4S00, E4S05DL, E4S08DL

Acenaphthylene	E4RY5, E4RY5DL, E4RY6, E4RZ8, E4RZ9, E4S02, E4S02DL, E4S03, E4S03DL, E4S07, E4S07MSD, E4SC0DL, E4SC8DL, E4SD9, E4SE0DL
Chrysene	E4S01
Benzo(a)pyrene	E4S00, E4S01
Dibenzo(a,h)anthracene	E4RY6DL, E4RY7, E4RZ7DL, E4RZ8DL, E4S05DL, E4S08DL, E4SC1, E4SC3
Benzo(a)anthracene	E4S00, E4S01
Acenaphthene	E4RY5DL, E4RY6DL, E4RZ7, E4RZ9DL, E4S05, E4S07DL, E4S08, E4SB9, E4SC8DL, E4SD9DL, E4SE0DL
Phenanthrene	E4S00, E4S01
Fluorene	E4RY6DL, E4RY7, E4RZ7, E4RZ9DL, E4S05, E4S05DL, E4S07DL, E4S08, E4SB9, E4SC0DL, E4SC1, E4SC8DL, E4SD9DL, E4SE0DL
Naphthalene	E4RZ9, E4SC3, E4SC8DL
2-Methylnaphthalene	E4RY7, E4RZ9, E4S02DL, E4S03, E4SC1, E4SC3, E4SC8DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RY5, E4S00, E4S05DL, E4S07, E4S08DL, E4SB9, E4SD9DL, E4SE0DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4RY5	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RY6	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RZ7	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4RZ8	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4RZ9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S02	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S03	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S05	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4S07	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S08	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene,
E4SB9	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SC0	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SC8	Naphthalene, 2-Methylnaphthalene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SC9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SE0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4RY5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4RY6DL	Fluoranthene
E4RZ9DL	Fluoranthene, Pyrene

E4S02DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S03DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4S07DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene
E4SC0DL	Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4SC8DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene
E4SC9DL	Fluoranthene, Pyrene, Benzo(b)fluoranthene, Indeno(1,2,3-cd)pyrene
E4SE0DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with CCVs for several compounds with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected as Decachlorobiphenyl (surrogate) was one of the compounds failing to meet criteria.

E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S01, E4S02, E4S03, E4S03DL, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08, E4SC0DL, E4SD9, E4SE0

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4SC0DL
Endosulfan II	E4RY7, E4RZ7, E4S05

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4SC0DL
Endosulfan II	E4RY6, E4RY7, E4RZ7, E4S05, E4S07, E4SB9, E4SC0, E4SC1, E4SC3, E4SE0
4,4'-DDT	E4RY7, E4RZ7, E4RZ9, E4S05

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SC3 has one surrogate percent recovery greater than 150%, but less than or equal to 200%, on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The “J” flags applied to samples E4SC3 during the automated check process have been removed for all detected compounds, unless the flag has been applied for another reason.

The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10% on one or both columns. All target analytes are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Automated flags have been

overridden if a compound has been reported from the GC column having acceptable recovery, unless the flag has been applied for another reason.

E4RY7, E4RZ8, E4S07, E4SC0, E4SC3, E4SC8, E4SE0

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The RPD between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4S07MS, E4S07MSD
Heptachlor	E4S07MS, E4S07MSD

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.

Aldrin	E4S07MS, E4S07MSD
4,4'-DDT	E4S07MS, E4S07MSD

The RPD between pesticide analyte results is less than the lower acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.

gamma-BHC (Lindane)	E4S07MS, E4S07MSD

The RPD between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4S07MS, E4S07MSD
gamma-BHC (Lindane)	E4S07MS, E4S07MSD
Dieldrin	E4S07MS, E4S07MSD
Endrin	E4S07MS, E4S07MSD
Heptachlor	E4S07MS, E4S07MSD

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than or equal to the lower expanded criteria limit but less than the lower primary criteria limit Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Heptachlor	E4S07MS

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are less than the lower expanded criteria limit Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4S07MS, E4S07MSD
gamma-BHC (Lindane)	E4S07MS, E4S07MSD
Heptachlor	E4S07MS, E4S07MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table.

Pesticide analytes	**E4S07** µg/Kg	**E4S08** µg/Kg	**%RPD**
alpha-BHC	ND	ND	NA
beta-BHC	0.19	0.2	5.1
delta-BHC	ND	ND	NA
gamma-BHC(Lindane)		ND	
Heptachlor	1.6	0.78	68.9
Aldrin	ND	ND	NA
Heptachlor epoxide			
Endosulfan I	ND	ND	NA
Dieldrin	1.6	1.3	20.7
4,4'-DDE	3.5	2.5	33.3
Endrin	0.96	0.79	19.4
Endosulfan II	0.38	ND	#
4,4'-DDD	ND	ND	NA
Endosulfan sulfate	ND	ND	NA
4,4'-DDT	ND		
Methoxychlor	1.9	2	5.1
Endrin ketone	0.38	ND	#
Endrin aldehyde	ND	ND	NA
alpha-Chlordane	ND	0.33	#
gamma-Chlordane	ND	ND	NA
Toxaphene	ND	ND	NA

ND = Not Detected, NA = Not Applicable, # = Not Calculable

Results for gamma-BHC(Lindane), Heptachlor epoxide, and 4,4'-DDT were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs.

RPD exceeded 50% for Heptachlor. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aldrin E4S07MS, E4S07MSD

alpha-BHC	E4SC3
alpha-Chlordane	E4S07MS, E4S07MSD
Endrin ketone	E4SC0DL
Dieldrin	E4S07
4,4'-DDD	E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ9, E4S02, E4S03, E4SC0, E4SC1
4,4'-DDE	E4S02, E4S07, E4SB9, E4SD9, PLCSS3
Endrin aldehyde	E4RZ8, E4S07MS, E4S07MSD
Heptachlor	E4SC1
Endosulfan I	E4SC0

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

4,4'-DDT	E4S07MSD, E4SC0, E4SC0DL
alpha-Chlordane	E4S08
gamma-Chlordane	E4SC0
gamma-BHC (Lindane)	E4S07MS, E4S07MSD
Endrin	E4S03, E4S07, E4S08, E4SC0, E4SE0
4,4'-DDE	E4RY5, E4RY6, E4RZ9, E4S03, E4S03DL, E4SC8
Endrin aldehyde	E4RZ9
Heptachlor	E4S07, E4S07MS

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4RY7, E4S00, E4S01, E4S05, E4SC1, E4SC3, E4SC8
alpha-BHC	E4SC1
beta-BHC	E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S03DL, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08, E4SC0DL, E4SC3
Endosulfan II	E4RY6, E4S03, E4S07, E4SB9, E4SC0, E4SE0
4,4'-DDT	E4RZ7, E4RZ9, E4SC1
alpha-Chlordane	E4RZ8, E4SC0DL
Endrin ketone	E4S07, E4SB9, E4SE0
Dieldrin	E4SC0DL, E4SC1, E4SC3
Endrin	E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S03DL, E4S05, E4SD9
Methoxychlor	E4RY6, E4RZ7, E4RZ9, E4S02, E4S03, E4S07, E4S08, E4SB9, E4SC0, E4SC8, E4SD9, E4SE0
4,4'-DDD	E4S03DL
4,4'-DDE	E4RY7, E4S05, E4SC1, E4SC3
Endrin aldehyde	E4S00, E4S01, E4S05, E4SE0
Heptachlor	E4RZ7, E4SC0DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4RY5, E4RY6, E4RZ7, E4RZ8, E4RZ9, E4S02, E4S03, E4S03DL, E4S07, E4S07MS, E4S07MSD, E4S08, E4SC0, E4SC0DL, E4SD9, E4SE0
beta-BHC	E4S02, E4S03

4,4'-DDT	E4RY5, E4RY6, E4RZ8, E4S08, E4SB9, E4SD9, E4SE0
gamma-BHC (Lindane)	E4RZ8, E4S03, E4S03DL, E4S07
Dieldrin	E4SC0
Endrin	E4S02, E4SB9, E4SC8
4,4'-DDD	E4SE0
4,4'-DDE	E4RZ7, E4SC0DL
Heptachlor	E4RY5, E4RY6, E4RZ8, E4RZ9, E4S02, E4S03, E4S03DL, E4S07MSD, E4S08, E4SB9, E4SC0, E4SD9, E4SE0
Endosulfan I	E4SB9

11. SYSTEM PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a PEM compounds is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected.

E4RY5, E4RY6, E4RY7, E4RZ7, E4RZ8, E4RZ9, E4S00, E4S01, E4S02, E4S03, E4S03DL, E4S05, E4S07, E4S07MS, E4S07MSD, E4S08, E4SB9, E4SC0, E4SC0DL, E4SC1, E4SC3, E4SC8, E4SD9, E4SE0

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4S03	Heptachlor
E4SC0	4,4’-DDD

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4RZ7, E4RZ8, E4S00, E4S01, E4S02, E4SB9, E4SD9, E4SE0

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following Aroclor samples have no associated sulfur cleanup blank. Detected and nondetected compounds are not qualified.

E4RZ8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor sample has surrogate percent recoveries that are greater than 200% on both columns. Detected compounds are qualified J. Nondetected compounds are not qualified. All target compounds are affected.

E4S07MS

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S02DL, E4S03DL, E4SC0, E4SC0DL, E4SE0

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The “J” flags applied to samples these samples during the automated check process have been removed for all detected compounds, unless the flag has been applied for another reason.

E4S02, E4S03, E4S07MSD, E4S08, E4SD9

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4RZ8DL, E4S02DL, E4SB9

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following Aroclor matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1260 E4S07MS, E4S07MSD
Aroclor-1016 E4S07MS, E4S07MSD

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Detected compounds are qualified J. Nondetected compounds are not qualified. Although not reported as present, Aroclor-1248 is present in the MS/MSD samples in addition to the spiking compounds (Aroclor-1016 and Aroclor-1260) and may have attributed to the high recovery of the spike compounds.

Aroclor-1260 E4S07MS, E4S07MSD
Aroclor-1016 E4S07MS, E4S07MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S07 and E4S08 are identified as field duplicates in the field sampling plan**.** Results are summarized in the following table.

Aroclor Analytes	**E4S07DL** µg/Kg	**E4S08DL** µg/Kg	**%RPD**
Aroclor-1016	ND	ND	NA
Aroclor-1221	ND	ND	NA
Aroclor-1232	ND	ND	NA
Aroclor-1242	ND	ND	NA
Aroclor-1248	190	110	53.3
Aroclor-1254	ND	ND	NA
Aroclor-1260	80	ND	#
Aroclor-1262	ND	ND	NA
Aroclor-1268	ND	ND	NA

ND= Not Detected, NA= Not Applicable, #= Not Calculable

The RPD for Aroclor-1248 exceeds 50%. The RPD for Aroclor-1260 cannot be calculated because the compound was present in the MS, but not detected in the MSD. Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Samples E4SB9 and E4SE0 are only reported as ten-fold dilutions, which place the detected Aroclor-1248 results within the calibration range. Analyses of a ten-times more concentrated aliquot of these samples were not performed because the laboratory was granted a waiver from this requirement by SMO.

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260	E4S08
Aroclor-1248	E4RY6DL
Aroclor-1016	E4S07MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1260	E4RZ7
Aroclor-1248	E4RY6

The following Aroclor sample has percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1248	E4S05

The following Aroclor sample has percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1248	E4RZ7

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4S00, E4SB9, E4SD9

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample analysis should be used for result validation.

E4RY6, E4RZ8, E4S02, E4S03, E4S07, E4S08, E4SC0

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 18, 2010

Subject: Review of Data
Received for Review on: April 14, 2010

From: Julie Rest
Environmental Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4RY8

Number and Type of Samples: 20 Sediment Samples

Sample Numbers: E4RY8, E4RY9, E4RZ0, E4RZ1 – E4RZ6, E4S06, E4S09, E4S10, E4S49 – E4S52, E4S59, E4S77 – E4S79

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Sample Receipt: Twenty (20) sediment samples labeled E4RY8, E4RY9, E4RZ0 – E4RZ6, E4S06, E4S09, E4S10, E4S49 – E4S52, E4S59, E4S77, and E4S79 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. Samples E4RY8, E4RY9, E4RZ0 –E4RZ6, E4S06, E4S09, and E4S10 were collected on 2/26/2010 and were received on 3/2/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 8 ºC. Samples E4S49 – E4S52, E4S59, E4S77, E4S78 and E4S79 were collected on 3/2/2010 and were received on 3/4/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 7 ºC. No data have been qualified based on receipt temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4RZ1 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4RZ3 and E4RZ4, and E4S78 and E4S79, as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for benzo(b)fluoranthene and benzo(k)fluoranthene. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S09, E4S10, E4S49, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79

The following semivolatile samples are associated with an opening CCV percent difference (%D) outside criteria for 2-Methylnaphthalene. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4RY8, E4RZ1, E4RZ1MSD, E4RZ5DL

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Sample E4RZ3 has a deuterated monitoring compound recovery above the upper limit of the criteria window. Affected compounds Anthracene and Phenanthrene are qualified “J” in sample E4RZ3.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RZ3 and E4RZ4, and E4S78 and E4S79 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4RZ3 and E4RZ4

Semivolatile compounds	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	61	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	650	1	350	1	60
Anthracene	210	1	100	1	71
Fluoranthene	1500	1	860	1	54
Pyrene	1300	1	1100	1	17
Benzo(a)anthracene	530	1	600	1	12
Chrysene	820	1	630	1	26
Benzo(b)fluoranthene	700	1	720	1	2.8
Benzo(k)fluoranthene	300	1	250	1	18
Benzo(a)pyrene	580	1	620	1	6.7
Indeno(1,2,3-cd)pyrene	290	1	290	1	0
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	170	1	180	1	5.7

For field duplicates E4RZ3 and E4RZ4, RPD values for Phenanthrene, Anthracene, and Fluoranthene were above 50%.

E4S78 and E4S79

Semivolatile compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	ND	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicate samples E4S78 and E4S79, RPDs could not be calculated because both sets of results were nondetects.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4RY8, E4RZ4, E4S09
Pyrene	E4S50
Benzo (g,h,i) perylene	E4RZ0, E4RZ2, E4RZ3, E4RZ5DL, E4S06, E4S09, E4S59
Indeno (1,2,3-cd) pyrene	E4RZ2, E4RZ5DL, E4S06, E4S59
Benzo (b) fluoranthene	E4RZ0, E4S49, E4S50
Fluoranthene	E4S50
Benzo (k) fluoranthene	E4RZ2, E4RZ5DL, E4S06, E4S09, E4S59
Acenaphthylene	E4RZ5DL
Chrysene	E4RZ0, E4S49, E4S59
Benzo (a) pyrene	E4RZ0, E4S49, E4S50, E4S59
Dibenzo (a,h) anthracene	E4RY9, E4RZ5
Benzo (a) anthracene	E4RZ0, E4S06, E4S49, E4S59
Acenaphthene	E4RY9, E4RZ3, E4RZ5DL
Phenanthrene	E4RZ0, E4S06, E4S49, E4S59

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4RZ5 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene, Phenanthrene, and Pyrene, and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Benzo(b)fluoranthene E4S79

Indeno(1,2,3-cd)pyrene E4S78, E4S79

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the MS and MSD prepared for semivolatile-SIM sample E4RZ1 were above criteria for Acenaphthene and Pyrene. All sample results for Acenaphthene and Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4RZ3 and E4RZ4, and E4S78 and E4S79 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4RZ3 and E4RZ4

Semivolatile-SIM compounds	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
Naphthalene	12	1	5.4	1	76
2-Methylnaphthalene	6.8	1	3.8	1	57
Acenaphthylene	3.8	1	3.8	1	0

Semivolatile-SIM compounds	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
Acenaphthene	32	1	12	1	91
Fluorene	33	1	13	1	87
Phenanthrene	330	1	220	1	40
Anthracene	75	1	59	1	24
Fluoranthene	590	1	470	1	23
Pyrene	930	1	700	1	28
Benzo(a)anthracene	460	1	440	1	4.4
Chrysene	460	1	390	1	17
Benzo(b)fluoranthene	590	1	520	1	13
Benzo(k)fluoranthene	140	1	120	1	15
Benzo(a)pyrene	380	1	360	1	5.4
Indeno(1,2,3-cd)pyrene	330	1	280	1	16
Dibenzo(a,h)anthracene	65	1	60	1	8
Benzo(g,h,i)perylene	130	1	120	1	8

For field duplicate pair E4RZ3 and E4RZ4, Naphthalene, 2-Methylnaphthalene, Acenaphthene, and Fluorene had RPD values above 50%.

E4RZ3DL and E4RZ4DL

Semivolatile-SIM compounds	E4RZ3DL µg/kg	DF	E4RZ4DL µg/kg	DF	%RPD
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	ND	10	ND	10	
Acenaphthene	42	10	3.6	10	95
Fluorene	43	10	4.5	10	82
Phenanthrene	420	10	49	10	47
Anthracene	82	10	9.1	10	20
Fluoranthene	940	10	80	10	28
Pyrene	810	10	66	10	25
Benzo(a)anthracene	450	10	38	10	2.2
Chrysene	460	10	40	10	14
Benzo(b)fluoranthene	600	10	59	10	12
Benzo(k)fluoranthene	150	10	17	10	6.9
Benzo(a)pyrene	420	10	39	10	4.9
Indeno(1,2,3-cd)pyrene	340	10	27	10	9.2
Dibenzo(a,h)anthracene	66	10	5.8	10	3.1
Benzo(g,h,i)perylene	150	10	22	10	0

For the dilute analysis of field duplicate pair E4RZ3DL and E4RZ4DL, Acenaphthene and Fluorene had RPD values above 50%.

E4S78 and E4S79

Semivolatile-SIM compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	1.8	1	0.72	1	86
Anthracene	ND	1	ND	1	
Fluoranthene	3.2	1	0.81	1	120
Pyrene	3.6	1	1.4	1	88
Benzo(a)anthracene	1.6	1	ND	1	
Chrysene	2.1	1	0.88	1	82
Benzo(b)fluoranthene	2.8	1	2.2	1	24
Benzo(k)fluoranthene	0.84	1	ND	1	
Benzo(a)pyrene	2	1	0.61	1	110
Indeno(1,2,3-cd)pyrene	2.3	1	2.2	1	4.4
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	1.7	1	1.1	1	43

For field duplicate pair E4S78 and E4S79, the RPD calculated for Phenanthrene, Fluoranthene, Chrysene, Pyrene, and benzo(a)pyrene were above 50% .

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified “J”. Nondetected compounds are not qualified.

Anthracene	E4RZ0DL, E4RZ1, E4RZ2DL, E4RZ6, E4S06DL, E4S10, E4S49DL, E4S50DL, E4S59DL
Pyrene	E4S79
Benzo (g,h,i) perylene	E4RZ1MS, E4RZ1MSD, E4S50DL, E4S78, E4S79
Indeno (1,2,3-cd) pyrene	E4RZ1, E4RZ1MS, E4RZ1MSD, SBLK09
Benzo (b) fluoranthene	E4RZ1MSD

Fluoranthene	E4S52, E4S79
Benzo (k) fluoranthene	E4RZ0DL, E4RZ1, E4RZ1MS, E4RZ6, E4S50DL, E4S51, E4S52, E4S77, E4S78
Acenaphthylene	E4RY8, E4RY9DL, E4RZ0, E4RZ2, E4RZ3, E4S06, E4S49, E4S50, E4S59
Chrysene	E4RZ1MS, E4RZ1MSD, E4S51, E4S77, E4S78, E4S79
Benzo (a) pyrene	E4RZ1, E4RZ1MS, E4RZ1MSD, E4S78, E4S79
Dibenzo (a,h) anthracene	E4RZ0DL, E4RZ1MSD, E4RZ2DL, E4RZ6, E4S06DL, E4S10, E4S49DL, E4S50DL, E4S52, E4S59DL, E4S77
Benzo (a) anthracene	E4RZ1, E4RZ1MS, E4RZ1MSD, E4S51, E4S52, E4S77, E4S78
Acenaphthene	E4RY8DL, E4RZ0DL, E4RZ2DL, E4RZ4DL, E4S09DL, E4S10, E4S50, E4S59
Phenanthrene	E4RZ1MSD, E4S51, E4S52, E4S77, E4S78, E4S79
Fluorene	E4RY8DL, E4RZ0DL, E4RZ2DL, E4RZ4DL, E4RZ6, E4S10, E4S50, E4S59
Naphthalene	E4RZ2
2-Methylnaphthalene	E4RZ2

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

Acenaphthene	E4RY9, E4RZ5
Acenaphthylene	E4RZ5
Anthracene	E4RY8, E4RY9, E4RZ3, E4RZ4, E4RZ5, E4S09
Benzo(a)anthracene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Benzo(a)pyrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59

Benzo(b)fluoranthene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Benzo(g,h,i)perylene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Benzo(k)fluoranthene	E4RY8, E4RY9, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Chrysene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Dibenzo(a,h)anthracene	E4RY8, E4RY9, E4RZ3, E4RZ4, E4RZ5, E4S09
Fluoranthene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Fluorene	E4RY9, E4RY25
Indeno(1,2,3-cd)pyrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Naphthalene	E4RZ5
Phenanthrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59
Pyrene	E4RY8, E4RY9, E4RZ0, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4S06, E4S09, E4S49, E4S50, E4S59

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed and these diluted results should be used in the result validation.

Anthracene	E4RZ5DL
Benzo(a)anthracene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Benzo(a)pyrene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Benzo(b)fluoranthene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL, E4S09DL
Benzo(g,h,i)perylene	E4RY9DL
Benzo(k)fluoranthene	E4RZ5DL
Chrysene	E4RY8DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Fluoranthene	E4RY8DL, E4RY9DL, E4RZ2DL, E4RZ3DL, E4RZ4DL, E4RZ5DL, E4S09DL

Fluorene	E4RZ5DL
Indeno(1,2,3-cd)pyrene	E4RY8DL, E4RY9DL, E4RZ5DL
Naphthalene	E4RZ5DL
Phenanthrene	E4RY85DL, E4RY9DL, E4RZ3DL, E4RZ4DL, E4RZ5DL
Pyrene	E4RY8DL, E4RY9DL, E4RZ2DL, E4RZ3DL, E4RZ4DL, E4RZ5DL E4S09DL

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. . Detected compounds are qualified J. Nondetected compounds are qualified UJ. Despite the CCV issue, the Decachlorobiphenyl recoveries in the associated samples, except for diluted E4RZ5, met the acceptance criteria.

E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ3, E4RZ4, E4RZ5, E4RZ6, E4S06, E4S09, E4S10, E4S49, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4RZ5DL
Endosulfan II	E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ3, E4RZ4, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S09, E4S10
alpha-Chlordane	E4S49, E4S52
Endrin ketone	E4RY8DL, E4RZ5DL
gamma-BHC (Lindane)	E4RZ1, E4RZ2, E4RZ6, E4S06, E4S10
Dieldrin	E4S52, E4S59
Endrin	E4RY8DL, E4RZ1, E4RZ5DL, E4RZ6, E4S06, E4S10, E4S50, E4S51
Methoxychlor	E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ6, E4S06, E4S10
4,4'-DDD	E4RY8DL, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
4,4'-DDE	E4RY8DL, E4S51

Endrin aldehyde	E4RY8, E4RY8DL, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ5DL, E4S10, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
Endosulfan I	E4RY8DL, E4RZ5DL, E4S49, E4S50, E4S59

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan sulfate	E4S49, E4S51, E4S52, E4S77, E4S78, E4S79
beta-BHC	E4RZ5DL, E4S77, E4S78, E4S79
delta-BHC	E4S51, E4S52, E4S77, E4S78, E4S79
Endosulfan II	E4RY8, E4RY9, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ3, E4RZ4, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S09, E4S10, E4S51, E4S52, E4S79
4,4'-DDT	E4S49, E4S50, E4S51, E4S52, E4S77, E4S78, E4S79
alpha-Chlordane	E4S49, E4S52
Endrin ketone	E4RY8DL, E4RZ5DL, E4S51, E4S52, E4S59, E4S77, E4S79
gamma-BHC (Lindane)	E4RZ1, E4RZ2, E4RZ6, E4S06, E4S10
Dieldrin	E4S52, E4S59
Endrin	E4RY8, E4RY8DL, E4RZ0, E4RZ1, E4RZ2, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S10, E4S49, E4S50, E4S51, E4S59
Methoxychlor	E4RY8, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ4, E4RZ6, E4S06, E4S09, E4S10
4,4'-DDD	E4RY8DL, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ6, E4S10, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
4,4'-DDE	E4RY8DL, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ6, E4S06, E4S10, E4S51
Endrin aldehyde	E4RY8, E4RY8DL, E4RZ0, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ5DL, E4RZ6, E4S10, E4S50, E4S51, E4S52, E4S59, E4S77, E4S78, E4S79
Endosulfan I	E4RY8DL, E4RZ2, E4RZ5DL, E4S06, E4S49, E4S50, E4S59

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery.

However, diluted pesticide sample E4RZ5DL with a dilution factor greater than 5 had surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4RZ3 and E4RZ4, and E4S78 and E4S79 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4RZ3 and E4RZ4

Pesticide compound	E4RZ3 µg/kg	DF	E4RZ4 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	1.1	1		1	
Heptachlor	ND	1		1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1	ND	1	
Endosulfan I	0.68	1		1	
Dieldrin	3	1	2.2	1	31
4,4'-DDE	4	1	2.2	1	58
Endrin		1	0.6	1	
Endosulfan II	0.39	1	0.33	1	17
4,4'-DDD		1	3.8	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	6	1	3.3	1	58
Methoxychlor		1	1.7	1	
Endrin ketone	0.39	1	ND	1	
Endrin aldehyde		1	1.9	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

Results for gamma-BHC(Lindane), Heptachlor, Heptachlor epoxide, Endosulfan I, Endrin, Methoxychlor, and Endrin aldehyde were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs.

For field duplicate samples E4RZ3 and E4RZ4, where calculated, RPD values were less than 50 %, with the exception of 4,4'-DDT and 4,4'-DDE.

E4S78 and E4S79

Pesticide compound	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	0.12	1	0.11	1	8.7
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	0.02	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	ND	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.24	1	ND	1	
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4S78 and E4S79, beta-BHC had an RPD value less than 50%.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following compounds were reported at a concentration below the MDL in the samples listed below. The results are qualified "U" and elevated to the CRQL. The results are considered to be nondetects at the CRQL.

4,4'-DDT	E4S10
Endosulfan sulfate	E4S10
Heptachlor epoxide	E4S77.E4S78

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

beta-BHC	E4S10
Heptachlor	E4S59
Heptachlor epoxide	E4S79

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J".

Heptachlor epoxide	E4S77, E4S79
beta-BHC	E4RZ1MS, E4S51
Endosulfan II	E4RZ1
4,4'-DDT	E4S78
Endrin ketone	E4RZ1MSD
gamma-BHC (Lindane)	E4RY9, E4RZ1MS, E4RZ1MSD, E4RZ3
Dieldrin	E4S59
Methoxychlor	E4RY9
4,4'-DDD	E4RY9, E4RZ4, E4RZ6, E4S10, E4S49
4,4'-DDE	E4RZ1MSD, E4RZ3, E4S09, E4S49
Endrin aldehyde	E4RZ1MSD, E4RZ6
Heptachlor	E4RZ1MSD, E4S59
Endosulfan I	E4RZ3, E4RZ5

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

4,4'-DDT	E4RY9, E4RZ2, E4RZ4, E4RZ5DL, E4S06, E4S59
Endrin	E4RZ4

4,4'-DDD	E4RZ0, E4RZ5, E4RZ5DL
4,4'-DDE	E4RY9, E4RZ2, E4RZ4, E4RZ5, E4RZ5DL, E4S50, E4S59
Endrin aldehyde	E4RZ5, E4S06
Endosulfan I	E4S09

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4RY8DL, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ5DL, E4RZ6, E4S06, E4S10, E4S50, E4S51, E4S52
Endosulfan sulfate	E4RZ1
alpha-BHC	E4S59
beta-BHC	E4RZ1MSD, E4RZ5DL, E4RZ6, E4S77, E4S78, E4S79
Endosulfan II	E4RY8, E4RY9, E4RZ0, E4RZ1MSD, E4RZ3, E4RZ4, E4RZ5, E4RZ6, E4S06, E4S09, E4S51
4,4'-DDT	E4RZ1, E4RZ6, E4S50
alpha-Chlordane	E4S52
Endrin ketone	E4RY9, E4RZ3, E4S09, E4S59
gamma-BHC (Lindane)	E4RZ1, E4RZ6, E4S06, E4S52
Dieldrin	E4S52
Endrin	E4RY8, E4RY8DL, E4RZ0, E4RZ2, E4RZ5, E4RZ5DL, E4RZ6, E4S06, E4S49, E4S50, E4S59
Methoxychlor	E4RY8, E4RZ1, E4RZ1MS, E4RZ1MSD, E4RZ2, E4RZ4, E4RZ5DL, E4S06, E4S09, E4S49, E4S50, E4S52, E4S59
4,4'-DDD	E4RZ1, E4RZ1MS, E4RZ1MSD, E4S50, E4S51
4,4'-DDE	E4RZ1MS, E4S06, E4S10, E4S51
Endrin aldehyde	E4RY8, E4RZ0, E4RZ1, E4RZ1MS
Heptachlor	E4RZ6, E4S10, E4S51

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4RY8, E4RZ0, E4RZ3, E4RZ5, E4S09
beta-BHC	E4RZ2
delta-BHC	E4S06, E4S49
4,4'-DDT	E4RZ0, E4RZ5
gamma-BHC (Lindane)	E4RZ4, E4S09
Endrin	E4RY9, E4RZ3, E4S09
Methoxychlor	E4RZ3, E4RZ5
4,4'-DDD	E4RY8, E4RZ3, E4S09
4,4'-DDE	E4RY8, E4RZ0
Endrin aldehyde	E4RY9, E4RZ2, E4RZ3, E4S09
Heptachlor	E4RZ4, E4RZ5, E4RZ5DL, E4S09
Endosulfan I	E4RZ0, E4RZ4

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns, with the exception of diluted sample E4RY9DL. No sample results were qualified based on surrogate recovery. However, a surrogate recovery between 150 – 200 % was obtained on only one column for samples E4RY8, E4RY9, E4RZ3, E4RZ4, and E4S49. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4RY9DL, E4RZ3DL, E4RZ4DL, E4S09DL

Diluted Aroclor sample E4RY9DL, with a dilution factor greater than 5, has surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4RZ1, the Aroclor MS and MSD sample has a percent recovery greater than the upper acceptance limit on RTX-CLP2 column for Aroclor-1016. In addition, the relative percent difference (RPD) between the MS and MSD for Aroclor-1016 was above criteria on both columns. All samples are affected. Detected results are qualified “J”. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SZ3 and E4SZ4, and E4S78 and E4S79 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4SZ3 and E4SZ4

Aroclor compounds	E4SZ3 µg/kg	DF	E4SZ4 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	240	1	180	1	29
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4SZ3DL and E4SZ4DL

Aroclor compounds	E4SZ3DL µg/kg	DF	E4SZ4DL µg/kg	DF	%RPD
Aroclor-1016	ND	10	ND	10	
Aroclor-1221	ND	10	ND	10	
Aroclor-1232	ND	10	ND	10	
Aroclor-1242	ND	10	ND	10	
Aroclor-1248	290	10	240	10	19
Aroclor-1254	ND	10	ND	10	
Aroclor-1260	ND	10	ND	10	
Aroclor-1262	ND	10	ND	10	
Aroclor-1268	ND	10	ND	10	

For the neat and diluted analysis of field duplicate samples E4SZ3 and E4SZ4, RPD values were not calculated when both values were nondetects. The RPD for Aroclor-1248 was below 50%.

E4S78 and E4S79

Aroclor compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Aroclor-1016	ND		ND		
Aroclor-1221	ND		ND		
Aroclor-1232	ND		ND		
Aroclor-1242	ND		ND		
Aroclor-1248	ND		ND		
Aroclor-1254	ND		ND		
Aroclor-1260	ND		ND		

Aroclor compounds	E4S78 µg/kg	DF	E4S79 µg/kg	DF	%RPD
Aroclor-1262	ND		ND		
Aroclor-1268	ND		ND		

For field duplicate samples E4S78 and E4S79, RPD values were not calculated because both results were nondetects.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

Aroclor-1260 E4RZ6, E4S10, E4S51

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4RZ2, E4RZ6, E4S51

Aroclor-1248 E4RY8, E4S09DL

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1260 E4S59

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4S52

For the MS and MSD prepared for sample E4RZ1, Aroclor-1016 had a percent difference between the results on the two GC columns exceeding 100%. Detected Aroclor-1016 results in the MS and MSD are qualified "R".

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

E4RY9, E4RZ0, E4RZ3 – E4RZ5, E4S09	Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 11, 2010

Subject: Review of Data
Received for Review on: April 14, 2010

From: Julie Rest
Environmental Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S11

Number and Type of Samples: 19 Sediment Samples

Sample Numbers: E4RS11 – E4S18, E4S25 – E4S27, E4S34 – E4S36, E4S38 – E4S42

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Sample Receipt: Nineteen (19) sediment samples labeled E4S11 – E4S18, E4S25 – E4S27, E4S34 – E4S36, and E4S38 – E4S42 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All nineteen samples were collected on 3/1/2010 and were received on 3/3/2010, intact, at 6 ºC. No data have been qualified based on temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4S35 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4S14 and E4S15, and E4S39 and E4S40, as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for benzo(b)fluoranthene and benzo(k)fluoranthene. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S11, E4S12, E4S13, E4S14, E4S15, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S35MS, E4S35MSD, E4S36, E4S38, E4S39, E4S40, E4S41, E4S42

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria for benzo(b)fluoranthene. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S11, E4S14, E4S15, E4S16, E4S18, E4S25, E4S26, E4S27, E4S34, E4S38, E4S39, E4S40, E4S41, E4S42

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Sample E4S41 has a deuterated monitoring compound recovery slightly above the upper limit of the criteria window. Since affected compounds, Anthracene and Phenanthrene were not detected in sample E4S41, the data are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pyrene had low recoveries in the MS/MSD prepared for sample E4S35 and the relative percent difference (RPD) between the MS and MSD exceeded criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S14 and E4S15, and E4S39 and E4S40 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4S14 and E4S15

Semivolatile compounds	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	53	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicates E4S14 and E4S15, the RPD values were not calculated because either one or both of the values was zero.

E4S39 and E4S40

Semivolatile compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	99	1	78	1	24
Anthracene	ND	1	ND	1	
Fluoranthene	160	1	120	1	29
Pyrene	120	1	97	1	21
Benzo(a)anthracene	52	1	54	1	3.8
Chrysene	74	1	ND	1	
Benzo(b)fluoranthene	82	1	81	1	1.2
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	55	1	49	1	12
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	

Semivolatile compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicate samples E4S39 and E4S40, where the RPD could be calculated, the values were below 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S12, E4S17, E4S36
Pyrene	E4S18, E4S25, E4S27, E4S39, E4S40
Benzo(g,h,i)perylene	E4S11, E4S16, E4S18, E4S25, E4S26, E4S34, E4S35MS, E4S35MSD, E4S38
Indeno(1,2,3-cd)pyrene	E4S11, E4S16, E4S26, E4S34, E4S35MS
Benzo(b)fluoranthene	E4S25, E4S35MSD, E4S39, E4S40
Fluoranthene	E4S14, E4S25, E4S27, E4S35MSD, E4S40
Benzo(k)fluoranthene	E4S36
Chrysene	E4S18, E4S26, E4S34, E4S35MS, E4S39
Benzo(a)pyrene	E4S16, E4S18, E4S25, E4S34, E4S35MSD, E4S38, E4S39, E4S40
Dibenzo(a,h)anthracene	E4S12, E4S13, E4S17, E4S35
Benzo(a)anthracene	E4S11, E4S16, E4S18, E4S25, E4S34, E4S35MSD, E4S38, E4S39, E4S40
Acenaphthene	E4S13, E4S36
Phenanthrene	E4S11, E4S16, E4S18, E4S26, E4S27, E4S34, E4S35MSD, E4S39, E4S40
Fluorene	E4S13, E4S36

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Benzo(g,h,i)perylene E4S14DL, E4S27DL, E4S42

Indeno(1,2,3-cd)pyrene E4S27DL, E4S42

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

An MS/MSD was prepared for sample E4S35. The results for spiking compounds acenaphthene and pyrene reported in the MS/MSD were approximately ten times lower than the amount detected for these compounds in the unspiked sample, resulting is negative recoveries, which have no physical meaning. The differences may have resulted from matrix interference, high levels of the compounds in the unspiked sample, or variable sediment consistency. Both compounds required dilution in the unspiked sample. No dilutions were performed for the MS/MSD. No other samples are qualified based on the MS/MSD. Results for acenaphthene and pyrene in Sample E4S35 are reported from the sample dilution.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4S14 and E4S15, and E4S39 and E4S40 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4S14 and E4S15

Semivolatile-SIM compounds	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	1.5	1	ND	1	
Fluorene	1.7	1	0.63	1	92
Phenanthrene	19	1	6.6	1	97
Anthracene	4	1	1.3	1	100
Fluoranthene	33	1	13	1	87
Pyrene	26	1	11	1	81
Benzo(a)anthracene	14	1	5.8	1	83
Chrysene	15	1	6.1	1	84
Benzo(b)fluoranthene	21	1	9.2	1	78
Benzo(k)fluoranthene	6.3	1	2.7	1	80
Benzo(a)pyrene	14	1	6.5	1	73
Indeno(1,2,3-cd)pyrene	9.5	1	5	1	62
Dibenzo(a,h)anthracene	2	1	1	1	67
Benzo(g,h,i)perylene	7.5	1	4.1	1	59

For field duplicate pair E4S14 and E4S15, all detected compounds had RPD values above 50%.

E4S39 and E4S40

Semivolatile-SIM compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	0.66	1	ND	1	
Acenaphthene	4.6	1	3.6	1	24
Fluorene	5.4	1	4.5	1	18
Phenanthrene	57	1	49	1	15
Anthracene	9	1	9.1	1	1.1
Fluoranthene	91	1	80	1	13
Pyrene	73	1	66	1	10
Benzo(a)anthracene	41	1	38	1	7.6
Chrysene	44	1	40	1	9.5
Benzo(b)fluoranthene	67	1	59	1	13
Benzo(k)fluoranthene	20	1	17	1	16
Benzo(a)pyrene	43	1	39	1	9.8
Indeno(1,2,3-cd)pyrene	32	1	27	1	17
Dibenzo(a,h)anthracene	6.6	1	5.8	1	13
Benzo(g,h,i)perylene	25	1	22	1	13

E4S39DL and E4S40DL

Semivolatile-SIM compounds	E4S39DL µg/kg	DF	E4S40DL µg/kg	DF	%RPD
Naphthalene	ND	5	ND	5	
2-Methylnaphthalene	ND	5	ND	5	
Acenaphthylene	ND	5	ND	5	
Acenaphthene	5.8	5	4.8	5	19
Fluorene	7.3	5	5.8	5	23
Phenanthrene	62	5	51	5	20
Anthracene	10	5	9.5	5	5.1
Fluoranthene	100	5	88	5	13
Pyrene	73	5	62	5	16
Benzo(a)anthracene	39	5	35	5	11
Chrysene	45	5	39	5	14
Benzo(b)fluoranthene	55	5	51	5	7.5
Benzo(k)fluoranthene	17	5	15	5	13
Benzo(a)pyrene	39	5	37	5	5.3
Indeno(1,2,3-cd)pyrene	30	5	29	5	3.4
Dibenzo(a,h)anthracene	5.8	5	5.6	5	3.5
Benzo(g,h,i)perylene	26	5	25	5	3.9

For field duplicate pair E4S39DL and E4S40DL, all calculated RPD values were below 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4S14DL, E4S15, E4S18DL, E4S25DL, E4S26DL, E4S34DL, E4S39DL, E4S40DL, E4S41
Benzo(g,h,i)perylene	E4S14DL, E4S27DL, E4S42
Indeno(1,2,3-cd)pyrene	E4S27DL, E4S42, SBLK41
Benzo(b)fluoranthene	SBLK41
Fluoranthene	E4S42

Benzo(k)fluoranthene	E4S14DL, E4S27DL, E4S41, E4S42
Acenaphthylene	E4S11, E4S17DL, E4S18, E4S26, E4S35, E4S36, E4S38, E4S39
Benzo(a)pyrene	E4S42
Dibenzo(a,h)anthracene	E4S14, E4S14DL, E4S15, E4S18DL, E4S25DL, E4S26DL, E4S27, E4S36DL, E4S38DL, E4S39DL, E4S40DL, E4S41
Benzo (a) anthracene	E4S42
Acenaphthene	E4S11DL, E4S12DL, E4S14, E4S16, E4S17DL, E4S18, E4S25, E4S26DL, E4S27DL, E4S34, E4S38DL, E4S39DL, E4S40DL
Phenanthrene	E4S42
Fluorene	E4S11DL, E4S12DL, E4S14, E4S15, E4S16DL, E4S18DL, E4S25, E4S26DL, E4S27DL, E4S34DL, E4S35MS, E4S35MSD, E4S39DL, E4S40DL, E4S41
Naphthalene	E4S11, E4S27
2-Methylnaphthalene	E4S27, E4S35DL, E4S36

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

Acenaphthene	E4S13, E4S35
Anthracene	E4S12, E4S13, E4S17, E4S35, E4S36
Benzo(a)anthracene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Benzo(a)pyrene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Benzo(b)fluoranthene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Benzo(g,h,i)perylene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38

Benzo(k)fluoranthene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S26, E4S34, E4S35, E4S36, E4S38
Chrysene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Dibenzo(a,h)anthracene	E4S12, E4S13, E4S17, E4S35, E4S36,
Fluoranthene	E4S11, E4S12, E4S13, E4S14, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Fluorene	E4S13, E4S35
Indeno(1,2,3-cd)pyrene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Naphthalene	E4S35
Phenanthrene	E4S11, E4S12, E4S13, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40
Pyrene	E4S11, E4S12, E4S13, E4S14, E4S16, E4S17, E4S18, E4S25, E4S26, E4S27, E4S34, E4S35, E4S36, E4S38, E4S39, E4S40

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed and these diluted results should be used in the result validation.

Anthracene	E4S35DL
Benzo(a)anthracene	E4S11DL, E4S12DL, E4S13DL, E4S17DL, E4S35DL
Benzo(a)pyrene	E4S11DL, E4S12DL, E4S13DL, E4S17DL, E4S35DL
Benzo(b)fluoranthene	E4S11DL, E4S12DL, E4S13DL, E4S16DL, E4S17DL, E4S34DL, E4S35DL, E4S36DL, E4S38DL
Benzo(g,h,i)perylene	E4S12DL, E4S17DL, E4S35DL
Chrysene	E4S11DL, E4S12DL, E4S13DL, E4S17DL, E4S35DL
Fluoranthene	E4S11DL, E4S12DL, E4S13DL, E4S16DL, E4S17DL, E4S18DL, E4S26DL, E4S34DL, E4S35DL, E4S36DL, E4S38DL
Indeno(1,2,3-cd)pyrene	E4S12DL, E4S13DL, E4S17DL, E4S35DL
Phenanthrene	E4S12DL, E4S13DL, E4S17DL, E4S36DL
Pyrene	E4S11DL, E4S12DL, E4S13DL, E4S16DL, E4S17DL, E4S34DL, E4S35DL, E4S36DL, E4S38DL

For the MS/MSD prepared for sample E4S35, the following compounds reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated. “J”. No further dilution analysis was performed

Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *initial* instrument blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan II	E4S34, E4S35, E4S40, E4S41, E4S42
Endrin	E4S14, E4S15, E4S16, E4S25, E4S38, E4S39, E4S40, E4S41
Endrin aldehyde	E4S15, E4S16, E4S38, PLCSS1

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan II	E4S17, E4S27, E4S34, E4S35, E4S40, E4S41, E4S42
4,4'-DDT	E4S34, E4S41, E4S42
Endrin	E4S12, E4S14, E4S15, E4S16, E4S17, E4S25, E4S26, E4S35, E4S38, E4S39, E4S40, E4S41
4,4'-DDD	E4S34, E4S41, E4S42
Endrin aldehyde	E4S15, E4S16, E4S25, E4S26, E4S27, E4S34, E4S38, E4S41

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery. However, a high surrogate recovery was obtained on one column for samples E4S13 and E4S17. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. As a result, for samples E4S13

and E4S17, the "J" flags applied during the automated check process have been removed for the following compounds.

E4S13 4,4'-DDE, Endrin, 4,4'-DDD

E4S17 4,4'-DDD

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4S35, the pesticide MS and/or MSD samples have percent recoveries that are greater than the upper acceptance limit on the RTXCLP2 column for gamma-BHC and Heptachlor. All samples in the SDG are affected. However, since the results for gamma-BHC and Heptachlor were reported from the RTXCLP column for all samples in this SDG, the data are not qualified.

On the other column, RTX-CLP, the relative percent difference (RPD) between the MS and MSD is outside of criteria for 4,4'-DDT. All samples are affected. Detected compounds are qualified "J".

E4S11 – E4S18, E4S25 – E4S27, E4S34, E4S35, E4S36, E4S38 – E4S42

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S14 and E4S15, and E4SRW1 and E4RW2, E4RW3 and E4RW4 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4S14 and E4S15

Pesticide compound	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	0.12	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	0.21	1	0.16	1	27
Endrin	0.24	1	0.23	1	4.3
Endosulfan II	ND	1	ND	1	
4,4'-DDD	0.21	1	0.14	1	40
Endosulfan sulfate	0.24	1	ND	1	
4,4'-DDT	0.24	1	0.23	1	4.3
Methoxychlor	1.2	1	ND	1	

Pesticide compound	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	0.12	1	0.17	1	35
Toxaphene	ND	1	ND	1	

For field duplicate samples E4S14 AND E4S15, where calculated, RPD values were less than 50%.

E4S39 and E4S40

Pesticide compound	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.17	1	0.24	1	34
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	0.11	1	
4,4'-DDE	0.68	1	1	1	38
Endrin	0.26	1	ND	1	
Endosulfan II	ND	1	0.24	1	
4,4'-DDD	0.66	1	1	1	41
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.29	1	0.44	1	41
Methoxychlor	1.3	1	0.2	1	150
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	0.28	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4S39 and E4S40, one compound, Methoxychlor, had an RPD value greater than 50%.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Methoxychlor was reported at a concentration below the MDL in sample E4S15. This result is qualified "U" and elevated to the CRQL. The result for Methoxychlor in sample E4S15 is considered a nondetect at the level of the CRQL. The following compounds were flagged "UJ" during the automated check process. These compounds were affected by blank contamination and/or percent difference between the two columns outside of criteria, resulting in the "U" flag. The flags for these compounds have been adjusted to "U" in the "B" and "Z" data files.

4,4'-DDT	E4S42
Endrin	E4S17, E4S35
Endosulfan II	E4S17
Endrin ketone	E4S17

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

4,4'-DDD	E4S14, E4S41
4,4'-DDE	E4S14, E4S15
4,4'-DDT	E4S16
alpha-chlordane	E4S35MS, E4S35MSD
Heptachlor	E4S25

The following pesticide samples have percent differences between the results on the two GC columns in the range of 26-50%. Detected compounds are qualified "J".

Heptachlor epoxide	E4S12, E4S39, E4S40
Aldrin	E4S35MS
4,4'-DDT	E4S12, E4S17, E4S35MS, E4S38, E4S39
alpha-Chlordane	E4S18
gamma-BHC (Lindane)	E4S35MSD
Dieldrin	E4S13, E4S17, E4S40
Endrin	E4S27
Methoxychlor	E4S15, E4S18, E4S35, E4S40
4,4'-DDD	E4S15, E4S18, E4S38, E4S39, E4S42

4,4'-DDE	E4S12, E4S25, E4S26, E4S27, E4S34, E4S35MS, E4S35MSD, E4S38, E4S40, E4S41
Heptachlor	E4S12, E4S35MS

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

Heptachlor epoxide	E4S25
4,4'-DDT	E4S35
alpha-Chlordane	E4S17
gamma-Chlordane	E4S13
gamma-BHC (Lindane)	E4S35MS
Endrin	E4S11
4,4'-DDD	E4S35
4,4'-DDE	E4S17
Endrin aldehyde	E4S17
Heptachlor	E4S13

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4S15, E4S16, E4S27, E4S34, E4S41
Endosulfan sulfate	E4S11
alpha-BHC	E4S16
beta-BHC	E4S41, E4S42
Endosulfan II	E4S17, E4S35, E4S40, E4S42
4,4'-DDT	E4S14, E4S15, E4S25, E4S34, E4S41, E4S42
alpha-Chlordane	E4S11
gamma-Chlordane	E4S14
Endrin ketone	E4S12, E4S17, E4S27, E4S35, E4S35MSD, PLCSS1
gamma-BHC (Lindane)	E4S41, E4S42

Dieldrin	E4S18
Endrin	E4S12, E4S14, E4S15, E4S16, E4S17, E4S25, E4S26, E4S35, E4S38, PLCSS1
Methoxychlor	E4S11, E4S12, E4S14, E4S16, E4S25, E4S26, E4S27, E4S34, E4S35MS, E4S35MSD, E4S38, E4S39, E4S41
4,4'-DDD	E4S41, E4S42
4,4'-DDE	E4S16
Endrin aldehyde	E4S16, E4S25, E4S26, E4S27, E4S34, E4S38, E4S41, PLCSS1
Heptachlor	E4S18

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4S13, E4S17, E4S18, E4S26, E4S35, E4S35MS, E4S35MSD, E4S36, E4S38
delta-BHC	E4S25
4,4'-DDT	E4S26, E4S36
alpha-Chlordane	E4S13
gamma-Chlordane	E4S16, E4S17, E4S18, E4S27
gamma-BHC (Lindane)	E4S13
Endrin	E4S34, E4S36
Methoxychlor	E4S13, E4S17, E4S36
4,4'-DDD	E4S26, E4S36, E4S40
Endrin aldehyde	E4S36
Heptachlor	E4S17, E4S36

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery. However, a surrogate recovery between 150 – 200 % was obtained on only one column for samples E4S12, E4S13 and E4S17. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

Diluted Aroclor sample E4S13DL, with a dilution factor greater than 5, has surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Diluted Aroclor samples E4S13DL and E4S17DL, with dilution factors greater than 5, have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4S35, the Aroclor MSD sample has a percent recovery greater than the upper acceptance limit on the RTX-CLP2 column for Aroclor-1016. All samples are affected. Detected compounds are qualified J. Nondetected compounds remain unchanged.

For the same MS/MSD, Aroclor-1260 had a percent recovery less than the lower acceptance limit on both columns in the MS. All samples are affected. Detected compounds are qualified J. Nondetected compounds are qualified “UJ”.

The relative percent difference (RPD) between the MS and MSD recoveries of Aroclor-1016 and Aroclor-1260 are also outside of criteria for MS/MSD E4S35. All samples are affected. Detected compounds are qualified J. Nondetected compounds remain unchanged.

Since neither spiking compound met the recovery criteria on at least one column, and both had RPD values that exceeded criteria, all Aroclor compounds were qualified “J” based on MS/MSD recoveries and RPD as follows:

Aroclor-1248 E4S11, E4S34, E4S36, E4S36DL

Aroclor-1260 E4S11, E4S18, E4S26, E4S40

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S14 and E4S15, and E4S39 and E4S40 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4S14 and E4S15

Aroclor compounds	E4S14 µg/kg	DF	E4S15 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4S39 and E4S40

Aroclor compounds	E4S39 µg/kg	DF	E4S40 µg/kg	DF	%RPD
Aroclor-1016	ND		ND		
Aroclor-1221	ND		ND		
Aroclor-1232	ND		ND		
Aroclor-1242	ND		ND		
Aroclor-1248	ND		4.6		
Aroclor-1254	ND		ND		
Aroclor-1260	3.8		3.3		14
Aroclor-1262	ND		ND		
Aroclor-1268	ND		ND		

For field duplicate samples E4S14 and E4S15, and E4S39 and E4S40, RPD values were not calculated when both results were nondetects. The RPD value calculated for Aroclor-1260 was acceptable.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

Aroclor-1248 E4S41

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4S17DL, E4S34, E4S35, E4S35MS, E4S36, E4S38, E4S39

Aroclor-1248 E4S13DL, E4S38, E4S40

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1260 E4S12, E4S13, E4S13DL, E4S35MSD

Aroclor-1248 E4S13

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4S16, E4S25

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

E4S13	Aroclor-1248, Aroclor-1260
E4S17	Aroclor-1260
E4S36	Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 24, 2010

SUBJECT: Review of Data
Received for Review on: April 7, 2010

FROM: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0 SDG Number: E4S19

Number and Type of Samples: Seventeen (17) soil samples

Sample Numbers: E4S19-E4S24, E4S29-E4S33, E4S43, E4S44, E4S46, E4S48, E4SA0, AND E4SB2

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Seventeen (17) sediment samples, labeled E4S19-E4S24, E4S29-E4S33, E4S43, E4S44, E4S46, E4S48, E4SA0, and E4SB2, were shipped to ALS Laboratory Group located in Salt Lake City, Utah. The samples were collected from 03/01/2010 through 03/03/2010 and were received at the laboratory on 03/03/2010 and 03/06/2010 intact at 5 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The "U" values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4S20 was designated by the samplers to be used for laboratory QC, i.e., MS/MSD analyses.

There are no field duplicates or field blanks associated with this SDG.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S19, E4S20, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S31, E4S32, E4S33, E4S43, E4S44, E4S46, E4S48

Benzo(b)fluoranthene
Benzo(k)fluoranthene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene-d_{10} E4S20MS, E4S21

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S20, E4S33, E4S43, E4S44, E4SB2
Benzo(g,h,i)perylene	E4S20, E4S30, E4S33
Indeno(1,2,3-cd pyrene	E4S30, E4S33
Benzo(b)fluoranthene	E4S20MS, E4S20MSD
Fluoranthene	E4S20MS, E4S20MSD, E4S46
Benzo(k)fluoranthene	E4S30, E4S33
Dibenzo(a,h)anthracene	E4S31, E4S32, E4SA0
Benzo(a)anthracene	E4S30
Acenaphthene	E4S32, E4S33
Phenanthrene	E4S20MSD, E4S30
Fluorene	E4S32, E4S33, E4SB2
Naphthalene	E4SA0DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S31, E4S43, E4SA0DL, E4SB2

The following semivolatile sample reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SA0 Phenanthrene, Fluoranthene, Pyrene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S30, E4S31: Indeno(1,2,3-cd)pyrene

4. BLANKS

The following semivolatile SIM samples are associated with a method blank (SBLK99) in which Indeno(1,2,3-cd)pyrene was at levels greater than the MDL but less than the CRQL. For samples in which Indeno(1,2,3-cd)pyrene is detected above the MDL but below the CRQL, reported sample concentrations have been elevated to the CRQL and qualified U. For samples in which Indeno(1,2,3-cd)pyrene is detected above the CRQL results are not qualified.

E4SA0, E4SB2, E4SB2DL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile sample with dilution factors greater than 5 has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4SA0 Fluoranthene-d_{10}

Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S20, E4S20MS, E4S20MSD Acenaphthene

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatile SIM.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S19, E4S20, E4S20DL, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S30DL, E4S31DL, E4S32DL, E4S33, E4S33DL, E4S43DL, E4S44DL, E4S46, E4S46DL, E4S48, E4SA0, E4SB2DL

Anthracene	E4S20MS, E4S20MSD, E4S30DL, E4S31DL, E4S46DL, E4S48
Pyrene	E4S22, E4S24
Benzo(g,h,i)perylene	E4S19, E4S21, E4S24
Indeno(1,2,3-cd)pyrene	E4S19, E4S21, E4S24
Benzo(b)fluoranthene	E4S19, E4S22, E4S24
Fluoranthene;	E4S22, E4S24
Benzo(k)fluoranthene	E4S19, E4S21, E4S29, E4S46DL, E4S48
Acenaphthylene	E4S30, E4S32DL, E4S33, E4S43DL, E4S44DL, E4SA0
Chrysene	E4S19, E4S21, E4S22, E4S23
Benzo(a)pyrene	E4S19, E4S21, E4S24
Dibenzo(a,h)anthracene	E4S20MS, E4S20MSD, E4S29, E4S30DL, E4S33DL, E4S46, E4S46DL, E4S48
Benzo(a)anthracene	E4S19, E4S21, E4S24, E4S48
Acenaphthene	E4S20DL, E4S29, E4S30, E4S31DL, E4S33DL, E4S43DL, E4S44DL, E4S46, E4SB2DL
Phenanthrene	E4S20DL, E4S29, E4S30, E4S31DL, E4S33DL, E4S43DL, E4S44DL, E4S46, E4SB2DL
Fluorene	E4S20DL, E4S20MS, E4S20MSD, E4S29, E4S31DL, E4S44DL, E4S46, E4S46DL
Naphthalene	E4S29, E4S46
2-Methylnaphthalene	E4S20, E4S29, E4S30, E4S46, E4SB2DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S19, E4S20MS, E4S23, E4S43DL, E4S44DL, E4S46DL, E4S48, E4SB2DL

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4S20	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S30	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S31	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S32	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S33	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S43	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S44	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S46	Fluoranthene, Pyrene
E4SA0	2-Methylnaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SB2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4S20DL	Fluoranthene, Pyrene
E4S31DL	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S32DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S33DL	Phenanthrene, Fluoranthene, Pyrene
E4S43DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4S44DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene
E4SB2DL	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

The laboratory reported that the samples were "dirty," resulting in failure of some compounds to achieve continuing calibration criteria. Elevated baselines were observed in several samples.

3. CALIBRATION

The following pesticide samples are associated with CCVs for several compounds with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected as Decachlorobiphenyl (surrogate) was one of the compounds failing to meet criteria.

E4S19, E4S20, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S31, E4S32, E4S32DL, E4S33, E4S33DL, E4S43, E4S44, E4S46, E4S48, E4SA0

4. BLANKS

The following pesticide samples have 4,4'-DDT analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration of 4,4'-DDT is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4S19, E4S21, E4S22, E4S24, E4S29

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

beta-BHC	E4S19, E4S20MS, E4S21, E4S22, E4S23, E4S29, E4S32DL, E4S48
4,4'-DDT	E4S19, E4S21, E4S22, E4S24, E4S29, E4S33DL, E4S46

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4SA0, E4SA0DL

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S32DL, E4S33DL, E4SA0DL

The following diluted pesticide samples have surrogate percent recoveries of less than 10%. The diluted samples exceeded dilution factor of 5. Detected and nondetected compounds are not qualified.

E4SA0

The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10%. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S20, E4S24, E4S29, E4S33, E4S44, E4S46, E4S48, E4SB2

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S20, E4S20MS, E4S20MSD

Aldrin, 4,4'-DDT, gamma-BHC (Lindane), Dieldrin, Endrin, Heptachlor

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not applicable to Pesticides.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Pesticide compounds were properly identified with the exception of target compound hits exceeding the calibrated range in the undiluted sample which upon dilution proved not to be present in the samples.

E4S32	gamma-BHC (Lindane), 4,4'-DDD
E4SA0	Heptachlor

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4S20, E4S21, E4S44
Aldrin	E4S20MSD
alpha-BHC	E4S46
beta-BHC	E4S20MS, E4S20MSD, E4S22, E4S29
4,4'-DDT	E4S44, E4S46

alpha-Chlordane	E4S32, E4SB2
gamma-BHC (Lindane)	E4S20MSD, E4S32
Dieldrin	E4S20MS, E4SB2
Endrin	E4S31, E4S32, E4S32DL
4,4'-DDD	E4S20MSD, E4S33, E4S33DL, E4S43
4,4'-DDE	E4S30, E4S32, E4S32DL, E4S33
Heptachlor	E4S20MS, E4S20MSD
Endosulfan I	E4SA0DL

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Heptachlor epoxide	E4S23, E4S31, E4S43
Aldrin	E4S33, E4S33DL, E4SA0, E4SA0DL
4,4'-DDT	E4S20, E4S43
alpha-Chlordane	E4S33, E4S43
gamma-Chlordane	E4S44, E4SB2
gamma-BHC (Lindane)	E4S20MS, E4SA0
Dieldrin	E4S20
Endrin	E4S43, E4SA0, E4SB2
Methoxychlor	E4S43
4,4'-DDE	E4S33DL, E4SA0, E4SB2
Heptachlor	E4S46, E4SA0

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4S22, E4S29, E4S48, E4SA0DL
Endosulfan sulfate	E4SA0DL
Aldrin	E4S22
beta-BHC	E4S19, E4S21, E4S23, E4S32DL
Endosulfan II	E4S32, E4S32DL, E4SA0
4,4'-DDT	E4S21, E4S24, E4S33DL
alpha-Chlordane	E4S20MS, E4S20MSD, E4S32DL
gamma-Chlordane	E4S29
Endrin ketone	E4S31, E4S32, E4S46, E4SB2
gamma-BHC (Lindane)	E4S21, E4S46
Dieldrin	E4S19, E4S24, E4S29
Endrin	E4S20, E4S21, E4S29, E4S30, E4S46, E4SA0DL
Methoxychlor	E4S20, E4S20MS, E4S20MSD, E4S30, E4S31, E4S44, E4SB2
4,4'-DDD	E4S19, E4S21, E4S24
4,4'-DDE	E4S21, E4S46, E4S48, E4SA0DL
Endrin aldehyde	E4S21, E4S43, E4SA0
Heptachlor	E4S33DL
Endosulfan I	E4S33DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4S20MS, E4S20MSD, E4S24, E4S32, E4S32DL, E4S33, E4SB2
beta-BHC	E4S20, E4S43, E4S46

delta-BHC	E4S30
4,4'-DDT	E4S30, E4S31, E4S33, E4SB2
gamma-Chlordane	E4S20
gamma-BHC (Lindane)	E4SA0DL
Endrin	E4S33, E4S44
4,4'-DDD	E4S32
Endrin aldehyde	E4S32DL, E4S33
Heptachlor:	E4S31, E4S32, E4S32DL, E4S33, E4S44, E4SB2

11. SYSTEM PERFORMANCE

All the pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a PEM compounds is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. As Decachlorobiphenyl was one of the compounds failing to meet criteria, all compounds are affected.

E4S19, E4S20, E4S20MS, E4S20MSD, E4S21, E4S22, E4S23, E4S24, E4S29, E4S30, E4S31, E4S32, E4S32DL, E4S33, E4S33DL, E4S43, E4S44, E4S46, E4S48, E4SA0, E4SA0DL, E4SB2

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4S32	Heptachlor, Dieldrin, 4,4’-DDE, 4,4’-DDD
E4S33	4,4’-DDD
E4SA0	Heptachlor

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4S19, E4S20MS, E4S20MSD, E4S22, E4S29, E4S30, E4S44, E4SA0, E4SA0DL, E4SB2

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor samples have surrogate percent recoveries that are greater than 200% All compounds are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S43, E4S44

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S31DL, E4S32DL, E4SA0, E4SA0DL

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries that are greater than 200%. All compounds are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S43DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. All compounds are affected. Detected compounds are qualified J. Nondetected compounds are not qualified. In the case of sample E4S32, the “J” flag applied in the automated check process was overridden for Aroclor-1248 as that result was reported from the column having acceptable surrogate recovery.

E4S30, E4S31, E4S32

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S32DL

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S33DL

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries less than 10%. Detected and nondetected compounds are not qualified.

E4SA0DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1016 E4S20MS, E4S20MSD

The Aroclor matrix/matrix spike duplicate samples (E4S20MS, E4S20MSD) have percent recoveries and relative percent difference between analyte results that are less than the lower expanded criteria limit for Aroclor-1260. In this instance the matrix spike recoveries are negative; these negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. No sample results have been qualified due to negative recoveries or RPDs.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260 E4S31, E4S32, E4S43DL
Aroclor-1016 E4S20MS, E4S20MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1260 E4S20, E4S30, E4S33DL, E4S43

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1260 E4S33

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S30, E4S44, E4SA0, E4SAODL, E4SB2

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample analysis should be used for result validation.

E4S31, E4S32, E4S33, E4S43, E4SA0

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 1, 2010

Subject: Review of Data
Received for Review on: April 1, 2010

From: Caryn Wojtowicz
Senior Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1886.0, 1887.0, 1888.0 SDG Number: E4S53

Number and Type of Samples: Twenty (20) soil samples

Sample Numbers: E4S53-E4S56, E4S62, E4S73 – E4S76, E4S80, E4S81, E4S83 – E4S88, E4S91, E4S98, and E4S99

Laboratory: ALS Laboratory Group

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Twenty (20) sediment samples, labeled E4S53-E4S56, E4S62, E4S73 – E4S76, E4S80, E4S81, E4S83 – E4S8º8, E4S91, E4S98, and E4S99, were shipped to ALS Laboratory Group located in Salt Lake City, Utah. The samples were collected on 03/02/2010 and 03/03/2010. They were received at the laboratory on 03/04/2010 and 03/06/2010 intact at 7 ºC and 5 ºC, respectively.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The "U" values in the Superset EDD and B-file have not been changed.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4S75 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Two samples, E4S80 and E4S81 had elevated pH, greater than 9. The laboratory was instructed to proceed with analysis following pH adjustment to the appropriate range. No notation indicating any pH adjustments were made was noted in the data package.

There are no field duplicates or field blanks associated with this SDG.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (% RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S53, E4S54, E4S55, E4S56, E4S62, E4S73, E4S74, E4S75, E4S75MS, E4S75MSD, E4S76

Benzo(b)fluoranthene and Benzo(k)fluoranthene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile sample E4S87 has two deuterated monitoring compound recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo (a) pyrene-d_{12}, affected compounds; Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene

Fluorene-d_{10}, affected compounds: Carbazole, Dibenzofuran, Fluorene

Semivolatile sample E4S99DL with dilution factors less than or equal to 5 has one deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Acenaphthylene-d_8, affected compounds: 2-Chloronaphthalene, 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Naphthalene

Semivolatile sample E4S56L has deuterated one monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene-d_{10}, affected compounds: Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

As the percent recoveries for Acenaphthene were acceptable in both the MS and MSD, and the % RPD was just slightly above the criteria, only the original, MS and MSD samples are affected.

E4S75, E4S75MS, E4S75MSD: Acenaphthene

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S80, E4S87, E4S88DL, E4S99DL
Pyrene	E4S74
Benzo(g,h,i)perylene	E4S53, E4S55, E4S73, E4S80, E4S81, E4S83, E4S84, E4S85, E4S91
Indeno(1,2,3-cd)pyrene	E4S73, E4S80, E4S81, E4S83, E4S85
Benzo(b)fluoranthene	E4S55, E4S74, E4S91
Fluoranthene	E4S55, E4S74, E4S91
Benzo(k)fluoranthene	E4S53, E4S80, E4S81, E4S83, E4S84, E4S85
Chrysene	E4S80, E4S81, E4S83, E4S85
Benzo(a)pyrene	E4S74, E4S80, E4S81, E4S85
Dibenzo(a,h)anthracene	E4S88DL, E4S99DL
Benzo(a)anthracene	E4S73, E4S74, E4S80, E4S81, E4S85
Acenaphthene	E4S87, E4S88DL, E4S98, E4S99DL
Phenanthrene	E4S73, E4S83, E4S84, E4S85
Fluorene	E4S54, E4S87, E4S88DL, E4S98, E4S99DL

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form 1s for the following samples do not agree with the B-file Spreadsheet results.

E4S53, E4S73, E4S75MSD, E4S86, E4S88DL, E4S99DL

The following semivolatile samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4S88 Fluoranthene, Pyrene, Benzo(b)fluoranthene
E4S99 Fluoranthene, Pyrene, Benzo(b)fluoranthene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Indeno(1,2,3-cd)pyrene	E4S56DL, E4S75, E4S75MS, E4S75MSD
Benzo(a)pyrene	E4S56DL, E4S75, E4S75MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile sample with dilution factors greater than 5 has deuterated monitoring compound recovery below the lower limit of the criteria window. Detected and nondetected compounds are not qualified.

E4S73DL, E4S84DL	2-Methylnaphthalene-d_{10}, affected compounds: Naphthalene, 2-Methyl naphthalene, Acenaphthene, Acenaphthylene, Fluorene, Phenanthrene, Anthracene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatile-SIM.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4S53DL, E4S55DL, E4S56DL, E4S62, E4S73DL, E4S76, E4S84DL, E4S86
Pyrene	E4S75
Benzo(g,h,i)perylene	E4S56DL, E4S75, E4S75MS, E4S75MSD
Indeno(1,2,3-cd)pyrene	E4S56DL, E4S75, E4S75MS, E4S75MSD
Benzo(b)fluoranthene	E4S75, E4S75MS, E4S75MSD
Fluoranthene	E4S75, E4S75MS, E4S75MSD
Benzo(k)fluoranthene	E4S56DL, E4S86, E4S91DL
Acenaphthylene	E4S53, E4S54DL, E4S55, E4S56, E4S73, E4S80, E4S81, E4S83, E4S84, E4S85, E4S87, E4S88, E4S98, E4S99
Chrysene	E4S56DL, E4S75, E4S75MS
Benzo(a)pyrene	E4S56DL, E4S75, E4S75MSD, E4S91DL
Dibenzo(a,h)anthracene	E4S53DL, E4S55DL, E4S56, E4S62, E4S73DL, E4S74DL, E4S76, E4S80DL, E4S81DL, E4S83DL, E4S84DL, E4S85DL, E4S86, E4S91DL
Benzo(a)anthracene	E4S56DL, E4S75, E4S91DL
Acenaphthene	E4S54DL, E4S55, E4S56, E4S62, E4S74, E4S76, E4S80DL, E4S83, E4S84DL, E4S85DL, E4S91
Phenanthrene	E4S75
Fluorene	E4S55, E4S56DL, E4S62, E4S74, E4S76, E4S80DL, E4S81DL, E4S85DL, E4S86, E4S91DL
Naphthalene	E4S53, E4S99
2-Methylnaphthalene	E4S55, E4S56, E4S73, E4S81, E4S83, E4S84, E4S99

Several semivolatile samples had at least one compound concentration reported below the MDL on the originally submitted Form 1s. The laboratory resubmitted corrected Form 1s. Refer to the resubmitted Forms for data evaluation. The EDD is correct.

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results for the following samples:

E4S53, E4S53DL, E4S55DL, E4S75MSD, E4S86, E4S87

Dilution analysis was not required for the following SIM samples because the levels of target compounds were greater than the CRQL for the full-scan semivolatile analysis: E4S87, E4S88, E4S98, E4S99

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4S53	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S54	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4S55	Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene
E4S56	Phenanthrene, Fluoranthene,
E4S73	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S74	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene,
E4S81	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S83	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S84	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S85	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S85	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S86	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S91	Phenanthrene, Fluoranthene, Pyrene, Chrysene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene

E4S98	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S99	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4S54DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4S84DL	Fluoranthene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

The laboratory reported that the samples were "dirty," resulting in failure of some compounds to achieve continuing calibration criteria. Elevated baselines were observed in several samples.

3. CALIBRATION

The following pesticide samples are associated with CCVs for several compounds with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected because Decachlorobiphenyl (a surrogate) was one of the compounds failing to meet criteria.

E4S85DL, E4S88DL, E4S99

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan sulfate	E4S56, E4S75, E4S75MS, E4S75MSD
beta-BHC	E4S55, E4S75, E4S75MSD, E4S88DL
Endrin aldehyde	E4S56, E4S62
Endosulfan I	E4S53, E4S55, E4S74, E4S75MS, E4S75MSD

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated continuing instrument blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan sulfate	E4S56, E4S75, E4S75MS, E4S75MSD
beta-BHC	E4S55, E4S75, E4S75MSD, E4S76, E4S88DL
Endosulfan II	E4S84, E4S85, E4S86, E4S87, E4S88, E4S91, E4S98
4,4'-DDT	E4S85DL
4,4'-DDE	E4S85DL
Endrin aldehyde	E4S56, E4S62
Endosulfan I	E4S53, E4S55, E4S74, E4S75MS, E4S75MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4S91 has a surrogate percent recovery that is greater than 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden unless applied for another reason.

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S85DL, E4S88DL, E4S99DL

The following pesticide samples have surrogate percent recoveries greater than 150% but less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden unless applied for another reason.

E4S85, E4S88, E4S98, E4S99

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S88DL, E4S99DL

The following pesticide samples have surrogate percent recoveries outside the lower limit of the criteria window, but greater than 10%. Detected compounds are qualified J. Nondetected compounds are qualified UJ. All compounds are affected.

E4S87, E4S88

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S75, E4S75MS, E4S75MSD
Aldrin, 4,4'-DDT, gamma-BHC (Lindane), Dieldrin, Endrin, Heptachlor

The result for beta-BHC was rejected in sample E4S75MSD for reasons detailed later in this review. Therefore, that value was not used to calculate an RPD.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not applicable for Pesticides.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4S56
Aldrin	E4S75MSD
beta-BHC	E4S75, E4S75MSD, E4S81
4,4'-DDT	E4S91, E4S99DL
alpha-Chlordane	E4S54, E4S87
gamma-Chlordane	E4S81, E4S83, E4S84
gamma-BHC (Lindane)	E4S75MS, E4S75MSD, E4S99, E4S99DL
Dieldrin	E4S55, E4S74, E4S75MSD, E4S83
Endrin	E4S84
4,4'-DDD	E4S53, E4S62, E4S74, E4S75MSD, E4S81, E4S86
4,4'-DDE	E4S62, E4S83, E4S84, E4S88, E4S88DL, E4S91
Heptachlor:	E4S55, E4S75MS, E4S75MSD

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Heptachlor epoxide	E4S83, E4S87
delta-BHC	E4S53
Endosulfan II	E4S73
4,4'-DDT	E4S53, E4S54, E4S73, E4S88, E4S88DL
alpha-Chlordane	E4S73, E4S88, E4S99, E4S99DL
gamma-Chlordane	E4S80, E4S85, E4S88
Dieldrin	E4S54, E4S80, E4S81
Endrin	E4S83, E4S88, E4S99
4,4'-DDE	E4S53, E4S85, E4S87
Heptachlor	E4S99
Endosulfan I	E4S98

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4S55, E4S62, E4S75MSD, E4S76, E4S80, E4S81, E4S85DL, E4S86
beta-BHC	E4S55, E4S76, E4S88DL, E4S91
Endosulfan II	E4S74, E4S75MSD, E4S84, E4S85, E4S87, E4S88, E4S98, E4S99
4,4'-DDT	E4S62, E4S76, E4S81, E4S85DL, E4S86
alpha-Chlordane	E4S55, E4S74, E4S75MS, E4S75MSD
Endrin ketone	E4S73, E4S75MSD, E4S76, E4S83, E4S84, E4S85, E4S87, E4S88, E4S98
Dieldrin	E4S76

Endrin	E4S53, E4S55, E4S74, E4S80, E4S81, E4S85DL, E4S86, E4S88DL, E4S91, E4S99DL
Methoxychlor	E4S53, E4S55, E4S80, E4S81, E4S83, E4S84, E4S85, E4S87, E4S98, E4S99, E4S99DL
4,4'-DDD	E4S75MS
4,4'-DDE	E4S75MS, E4S75MSD, E4S85DL, E4S86
Endrin aldehyde	E4S83, E4S85, E4S88, E4S99
Heptachlor	E4S54, E4S80, E4S81, E4S83, E4S85DL
Endosulfan I	E4S75MS, E4S88DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4S53, E4S54, E4S74, E4S84, E4S85, E4S88, E4S88DL
alpha-BHC	E4S87
beta-BHC	E4S74, E4S75MS
4,4'-DDT	E4S55, E4S80, E4S83, E4S84, E4S85, E4S87, E4S98
gamma-BHC (Lindane)	E4S74
Dieldrin	E4S73
Endrin	E4S54, E4S85, E4S87, E4S98
Methoxychlor	E4S54, E4S88
4,4'-DDD	E4S84, E4S87, E4S99DL
4,4'-DDE	E4S73, E4S99DL
Heptachlor	E4S73, E4S74, E4S84, E4S85, E4S88, E4S98, E4S99DL
Endosulfan I	E4S99DL

11. SYSTEM PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a PEM compounds is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Because Decachlorobiphenyl, a surrogate, was one of the compounds failing to meet criteria, all compounds are affected.

E4S80, E4S81, E4S83, E4S84, E4S85, E4S85DL, E4S86, E4S87, E4S88, E4S88DL, E4S91, E4S98, E4S99, E4S99DL

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4S85	4,4’-DDD
E4S88	4,4’-DDE, 4,4’-DDD, gamma-Chlordane
E4S99	4,4’-DDE, Heptachlor

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file spreadsheet results.

E4S53, E4S55, E4S62, E4S75, E4S83, E4S86, E4S91

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following Aroclor samples have surrogate percent recoveries that are greater than 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden unless applied for another reason.

E4S54, E4S91

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4S54DL, E4S84, E4S85, E4S88, E4S99, E4S99DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200% on one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The "J" flag applied in the automated check process was overridden unless applied for another reason. Detected compounds are nondetected compounds are not qualified.

E4S53, E4S86, E4S87

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

E4S88, E4S98, E4S99DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The automated report incorrectly calculated percent recoveries of Aroclor-1016 and Aroclor-1260. Spike compound Aroclor-1016 recovery in Sample E4S75MSD slightly exceeds the upper acceptance limit on

one column. All other spike recoveries and % RPD are within criteria. The "J" flag applied in the automated check process was overridden unless applied for another reason.

E4S75, E4S75MS, E4S75MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

There are no field duplicates or field blanks associated with this SDG.

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260 E4S53, E4S54DL

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1260 E4S55
Aroclor-1016 E4S75MS, E4S75MSD

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1260 E4S80, E4S81, E4S87

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Due to suspected rounding differences, the reported CRQLs listed on laboratory Form Is do not agree with the B-file Spreadsheet results.

E4S53, E4S87

Several samples were initially analyzed at a ten-fold dilution. Mistakenly, the laboratory analyzed Sample E4S99 at an additional dilution, when in fact its original 10X analysis yielded results near, but not

exceeding the upper calibrated range. The dilution analysis of this sample was not required. Allowance was granted by SMO not to analyze a ten-fold more concentrated sample.

The following Aroclor sample reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample analysis should be used for result validation.

E4S54	Aroclor-1260

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: June 30, 2010

Subject: Review of Data
Received for Review on: April 26, 2010

From: Julie Rest
Environmental Chemist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S57

Number and Type of Samples: 19 Sediment Samples

Sample Numbers: E4S57, E4S58, E4S60, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE3, E4SE5, E4SE7, E4SE8

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Nineteen (19) sediment samples labeled E4S57, E4S58, E4S60, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE3, E4SE5, E4SE7, and E4SE8 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. Samples E4S57, E4S58, E4S60, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, and E4S72 were collected on 3/2/2010 and were received on 3/4/2010. Samples E4SE1, E4SE3, E4SE5, E4SE7, and E4SE8 were collected on 3/4/2010 and were received on 3/6/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 9 ºC. No data have been qualified based on receipt temperature. Sample E4S57 had a pH of 9.16, outside of the allowable limits. GLNPO staff instructed the laboratory to adjust the pH and proceed with the analysis of the sample.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag in the EDD. As detailed later in this narrative, sample results reported below the reporting detection limit have been elevated to the quantitation limit and qualified "U" in the "B" and "Z" files.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4S60 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4S65 and E4S66 as the field duplicate pair.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for benzo(b)fluoranthene and benzo(k)fluoranthene. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4S57, E4S58, E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene	E4S63, E4S68, E4S70, E4S71, E4S72, E4SE5, E4SE7
Benzo(g,h,i)perylene	E4S63, E4S68, E4S70, E4S71, E4S72
Indeno(1,2,3-cd)pyrene	E4S63, E4S68, E4S70, E4S71, E4S72

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile sample E4SE1, with a dilution factor less than or equal to 5, had a deuterated monitoring compound recovery for Anthracene-d_{10} that was above the upper limit of the criteria window. Sample results for Anthracene and Phenanthrene are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

Semivolatile sample E4S57 had a deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Sample results for Benzo(a)anthracene, Chrysene, Fluoranthene, and Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S65 and E4S66 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4S65 and E4S66

Semivolatile compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	ND	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

For field duplicates E4S65 and E4S66, RPDs were not calculated because all target compound results were nondetects.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original semivolatile analysis for sample E4SE1 was performed using a 5-fold dilution. No neat analysis was performed for this sample. The quantitation limits reflect the dilution factor.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene E4S60MS, E4S64, E4SE1, E4SE3, E4SE7

Pyrene	E4S61, E4S63
Benzo(g,h,i)perylene	E4S60, E4S60MS, E4S60MSD, E4S63, E4S64, E4S67, E4S68, E4S70, E4S71
Indeno(1,2,3-cd)pyrene	E4S60MS, E4S60MSD, E4S64, E4S70
Benzo(b)fluoranthene	E4S61, E4S63, E4S67, E4S68, E4S69, E4S71
Fluoranthene	E4S63, E4S69
Benzo(k)fluoranthene	E4S60, E4S60MS, E4S60MSD, E4S64, E4S70, E4SE3
Chrysene	E4S60, E4S63, E4S67, E4S68, E4S69
Benzo(a)pyrene	E4S61, E4S63, E4S67, E4S68, E4S69, E4S71
Dibenzo(a,h)anthracene	E4SE1, E4SE7
Benzo(a)anthracene	E4S61, E4S63, E4S67, E4S68, E4S70, E4S71
Acenaphthene	E4SE1, E4SE5DL, E4SE7
Phenanthrene	E4S61, E4S63, E4S67, E4S69, E4S71
Fluorene	E4SE1, E4SE5, E4SE5DL, E4SE7

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4SE5 reported concentrations that exceeded the calibrated range of the instrument for Pyrene. These results were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The original analysis of semivolatile-SIM sample E4SE1, with a dilution factor greater than or equal to 5, had a deuterated monitoring compound recovery for Fluoranthene-d_{10}, above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

Semivolatile-SIM samples E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S67, and E4S68, with a dilution factor greater than or equal to 5, had a deuterated monitoring compound recovery for 2-Methylnaphthalene-d_{10}, below the lower limit of the criteria window. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pyrene was recovered in the MS/MSD prepared for sample E4S60 at levels above the upper acceptance limit. The problem seems to be limited to the MS/MSD and may be due to the high amounts of Pyrene in the unspiked sample. No MS/MSD failures were reported in the SVOA full scan analyses. Therefore, only sample E4S60 is affected. The result for Pyrene in sample E4S60 is qualified "J".

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4S65 and E4S66 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4S65 and E4S66

Semivolatile-SIM compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	

Semivolatile-SIM compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Acenaphthene	ND	1	ND	1	
Fluorene	0.56	1	ND	1	
Phenanthrene	4	1	4.1	1	2.5
Anthracene	1.2	1	1.2	1	0
Fluoranthene	7.1	1	10	1	34
Pyrene	8	1	14	1	55
Benzo(a)anthracene	3.7	1	6.5	1	55
Chrysene	3.5	1	6.8	1	64
Benzo(b)fluoranthene	2.3	1	7.4	1	110
Benzo(k)fluoranthene	0.76	1	1.8	1	81
Benzo(a)pyrene	2.2	1	7.1	1	110
Indeno(1,2,3-cd)pyrene	1.6	1	4.1	1	88
Dibenzo(a,h)anthracene	ND	1	0.75	1	
Benzo(g,h,i)perylene	2.1	1	5.4	1	88

For field duplicates E4S65 and E4S66, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, and Benzo(g,h,i)perylene had RPD values above 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original semivolatile-SIM analysis for samples E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S67-E4S71, E4SE1, E4SE3, E4SE5, E4SE7 was performed using a 10-fold dilution. No neat analyses were performed for these samples. The quantitation limits reflect the dilution factor.

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4S58, E4S61, E4S63, E4S65–E4S71, E4SE8
Acenaphthene	E4S60, E4S64, E4S69, E4SE3, E4SE8
Acenaphthylene	E4SE1, E4SE5, E4SE7
Benzo(a)anthracene	E4S57, E4S72

Indeno(1,2,3-cd)pyrene	E4S57, E4S65, E4S69, E4S72
Benzo(k)fluoranthene	E4S58, E4S61, E4S63, E4S65, E4S66 – E4S69
Dibenzo(a,h)anthracene	E4S58, ES460, ES460MS, E4S60MSD, E4S61, E4S63, E4S64, E4S66, E4S67, E4S68, E4S70, E4S71, E4SE3, E4SE8
Fluorene	E4S60, E4S64, E4S65, E4S70, E4S71, E4SE3, E4SE8
Chrysene	E4SE57, E4S72
Fluoranthene	E4S57, E4S72
Benzo(a)pyrene	E4S57, E4S65, E4S69, E4S72
Benzo(b)fluoranthene	E4S57, E4S65, E4S72
Benzo(g,h,i)perylene	E4S57, E4S65, E4S69
Naphthalene	E4SE8
Phenanthrene	E4S57, E4S72
Pyrene	E4S72

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. Although the original analysis for some of these samples may have included a dilution, no further dilutions were performed.

Anthracene	E4SE1
Benzo(a)anthracene	E4SE1, E4SE5, E4SE7
Indeno(1,2,3-cd)pyrene	E4SE1, E4SE5, E4SE7
Benzo(k)fluoranthene	E4SE1, E4SE5
Chrysene	E4SE1, E4SE5, E4SE7
Fluoranthene	E4S60MS, E4S60MSD, E4S64, E4S70, E4SE1, E4SE3, E4SE5, E4SE7
Benzo(a)pyrene	E4SE1, E4SE5, E4SE7

Benzo(b)fluoranthene	E4SE1, E4SE5, E4SE7
Benzo(g,h,i)perylene	E4SE1, E4SE5, E4SE7
Phenanthrene	E4S60MS, E4SE1, E4SE5
Pyrene	E4S60MS, E4S60MSD, E4S64, E4SE1, E4SE5, E4SE7

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for surrogate compound Decachlorobiphenyl is outside criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4S57, E4S58, E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference for surrogate compound Decachlorobiphenyl, and for several target compounds that exceeded criteria in one or more CCVs. All samples are affected. Detected target compounds are qualified J. Nondetected compounds are qualified UJ.

E4S57, E4S58, E4S60, E4S60MS, E4S60MSD, E4S61, E4S63, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S71, E4S72, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is also less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endrin aldehyde	E4S57, E4S58, E4S60, E4S64, E4S65, E4S66, E4S67, E4S68, E4S69, E4S70, E4S72

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank and continuing instrument blank concentrations are also less than the CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

gamma-Chlordane	E4S57, E4S58, E4S65, E4S72
4,4'-DDE	E4S65, E4S69, E4S71, E4S72, E4SE1DL, E4SE8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SE7 had a surrogate percent recovery that was outside the lower limit of the criteria window, but greater than 10% on the RTXCLP column. All target analytes are affected. Detected compounds reported from this column are qualified "J". Nondetected compounds are qualified "UJ". .

Surrogate recoveries between 150 – 200 %, and greater than 200% were obtained on only one column for sample E4SE1. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

Diluted pesticide sample E4SE1DL and E4SE7DL, with a dilution factor greater than 5 had all surrogate percent recoveries greater than 150% and some greater than 200%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The Pesticide MS prepared for sample E4S60 had a percent recovery below the acceptance criteria for Endrin on both columns. All samples are affected. Sample results for Endrin are qualified "J". Nondetected results are qualified "UJ".

The Pesticide MS prepared for sample E4S60 had a percent recovery below the acceptance criteria for 4,4'-DDT and the MSD was recovered above the acceptance criteria for 4,4'-DDT on the RTXCLP2 column. However the Heptachlor results in the MS/MSD were rejected for reasons noted elsewhere in this narrative and, therefore, no 4,4'-DDT results have been qualified for MS/MSD recovery.

Pesticide MS/MSD E4S60 had RPD values outside of criteria for Dieldrin, and Endrin on both columns. All samples are affected. Sample results for Dieldrin, and Endrin are qualified "J". Nondetected results are not qualified.

Pesticide MS/MSD E4S60 had RPD values outside of criteria for Heptachlor on both columns. However the Heptachlor results in the MS/MSD were rejected for reasons noted elsewhere in this narrative and therefore, no Heptachlor results have been qualified for MS/MSD recovery.

The Pesticide MS/MSD prepared for sample E4S60 had percent recoveries above the acceptance criteria for gamma-BHC (Lindane), and RPD values outside of criteria for Aldrin on the RTXCLP2 column. All samples are affected. Sample results for Aldrin, and gamma-BHC (Lindane) that are reported from this column are qualified "J". Nondetected results are not qualified.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S65 and E4S66 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

The result for beta-BHC was rejected in sample E4S66 for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs

E4S65 and E4S66

Pesticide compound	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	0.11	1		1	
delta-BHC	ND	1	ND	1	
gamma-BHC (Lindane)	ND	1	ND	1	
Heptachlor	0.12	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.12	1	0.14	1	15
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	0.23	1	ND	1	
Endrin	ND	1	0.23	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	0.23	1	0.23	1	0
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.23	1	ND	1	
Methoxychlor	ND	1	1.6	1	
Endrin ketone	ND	1	0.23	1	
Endrin aldehyde	0.23	1	0.23	1	0
alpha-Chlordane	ND	1	0.14	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicates E4S65 and E4S66, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples RPD values were less than 50 %.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original pesticide analysis for sample E4SE1 was performed using a 10-fold dilution. No neat pesticide analysis was performed for this sample. The reported quantitation limits reflect the dilution factor.

The following non-detected sample results were reported correctly on Form 1s, but were either reported below the reporting detection limit or were flagged incorrectly in the EDD. The results have been elevated to the quantitation limit and are flagged “U”, unless affected by another qualifier.

E4S58 4,4’-DDD, beta-BHC, Endosulfan II, Heptachlor epoxide

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

alpha-BHC	E4S68, E4S69
alpha-Chlordane	E4SE7DL
Aldrin	E4S68
beta-BHC	E4S57, E4S58, E4S60, E4S63 - E4S65, E4S72, E4SE8
delta-BHC	E4S69, E4S72
Dieldrin	E4S57, E4S61, E4S63, E4S68, E4S71
Endrin	E4S63, E4S64, E4S66, E4S67, E4S71, E4SE1DL, E4SE3, E4SE7
Endrin aldehyde	E4S57, E4S58, E4S60, E4S64 - E4S70, E4S72, E4SE7
Endrin ketone	E4S63, E4S66, E4S70, E4SE5, E4SE7
gamma-BHC (Lindane)	E4SE8
gamma-Chlordane	E4S57, E4S58
4,4'-DDD	E4S65 – E4S69, E4S71, E4SE8
4,4'-DDE	E4S65, E4S69, E4S71, E4SE8
4,4'-DDT	E4S65 – E4S69, E4S71, E4SE8
Heptachlor	E4S57, E4S64, E4S65, E4S67 – E4S69, E4S71, E4S72
Endosulfan I	E4S68, E4SE8
Endosulfan II	E4S60, E4S60MS, E4S60MSD, E4S68, E4SE1, E4SE3, E4SE5, E4SE7, E4SE8
Heptachlor epoxide	E4S57, E4S63 – E4S65, E4S67, E4S68, E4S70 – E4S72, E4SE8
Methoxychlor	E4S63, E4S64, E4SE3, E4SE5, E4SE7, E4SE7DL

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4S61
beta-BHC	E4S65, E4S69, E4S71
delta-BHC	E4S69

4,4'-DDT	E4S61
alpha-Chlordane	E4S60, E4SE7
gamma-Chlordane	E4S58
Dieldrin	E4S61, E4S67, E4S68
Endrin	E4S60MS, E4S60MSD
Methoxychlor	E4S66
4,4'-DDD	E4S63, E4S70, E4SE7, E4SE8
4,4'-DDE	E4S60, E4S60MS, E4S60MSD, E4S71, E4SE1
Endrin aldehyde	E4S72, E4SE3
Heptachlor	E4S72

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

Aldrin	E4S60MS, E4S60MSD
4,4'-DDT	E4S70
Alpha-Chlordane	E4S66
gamma-BHC (Lindane)	E4S60MS, E4S60MSD
Endrin	E4S60, E4S70
4,4'-DDD	E4S61, E4S74
4,4'-DDE	E4S64, E4S70, E4SE5

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4S63, E4S64, E4S65, E4S67, E4S68, E4S70, E4S71, E4S72, E4SE1DL, E4SE8
Aldrin	E4S68
alpha-BHC	E4S69
beta-BHC	E4S57, E4S60, E4S63, E4S64, E4S72, E4SE7DL, E4SE8

Endosulfan II	E4S60, E4S60MS, E4S60MSD, E4S68, E4S70, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8
4,4'-DDT	E4S65, E4S67, E4S68, E4S69, E4S71, E4SE8
alpha-Chlordane	E4SE7DL
Endrin ketone	E4S60, E4S60MS, E4S60MSD, E4S63, E4S66, E4S70, E4SE5, E4SE7
gamma-BHC (Lindane)	E4SE7DL, E4SE8
Dieldrin	E4S57, E4S63, E4S71, E4SE7DL
Endrin	E4S63, E4S64, E4S66, E4S67, E4S71, E4S72, E4SE1DL, E4SE3, E4SE7
Methoxychlor	E4S61, E4S63, E4S64, E4SE3, E4SE5, E4SE7, E4SE7DL, E4SE8
4,4'-DDD	E4S65, E4S66, E4S67, E4S68, E4S69, E4S71
4,4'-DDE	E4SE1DL
Endrin aldehyde	E4S58, E4S60, E4S64, E4S66, E4S68, E4S69, E4S70, E4SE7
Heptachlor	E4S57, E4S64, E4S65, E4S67, E4S68, E4S69, E4S71
Endosulfan I	E4S58, E4SE8

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified “R”.

Heptachlor epoxide	E4S60, E4S60MS, E4S60MSD, E4SE1, E4SE3, E4SE7, E4SE7DL
beta-BHC	E4S60MS, E4S60MSD, E4S61, E4S66, E4S67, E4S68, E4S70, E4SE3, E4SE7
4,4'-DDT	E4S60MS, E4S60MSD, E4S64, E4SE7
gamma-BHC (Lindane)	E4SE1, E4SE1DL, E4SE3, E4SE7
Dieldrin	E4SE7
Endrin	E4SE1, E4SE5
4,4'-DDE	E4SE3, E4SE7, E4SE7DL
Endrin aldehyde	E4S60MS, E4S60MSD, E4SE8
Heptachlor	E4S60, E4S60MS, E4S60MSD, E4SE1, E4SE1DL, E4SE3, E4SE5, E4SE7, E4SE7DL

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. For sample E4SE7, the 4,4’-DDD result from dilute sample be used for result validation. For sample E4SE1, the Heptachlor results for both the original sample analysis and the diluted analysis have been rejected for reasons mention elsewhere in this narrative.

4,4'-DDD	E4SE7
Heptachlor	E4SE1

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All Aroclor samples in this SDG had acceptable surrogate recoveries on one or both columns for the original analyses. No samples were qualified based on surrogate recovery.

However, diluted Aroclor samples E4SE1DL, E4SE5DL, and E4SE7DL, with dilution factors greater than five, had percent recoveries that are between 150 - 200%, and some that exceeded 200%. The diluted samples are not qualified based on surrogate recovery.

Aroclor sample E4SE1DL with dilution factors greater than 5 also had surrogate percent recoveries less than 10%. Detected and nondetected compounds are not qualified.

A surrogate recovery between 150 – 200 % was obtained on only one column for Aroclor sample E4S60, E4S60DL, E4S66, E4S3DL, E4SE1, E4SE5, E4SE7, and E4S60MS and E4S60MSD. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared for sample E4S60, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016 and Aroclor-1260, and the RPD exceeded criteria for Aroclor-1260 on one column. This is likely due to high levels of Aroclor-1248 and Aroclor-1260 in the unspiked sample. Only sample E4S60 is affected. Detected results are qualified “J”. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4S65 and E4S66 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4S65 and E4S66

Aroclor compounds	E4S65 µg/kg	DF	E4S66 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	ND	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4S65 and E4S66, RPD values were not calculated because both values were nondetects for all compounds.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1248 E4S71, E4S72

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified “J”.

Aroclor-1248 E4S72

Aroclor-1260 E4S70

The following Aroclor samples had percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified “NJ”.

Aroclor-1248 E4S61

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1248 E4S71

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1248 E4S70, E4SE1

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted samples should be used for result validation.

Aroclor-1248 E4S60, E4SE1, E4SE3, E4SE5, E4SE7

Aroclor-1260 ES460

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: **August 4, 2010**

Subject: R**evised Review Narrative Report**
Review of Data
Received for Review on: April 14, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

This narrative review supersedes the narrative sent on June 24, 2010 for the review of data in SDG E4S89. The changes made to this narrative include clarifications added to the Semivolatile and Pesticide Additional Information sections of the narrative. The changes have been highlighted in bold face type. In addition, the "reportable results" field in the "Z" file has been updated to reflect the clarifications. No sample results or review qualifiers have been changed based on these changes.

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S89

Number and Type of Samples: 14 Sediment Samples

Sample Numbers: E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB0, E4SB4, E4SB6, E4SB7, E4SG5, E4SG6

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Fourteen (14) sediment samples labeled E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB0, E4SB4, E4SB6, E4SB7, E4SG5, and E4SG6 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All except E4SG5 and E4SG6 were collected on 3/3/2010 and were received on 3/5/2010 at 2 °C. Samples E4SG5 and E4SG6 (equipment blanks) were collected on 3/5/2010 and were received on 3/6/2010 at 7 °C. These samples exceeded the proper shipping temperature range of 2 - 6 ºC; no data have been qualified based on receipt temperature. Two of the three containers for sample E4SA3 were received broken. Because the box for each container was intact, the laboratory did not believe that cross contamination occurred. In accordance with direction from EPA, samples were transferred to new containers and used for analyses. Samples E4S89 and E4SB7 were received at pH 9.1, which is outside the allowable limits. In accordance with direction from EPA, the pH was adjusted and the analyses conducted. No data were qualified based on the broken containers or sample pH.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as “soil” on Form1s and in the EDD for the samples in this SDG. The samples are actually “sediment” samples.

Sample E4S92 contained less than 50% solids. Results were reported on a dry-weight basis using the percent solids (45.3%) determined by the laboratory.

As designated by the samplers, Sample E4SB6 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SA3 and E4SA6 as field duplicate pairs.

Per the laboratory narrative, manual edits were made in the semivolatiles calibration standards for a variety of miscalled peaks. Every manual integration is noted by an “m” footnote on the quantitation report.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening CCV percent Difference (%D) outside criteria for Pyrene. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4S89, E4S92, E4SA6, E4SG6

The following semivolatile sample is associated with an opening CCV percent Difference (%D) outside criteria for Benzo (g,h,i) perylene and Indeno (1,2,3-cd) pyrene. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4SG6

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile samples with dilution factors less than or equal to 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Pyrene-d_{10}	E4S89DL
Anthracene-d_{10}	E4S89DL, E4SA4
Benzo (a) pyrene-d_{12}	E4SA4
Fluorene-d_{10}	E4S89DL
Acenaphthylene-d_8	E4S89DL, E4SA4

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 were identified as field duplicates. In addition to undiluted analyses of E4SA3, a 1:2 dilution of this sample was also analyzed (E4SA3DL). Results are summarized in the

following tables. Note that results are not qualified based upon the results of the field duplicates. Two equipment blanks were collected for this SDG.

E4SA3 and E4SA6

Semivolatile compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	100	1	ND	1	
Acenaphthene	69	1	77	1	11
Fluorene	110	1	94	1	16
Phenanthrene	880	1	710	1	21
Anthracene	300	1	220	1	31
Fluoranthene	1400	1	1300	1	7.4
Pyrene	2100	1	1600	1	27
Benzo(a)anthracene	1300	1	860	1	41
Chrysene	1000	1	910	1	9.4
Benzo(b)fluoranthene	1400	1	1200	1	15
Benzo(k)fluoranthene	380	1	310	1	20
Benzo(a)pyrene	1000	1	820	1	20
Indeno(1,2,3-cd)pyrene	1000	1	770	1	26
Dibenzo(a,h)anthracene	190	1	150	1	24
Benzo(g,h,i)perylene	830	1	640	1	26

For field duplicates E4SA3 and E4SA6, where detects were reported for both samples, all RPD values were 50% or less.

E4SA3DL and E4SA6

Semivolatile compounds	E4SA3DL µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Naphthalene	ND	2	ND	1	
2-Methylnaphthalene	ND	2	ND	1	
Acenaphthylene	120	2	ND	1	
Acenaphthene	78	2	77	1	1.3
Fluorene	120	2	94	1	24
Phenanthrene	1100	2	710	1	43
Anthracene	370	2	220	1	51
Fluoranthene	2000	2	1300	1	42
Pyrene	2200	2	1600	1	32
Benzo(a)anthracene	1400	2	860	1	48
Chrysene	1200	2	910	1	28
Benzo(b)fluoranthene	1600	2	1200	1	29
Benzo(k)fluoranthene	490	2	310	1	45
Benzo(a)pyrene	1300	2	820	1	45
Indeno(1,2,3-cd)pyrene	1200	2	770	1	44
Dibenzo(a,h)anthracene	260	2	150	1	54

Semivolatile compounds	E4SA3DL µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Benzo(g,h,i)perylene	1100	2	640	1	53

For field duplicates E4SA3DL and E4SA6, where detects were reported for both samples, all RPD values were less than 50% except for Anthracene, Dibenzo(a,h)anthracene, and Benzo(g,h,i)perylene.

Equipment Blanks E4SG5 and E4SG6

Semivolatile compounds	E4SG5 µg/L	E4SG6 µg/L
Naphthalene	ND	ND
2-Methylnaphthalene	ND	ND
Acenaphthylene	ND	ND
Acenaphthene	ND	ND
Fluorene	ND	ND
Phenanthrene	ND	ND
Anthracene	ND	ND
Fluoranthene	ND	ND
Pyrene	ND	ND
Benzo(a)anthracene	ND	ND
Chrysene	ND	ND
Benzo(b)fluoranthene	ND	2.6
Benzo(k)fluoranthene	ND	ND
Benzo(a)pyrene	ND	2.7
Indeno(1,2,3-cd)pyrene	ND	ND
Dibenzo(a,h)anthracene	ND	ND
Benzo(g,h,i)perylene	ND	ND

No target compounds were detected in equipment blanks E4SG5. In equipment blank E4SG6, target compounds Benzo(b)fluoranthene and Benzo(a)pyrene were detected at levels below the CRQL.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Anthracene E4S90, E4S92, E4SB4

Pyrene E4SB0, E4SB6

Benzo (b) fluoranthene	E4SB6, E4SB6MS, E4SB6MSD, E4SG6
Fluoranthene	E4SB0, E4SB6, E4SB6MS, E4SB6MSD
Benzo (k) fluoranthene	E4SB4
Acenaphthylene	E4SA3, E4SA3DL
Benzo (a) pyrene	E4SG6
Dibenzo (a,h) anthracene	E4S89DL, E4SA2, E4SA4, E4SA9DL
Acenaphthene	E4S89DL, E4S92, E4SA2, E4SA3, E4SA3DL, E4SA4, E4SA6, E4SA9DL
Phenanthrene	E4SB6MS
Fluorene	E4S89DL, E4S92, E4SA2, E4SA3, E4SA3DL, E4SA6, E4SA9, E4SA9DL
Naphthalene	E4S89, E4SA9
2-Methylnaphthalene	E4S89

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4S89 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene, Chrysene, Benzo(b)fluoranthene, and Pyrene; and samples E4SA3 and E4SA9 had concentrations for Pyrene that exceeded the instrument calibration range. These results were flagged "E" by the laboratory and, as per the NFG, are flagged estimated, "J". The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike (E4SB6MS) and matrix spike duplicate (E4SB6MSD) recoveries is outside criteria for Acenaphthene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

The matrix spike (E4SB6MS) and matrix spike duplicate (E4SB6MSD) have percent recoveries that are greater than the upper acceptance limit for Pyrene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 are identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. Semivolatile, but not Semivolatile-SIM, analyses were conducted for the equipment blanks E4SG5 and E4SG6. Results for the equipment blanks are reported in the Semivolatiles Section 7.0 above.

E4SA3 and E4SA6

Semivolatile-SIM compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	54	10	7.9	10	150
Acenaphthene	35	10	41	10	15.8

Semivolatile-SIM compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Fluorene	59	10	52	10	12.6
Phenanthrene	630	10	470	10	29.1
Anthracene	190	10	130	10	37.5
Fluoranthene	1700	10	1300	10	26.7
Pyrene	1200	10	910	10	27.5
Benzo(a)anthracene	800	10	560	10	35.3
Chrysene	630	10	550	10	13.6
Benzo(b)fluoranthene	990	10	760	10	26.3
Benzo(k)fluoranthene	300	10	230	10	26.4
Benzo(a)pyrene	730	10	510	10	35.5
Indeno(1,2,3-cd)pyrene	460	10	380	10	19
Dibenzo(a,h)anthracene	93	10	75	10	21.4
Benzo(g,h,i)perylene	370	10	300	10	20.9

For field duplicate pair E4SC5 and E4SC6, all compounds detected in both samples had RPD values less than 50%, except for Acenaphthylene (150%).

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original analysis for samples E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, and E4SB4 were performed using 10-fold dilutions. The original analysis for samples E4SB0 and E4SB6 were performed using 2-fold and 5-fold dilutions, respectively.

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4SB0DL, E4SB6DL
Indeno (1,2,3-cd) pyrene	E4SB7
Benzo (b) fluoranthene	E4SB7
Fluoranthene	E4SB7
Benzo (k) fluoranthene	E4SB6DL
Acenaphthylene	E4S89, E4SA4, E4SA6, E4SA9, E4SB6, E4SB6MS

Chrysene	E4SB7
Benzo (a) pyrene	E4SB7
Dibenzo (a,h) anthracene	E4SB0, E4SB0DL, E4SB6DL
Benzo (a) anthracene	E4SB7
Acenaphthene	E4S90, E4S92, E4SB0, E4SB0DL, E4SB4, E4SB6
Phenanthrene	E4SB7
Fluorene	E4S90, E4SB0, E4SB0DL, E4SB4, E4SB6, E4SB6MS, E4SB6MSD
Naphthalene	E4SB6MSD
2-Methylnaphthalene	E4SA9, E4SB6, E4SB6MSD

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". Where diluted results are provided, these should be used for result validation.

Anthracene	E4S89, E4SA4
Benzo(a)anthracene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Benzo(a)pyrene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Benzo(b)fluoranthene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB4, E4SB6, E4SB6MSD
Benzo(g,h,i)perylene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Benzo(k)fluoranthene	E4S89, E4SA3, E4SA4, E4SA9
Chrysene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Fluoranthene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB0, E4SB4, E4SB6, E4SB6MS, E4SB6MSD
Fluorene	E4SA4
Indeno(1,2,3-cd)pyrene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9

Phenanthrene	E4S89, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9
Pyrene	E4S89, E4S90, E4S92, E4SA2, E4SA3, E4SA4, E4SA6, E4SA9, E4SB4, E4SB6, E4SB6MS, E4SB6MSD

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4S89, E4S89DL, E4S90, E4S90DL, E4S92, E4SA2, E4SA3, E4SA4, E4SA4DL, E4SA6, E4SA9, E4SA9DL, E4SB0, E4SB4, E4SB6, E4SB6MS, E4SB6MSD, E4SB7

All pesticide samples are associated with a CCV with % Difference that exceeded criteria for the target compounds Endosulfan I, Endosulfan II, 4,4'-DDT, Endrin ketone, Endrin, Methoxychlor, beta-BHC, delta-BHC, alpha-Chlordane, gamma-BHC (Lindane), and Endrin aldehyde. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated initial instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

4,4'-DDE	E4SB0, E4SB6MS
Endrin aldehyde	E4SG5, E4SG6

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

gamma-Chlordane	E4SB7
4,4'-DDE	E4SB0, E4SB6MS
Endrin aldehyde	E4SG5, E4SG6

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following pesticide samples have surrogate percent recoveries that are greater than 200%. All target pesticide compounds are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA4, E4SA6
Tetrachloro-m-xylene	E4SA9

The following pesticide samples have surrogate percent recoveries that are greater than 200%. All target pesticide compounds are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA4DL, E4SA9DL
Tetrachloro-m-xylene	E4SA4DL, E4SA9DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. All samples are affected. Detected results for Heptachlor compounds are qualified "J." Nondetected compounds are not qualified.

Heptachlor	E4SB6MS, E4SB6MSD

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 were identified as field duplicates**.** Results are summarized in the following table. Results for gamma-BHC (Lindane), Heptachlor, Heptachlor epoxide, 4,4'-DDT, Methoxychlor, and Endrin aldehyde were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs. Sample results are not qualified based on the results of field duplicates. Two equipment blanks were collected for this SDG.

E4SA3 and E4SA6

Pesticide compound	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC (Lindane)		1	ND	1	
Heptachlor		1		1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1		1	
Endosulfan I	0.46	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	2.5	1	3.1	1	21
Endrin	0.25	1	0.26	1	3.9
Endosulfan II	0.25	1	0.26	1	3.9
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT		1		1	

Pesticide compound	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Methoxychlor	1.3	1		1	
Endrin ketone	0.25	1		1	
Endrin aldehyde		1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	2.6	1	
Toxaphene	ND	1	ND	1	

For field duplicate samples E4SA3 and E4SA6, where calculated, RPD values were less than 50%.

Equipment Blanks E4SG5 and E4SG6

Pesticide compound	E4SG5 µg/L	E4SG6 µg/L
alpha-BHC	ND	ND
beta-BHC	ND	ND
delta-BHC	ND	ND
gamma-BHC (Lindane)	ND	ND
Heptachlor	ND	ND
Aldrin	ND	ND
Heptachlor epoxide	ND	ND
Endosulfan I	ND	ND
Dieldrin	ND	ND
4,4'-DDE	ND	ND
Endrin	ND	ND
Endosulfan II	ND	ND
4,4'-DDD	ND	ND
Endosulfan sulfate	ND	ND
4,4'-DDT	ND	ND
Methoxychlor	ND	ND
Endrin ketone	ND	ND
Endrin aldehyde	ND	ND
alpha-Chlordane	ND	ND
gamma-Chlordane	ND	ND
Toxaphene	ND	ND

No target compounds were detected in equipment blanks E4SG5 or E4SG6.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

alpha-BHC	E4SB7
Methoxychlor	E4SA4DL
Heptachlor epoxide	E4SG6

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds remain unchanged.

Endosulfan sulfate	E4S90DL, E4SB0
Aldrin	E4S92, E4SA3, E4SB4
alpha-BHC	E4S90DL
beta-BHC	E4SB0
delta-BHC	E4S90DL, E4SB7
Endosulfan II	E4SB6
alpha-Chlordane	E4S90DL, E4SB6
gamma-Chlordane	E4SB7, E4SG5
Endrin ketone	E4S89DL, E4S90
gamma-BHC (Lindane)	E4S89, E4S90, E4SB7
Dieldrin	E4SB0, E4SB6
Endrin	E4S90DL, E4SB0, E4SB7
Methoxychlor	E4SB7
Endrin aldehyde	E4SG5
Endosulfan I	E4S89DL, E4S90, E4S90DL, E4S92, E4SB0, E4SB7

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Heptachlor epoxide	E4S90DL
alpha-BHC	E4SA4DL

beta-BHC	E4S90, E4SB7, E4SG5
4,4'-DDT	E4S90, E4SA4
alpha-Chlordane	E4S89
gamma-BHC (Lindane)	E4SA4DL, E4SB6MSD
Dieldrin	E4S89, E4S90, E4S92, E4SB4, E4SB6MS
Endrin	E4SB6MS, E4SB6MSD
4,4'-DDD	E4S90DL, E4SA4DL, E4SG5
4,4'-DDE	E4S89DL, E4S92, E4SA2, E4SA3, E4SA9DL, E4SB4
Endrin aldehyde	E4SB0, E4SB7
Heptachlor	E4SB6MS, E4SB6MSD
Endosulfan I	E4SA3, E4SA4

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified “NJ”.

Heptachlor epoxide	E4S90
alpha-BHC	E4SA9, E4SA9DL
4,4'-DDT	E4S89DL, E4SA2, E4SA9DL
gamma-Chlordane	E4S90, E4SA6
Dieldrin	E4SA9, E4SB6MSD
Methoxychlor	E4S89
4,4'-DDD	E4S89DL
4,4'-DDE	E4S89, E4S90, E4S90DL, E4SA4DL
Endrin aldehyde	E4S90, E4S92, E4SA2
Heptachlor	E4S90, E4SA9, E4SB6

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified “U” and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4SA2, E4SA9DL, E4SB0, E4SB6, E4SB6MS, E4SB6MSD, E4SB7, E4SG5

Endosulfan sulfate	E4SB6MS, E4SB7
alpha-BHC	E4SB0
beta-BHC	E4S89DL, E4S90DL
delta-BHC	E4SG5
Endosulfan II	E4S89, E4S89DL, E4S90, E4S90DL, E4S92, E4SA3, E4SA4, E4SA4DL, E4SA6, E4SA9, E4SA9DL, E4SB4, E4SB7
4,4'-DDT	E4SB7
alpha-Chlordane	E4SA4DL, E4SB0
Endrin ketone	E4S89, E4S92, E4SA3, E4SA4, E4SA9, E4SB4
Endrin	E4S89DL, E4SA3, E4SA4DL, E4SA6
Methoxychlor	E4S90DL, E4S92, E4SA2, E4SA3, E4SA9DL, E4SB0, E4SB4, E4SB6
4,4'-DDD	E4SB0, E4SB6, E4SB6MS, E4SB6MSD, E4SB7
4,4'-DDE	E4SB0
Endrin aldehyde	E4S90DL
Heptachlor	E4S89DL, E4S90DL, E4SB0
Endosulfan I	E4SA4DL

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified “R”.

Heptachlor epoxide	E4S89, E4S89DL, E4S92, E4SA3, E4SA6, E4SA9, E4SB4
Endosulfan sulfate	E4S90, E4SA9
beta-BHC	E4S89, E4SA2, E4SB6
4,4'-DDT	E4S89, E4S92, E4SA3, E4SA6, E4SA9, E4SB4
gamma-Chlordane	E4S89
Endrin ketone	E4SA6
gamma-BHC (Lindane)	E4SA3
Endrin	E4S89, E4S92, E4SA4, E4SB4
Methoxychlor	E4S90, E4SA4, E4SA6, E4SA9

4,4'-DDD	E4S92
4,4'-DDE	E4SA9
Endrin aldehyde	E4SA3, E4SA9, E4SB4, E4SB6, E4SB6MS, E4SB6MSD
Heptachlor	E4S89, E4SA3, E4SA4DL, E4SA6, E4SA9DL

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, the results are flagged "J". The results from the diluted samples should be used for result validation.

4,4'-DDD	**E4S89, E4S90, E4SA9**
4,4'-DDE	**E4S89**
gamma-BHC (Lindane)	**E4SA4**

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns, with the exception of diluted sample E4S89DL. No sample results were qualified based on surrogate recovery. However, a surrogate recovery greater than 150% was obtained on only one column for samples E4S89, E4S90, E4S92, E4SSA3, E4SA6, and E4SA9. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

The following Aroclor samples have surrogate percent recoveries that are greater than 200% Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S89, E4S90, E4S92, E4SA3, E4SA6
Tetrachloro-m-xylene	E4SA9

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Decachlorobiphenyl	E4S89DL, E4S92DL, E4SA3DL, E4SA4DL, E4SA6DL, E4SA9DL, E4SB4DL
Tetrachloro-m-xylene	E4SA3DL, E4SA4DL, E4SA6DL, E4SA9DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA4, E4SA9, E4SB4
Tetrachloro-m-xylene	E4SA3, E4SA6

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Tetrachloro-m-xylene E4S89DL, E4SA9DL, E4SB4DL

The following Aroclor sample has surrogate percent recoveries less than 30% but greater than 10%. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Decachlorobiphenyl E4SA2

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4SB6, the Aroclor MS and MSD sample has a percent recovery greater than the upper acceptance limit on both the RTX-CLP and RTX-CLP2 columns for Aroclor-1260. In addition, the relative percent difference (RPD) between the MS and MSD for Aroclor-1260 was above criteria on column RTX-CLP. For column RTX-CLP2, the MS for Arochlor-1016 had a RPD greater than the upper acceptance limit. All samples are affected. Detected results are qualified "J". Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Samples E4SA3 and E4SA6 were identified as field duplicates. In addition to undiluted analyses of each sample, a dilution was also analyzed (E4SA3DL, E4SA6DL). Results are summarized in the following two tables. Note that results are not qualified based upon the results of the field duplicates. Two equipment blanks were collected for this SDG.

E4SA3 and E4SA6

Aroclor compounds	E4SA3 µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	260	1	290	1	11
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

E4SA3 and E4SC6DL

Aroclor compounds	E4SA3 µg/kg	DF	E4SA6DL µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	50	
Aroclor-1221	ND	1	ND	50	

Aroclor compounds	E4SA3 µg/kg	DF	E4SA6DL µg/kg	DF	%RPD
Aroclor-1232	ND	1	ND	50	
Aroclor-1242	ND	1	ND	50	
Aroclor-1248	260	1	450	50	54
Aroclor-1254	ND	1	ND	50	
Aroclor-1260	ND	1	ND	50	
Aroclor-1262	ND	1	ND	50	
Aroclor-1268	ND	1	ND	50	

E4SA3DL and E4SC6

Aroclor compounds	E4SA3DL µg/kg	DF	E4SA6 µg/kg	DF	%RPD
Aroclor-1016	ND	50	ND	1	
Aroclor-1221	ND	50	ND	1	
Aroclor-1232	ND	50	ND	1	
Aroclor-1242	ND	50	ND	1	
Aroclor-1248	390	50	290	1	29
Aroclor-1254	ND	50	ND	1	
Aroclor-1260	ND	50	ND	1	
Aroclor-1262	ND	50	ND	1	
Aroclor-1268	ND	50	ND	1	

E4SA3DL and E4SC6DL

Aroclor compounds	E4SA3DL µg/kg	DF	E4SA6DL µg/kg	DF	%RPD
Aroclor-1016	ND	50	ND	50	
Aroclor-1221	ND	50	ND	50	
Aroclor-1232	ND	50	ND	50	
Aroclor-1242	ND	50	ND	50	
Aroclor-1248	390	50	450	50	14
Aroclor-1254	ND	50	ND	50	
Aroclor-1260	ND	50	ND	50	
Aroclor-1262	ND	50	ND	50	
Aroclor-1268	ND	50	ND	50	

For the neat and diluted analysis of field duplicate samples E4SA3 and E4SA6, RPD values were not calculated when both values were nondetects. The RPDs for Aroclor-1248 were below 50% except for RPDs for E4SA3 and E4SC6DL.

Equipment Blanks E4SG5 and E4SG6

Aroclor compounds	E4SG5 µg/L	E4SG6 µg/L
Aroclor-1016	ND	ND
Aroclor-1221	ND	ND
Aroclor-1232	ND	ND

Aroclor compounds	E4SG5 µg/L	E4SG6 µg/L
Aroclor-1242	ND	ND
Aroclor-1248	ND	ND
Aroclor-1254	ND	ND
Aroclor-1260	ND	ND
Aroclor-1262	ND	ND
Aroclor-1268	ND	ND

No target compounds were detected in equipment blanks E4SG5 or E4SG6.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J".

Aroclor-1260 E4RZ6, E4S10, E4S51

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4RZ2, E4RZ6, E4S51

Aroclor-1248 E4RY8, E4S09DL

The following Aroclor samples have percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1260 E4S59

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4S52

For the MS and MSD prepared for sample E4RZ1, Aroclor-1016 had a percent difference between the results on the two GC columns exceeding 100%. Detected Aroclor-1016 results in the MS and MSD are qualified "R".

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

Aroclor-1248 E4SA3, E4SA4, E4SA6, E4SA9

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "NJ". The results from the diluted sample should be used.

Aroclor-1260 E4S92, E4SB4

The following Aroclor sample reported concentrations that exceeded the calibrated range of the instrument and was flagged "E" by the laboratory. As per the NFG, this results is flagged "J" as the percent difference was between 26 and 50%. Where provided, the results from the diluted sample should be used.

Aroclor-1260 E4S89

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 1, 2010

Subject: Review of Data
Received for Review on: April 14, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4S93

Number and Type of Samples: 13 Sediment Samples

Sample Numbers: E4S93, E4S94, E4S95, E4S96, E4S97, E4SA1, E4SA5, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5, E4SB8

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Thirteen (13) sediment samples labeled E4S93, E4S94, E4S95, E4S96, E4S97, E4SA1, E4SA5, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5, and E4SB8 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All samples were collected on 3/3/2010 and shipped on 3/4/2010. All samples were received on 3/6/2010 at 5 °C. One of the three containers for sample E4SB3 was received broken; however, the remaining two containers had sufficient sample for analyses. In accordance with direction from EPA, analyses proceeded. Sample E4SB3 was received at pH 9.05, which is outside the allowable limits. In accordance with direction from EPA, the pH was adjusted and the analyses conducted. No data were qualified based on the late delivery, the broken container, or sample pH.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

Samples E4S92 and E4SB1 contained less than 50% solids (45.3066% and 44.4634%, respectively). Results were reported on a dry-weight basis using the percent solids determined by the laboratory. As designated by the samplers, Sample E4S95 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no samples were identified as field duplicate pairs.

Per the laboratory narrative, manual edits were made in the semivolatiles calibration standards for a variety of miscalled peaks. Every manual integration is noted by an "m" footnote on the quantitation report.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile compounds and samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Benzo(g,h,i)perylene	E4S93
Benzo(b)fluoranthene	E4S93

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for Benzo(b)fluoranthene and Benzo(k)fluoranthene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4S97, E4SA1, E4SA5, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5, E4SB8

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile samples E4S95 and E4S95MS have deuterated monitoring compound recovery below the lower limit of the criteria window for Pyrene-d_{10}. Sample results for Benzo(a)anthracene, Chrysene, Fluoranthene, and Pyrene are affected. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Anthracene	E4S94
Pyrene	E4S96
Benzo(g,h,i)perylene	E4S95, E4S95MSD, E4SA8
Indeno(1,2,3-cd)pyrene	E4S95, E4SA7, E4SA8
Benzo(b)fluoranthene	E4S95MS, E4S95MSD, E4S96
Fluoranthene	E4S95MS
Benzo(k)fluoranthene	E4S95, E4SA7, E4SB5
Chrysene	E4S95MSD
Benzo(a)pyrene	E4S95MSD, E4S96
Dibenzo(a,h)anthracene	E4S93
Benzo(a)anthracene	E4S96
Phenanthrene	E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA8
Fluorene	E4S93

The following semivolatile samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

Anthracene	E4S95, E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB3, E4SB5
Pyrene	E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Benzo(g,h,i)perylene	E4S95MS, E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Indeno(1,2,3-cd)pyrene	E4S95MS, E4S95MSD, E4S96, E4SA1, E4SB3
Benzo(b)fluoranthene	E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Fluoranthene	E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Benzo(k)fluoranthene	E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA8, E4SB3
Acenaphthylene	E4S93, E4S94, E4SA7, E4SA8, E4SB1
Chrysene	E4S95MS, E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Benzo(a)pyrene	E4S95MS, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Dibenzo(a,h)anthracene	E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(a)anthracene	E4S95MS, E4S95MSD, E4S97, E4SA1, E4SA5, E4SB3, E4SB8
Acenaphthene	E4S93, E4S94, E4S95, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5
Phenanthrene	E4S97, E4SA5, E4SB3, E4SB8
Fluorene	E4S94, E4S95, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5

Naphthalene	E4S93, E4S94, E4S95, E4SA1, E4SA8, E4SB1
2-Methylnaphthalene	E4S94, E4S95MSD, E4SA1

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information.

SEMIVOLATILES-SIM

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following semivolatile samples and compounds have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Benzo(k)fluoranthene	E4S96DL, E4S97, E4SA1DL, E4SA5, E4SB3, E4SB8
Benzo(a)pyrene	E4SA5, E4SB8
Dibenzo(a,h)anthracene	E4S96DL, E4S97, E4SA1, E4SA1DL, E4SA5, E4SB3, E4SB8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike (E4S95MS) and matrix spike duplicate (E4S95MSD) recoveries is outside criteria for Acenaphthene. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original analysis for samples E4S93, E4S94, E4S92, E4S95 E4S96, E4SA7, E4SA8, E4SB1, and E4SB4 were performed using 10-fold dilutions. The original analysis for sample E4SA1 was performed using 3-fold dilution.

The following semivolatile samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

Acenaphthylene	E4S96, E4SA8DL
Acenaphthene	E4S96DL, E4S97, E4SA5, E4SA7DL
Fluorene	E4S96DL, E4S97, E4SA5
Naphthalene	E4S93DL, E4S94DL, E4S95DL, E4S95MS, E4S97, E4SA1DL, E4SA5, E4SA8DL, E4SB1DL, E4SB3, E4SB8
2-Methylnaphthalene	E4S93DL, E4S94DL, E4S95MS, E4S96, E4S97, E4SA5, E4SB5DL, E4SB8

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Anthracene	E4S96DL, E4S97, E4SA1DL, E4SA5, E4SA8DL, E4SB1DL, E4SB8
Benzo(k)fluoranthene	E4S96DL, E4S97, E4SA1DL, E4SA5, E4SB3, E4SB8
Acenaphthylene	E4S93DL, E4S94DL, E4S95, E4S95MS, E4S95MSD, E4SB1, E4SB5
Benzo(a)pyrene	E4SA5, E4SB8
Dibenzo(a,h)anthracene	E4S96DL, E4S97, E4SA1, E4SA1DL, E4SA5, E4SB3, E4SB8
Acenaphthene	E4S94DL, E4S95DL, E4SA8DL, E4SB1DL, E4SB3, E4SB5DL
Fluorene	E4S95DL, E4S95MS, E4SA7DL, E4SA8DL, E4SB1DL, E4SB3, E4SB5DL
Naphthalene	E4S96
2-Methylnaphthalene	E4S95, E4SA7, E4SB3

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are qualified "J".

Acenaphthene	E4S93
Anthracene	E4S93, E4S94, E4S95, E4SA7, E4SB5

Benzo(a)anthracene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(a)pyrene	E4S93, E4S94, E4S95, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(b)fluoranthene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(g,h,i)perylene	E4S93, E4S94, E4S95, E4S95MSD, E4SA7, E4SA8, E4SB1, E4SB5
Benzo(k)fluoranthene	E4S93, E4S94, E4S95, E4S95MSD, E4SA7, E4SA8, E4SB1, E4SB5
Chrysene	E4S93, E4S94, E4S95, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5
Dibenzo(a,h)anthracene	E4S93, E4S94, E4SA7, E4SB1
Fluoranthene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5
Fluorene	E4S93
Indeno(1,2,3-cd)pyrene	E4S93, E4S94, E4S95, E4S95MSD, E4S96, E4SA1, E4SA7, E4SA8, E4SB1, E4SB5
Pyrene	E4S93, E4S94, E4S95, E4S95MS, E4S95MSD, E4S96, E4SA7, E4SA8, E4SB1, E4SB5

The following *diluted* semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are qualified "J".

Benzo(a)anthracene	E4S93DL, E4S94DL
Benzo(a)pyrene	E4S93DL, E4S94DL
Benzo(b)fluoranthene	E4S93DL, E4S94DL
Benzo(g,h,i)perylene	E4S93DL
Benzo(k)fluoranthene	E4S93DL
Chrysene	E4S93DL, E4S94DL
Fluoranthene	E4S93DL, E4S94DL, E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Indeno(1,2,3-cd)pyrene	E4S93DL, E4S94DL
Phenanthrene	E4S93DL, E4S94DL
Pyrene	E4S93DL, E4S94DL, E4SB5DL

The following *diluted* semivolatile-SIM samples reported concentrations that *did not* exceed the calibrated range of the instrument and were *not* flagged "E" by the laboratory.

Acenaphthene	E4S93DL
Anthracene	E4S93DL, E4S94DL, E4S95DL, E4SA7DL, E4SB5DL
Benzo(a)anthracene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(a)pyrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(b)fluoranthene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(g,h,i)perylene	E4S94DL, E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Benzo(k)fluoranthene	E4S94DL, E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Chrysene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Dibenzo(a,h)anthracene	E4S93DL, E4S94DL, E4SA7DL, E4SB1DL
Fluorene	E4S93DL
Indeno(1,2,3-cd)pyrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL

Phenanthrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL
Pyrene	E4S95DL, E4SA7DL, E4SB1DL, E4SB5DL

PESTICIDES

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *method* blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

4,4'-DDT	E4S94DL, E4S96, E4SA1, E4SA5, E4SB3

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *initial* instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endrin aldehyde	E4S97, E4SA5, E4SB3, E4SB8

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated *continuing* instrument blank concentration is less than the concentration criteria. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

4,4'-DDE	E4S97, E4SA1, E4SA5, E4SB3
Endrin aldehyde	E4S93DL, E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. All pesticide compounds are affected. Detected and nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93DL

The following pesticide samples have surrogate percent recoveries greater than 150% but less than or equal to 200%. Detected compounds are qualified "J." All pesticide compounds are affected. Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93

The following diluted pesticide samples with dilution factors greater than 5 have surrogate percent recoveries greater than 150% but less than or equal to 200%. All pesticide compounds are affected. Detected and nondetected compounds are not qualified.

Tetrachloro-m-xylene	E4S93DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. All samples are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Heptachlor	E4S95MS, E4S95MSD

For the pesticide matrix/matrix spike pair E4S95/MS/E4S95MSD, percent recoveries are greater than the upper acceptance limit for Aldrin, 4,4'-DDT, gamma-BHC (Lindane), Dieldrin, Endrin, and Heptachlor. All samples are affected. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations below the MDL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

Aldrin	E4SB5
4,4'-DDT	E4SB8
alpha-Chlordane	E4SB8
Endrin ketone	E4SA1, E4SB3, E4SB8
gamma-BHC (Lindane)	E4S93DL, E4S95, E4S96, E4SA5, E4SB1, E4SB3, E4SB5, E4SB8
Dieldrin	E4SA5

Endrin	E4SB8
4,4'-DDD	E4SB8

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Endosulfan sulfate	E4SA1
Aldrin	E4S96, E4SA8
alpha-BHC	E4S93DL, E4SA1, E4SA5
beta-BHC	E4S95, E4S96, E4SA5, E4SA8, E4SB8
delta-BHC	E4S93DL, E4S95
Endosulfan II	E4SA1, E4SB3
alpha-Chlordane	E4S96, E4S97, E4SA1, E4SA5, E4SB3, E4SB5
Endrin ketone	E4S93DL, E4SB1, E4SB5
gamma-BHC (Lindane)	E4S93, E4S97, E4SA1, E4SA7
Dieldrin	E4S96, E4SA1, E4SB3, E4SB5
Endrin	E4SA1, E4SA5, E4SB3
Methoxychlor	E4SA5, E4SB8
4,4'-DDE	E4S97
Endrin aldehyde	E4SB5
Heptachlor	E4S97, E4SB3, E4SB8
Endosulfan I	E4S93DL, E4S94, E4S95, E4SA7, E4SB1, E4SB5

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Heptachlor epoxide	E4S95, E4S95MSD
Aldrin	E4S95MS, E4S95MSD
alpha-BHC	E4SB8
4,4'-DDT	E4S94DL, E4SA8
alpha-Chlordane	E4S93, E4S93DL, E4S94, E4SB1
gamma-Chlordane	E4SB3, E4SB5
gamma-BHC (Lindane)	E4SA8
Endrin	E4S95MS, E4S95MSD
4,4'-DDD	E4S93DL, E4S95MS
4,4'-DDE	E4SA7, E4SB3, E4SB5
Endrin aldehyde	E4S95MS, E4SB1, E4SB3
Heptachlor	E4S95MS
Endosulfan I	E4SA8

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Heptachlor epoxide	E4S93DL, E4S95MS
4,4'-DDT	E4S93, E4S93DL, E4S94, E4S95, E4SA7, E4SB1, E4SB5
gamma-Chlordane	E4S93, E4S95, E4S95MS, E4S95MSD, E4SB1
gamma-BHC (Lindane)	E4S95MS, E4S95MSD
Dieldrin	E4S93, E4S93DL, E4S95MS, E4S95MSD, E4SA8
Methoxychlor	E4S93
4,4'-DDD	E4SA7
4,4'-DDE	E4S94, E4S94DL, E4SB1

Endrin aldehyde	E4S95, E4S95MSD, E4SA7, E4SA8
Heptachlor	E4S95MSD

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below the CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4S96, E4S97, E4SA1, E4SA5, E4SB5, E4SB8
Endosulfan sulfate	E4SB3
Aldrin	E4SA1
alpha-BHC	E4S97, E4SA7
beta-BHC	E4S93DL, E4S97, E4SA1, E4SB5
delta-BHC	E4SB3
Endosulfan II	E4S93, E4S93DL, E4S94, E4S94DL, E4SA8
4,4'-DDT	E4S96, E4SA5, E4SB3
gamma-Chlordane	E4S97, E4SA5, E4SB8
Endrin ketone	E4S95, E4S95MS, E4S95MSD, E4SA7, E4SA8
Dieldrin	E4S94, E4S94DL, E4S95, E4SB8
Endrin	E4S93DL, E4S97, E4SA8, E4SB1
Methoxychlor	E4S93DL, E4S94DL, E4S95, E4S95MS, E4S95MSD, E4S96, E4S97, E4SA1, E4SA8, E4SB3, E4SB5
4,4'-DDD	E4SA1, E4SA5, E4SB3
4,4'-DDE	E4SA1, E4SA5
Endrin aldehyde	E4S93DL, E4S96, E4S97, E4SA1, E4SA5, E4SB8
Heptachlor	E4S94, E4S95, E4S96, E4SA1, E4SA5, E4SB5

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4S93, E4SA7, E4SA8
Endosulfan sulfate	E4S94, E4SA7
delta-BHC	E4S96, E4SB1
gamma-Chlordane	E4S94, E4S96
Endrin	E4S93, E4SA7
Methoxychlor	E4S94, E4SA7, E4SB1
4,4'-DDE	E4SA8
Endrin aldehyde	E4S93
Heptachlor	E4SA7, E4SA8

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

Samples were shipped 3/4/2010 and received on 3/6/2010; holding time requirements were not exceeded. In accordance with direction from EPA, analyses were conducted on these samples and no data was qualified based on the late sample delivery.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery. However, a surrogate recovery greater than 150% was obtained on only one column for samples E4S93, E4S94, E4SA7, E4SSA8, and E4S95MS. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries that are greater than 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93DL, E4SA7DL

The following Aroclor samples have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93, E4S94, E4SA7, E4SA8
Tetrachloro-m-xylene	E4S94, E4S95MS

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Decachlorobiphenyl	E4SA8DL

The following diluted Aroclor samples with dilution factors less than or equal to 5 have surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Decachlorobiphenyl	E4S93DL, E4SA7DL
Tetrachloro-m-xylene	E4SA7DL

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4S95, the Aroclor MS and MSD samples have a percent recovery greater than the upper acceptance limit on the RTX-CLP and RTX-CLP2 columns for Aroclor-1016 and on the RTX-CLP column for Aroclor-1260. The results for Aroclor-1016 and Aroclor-1260 were rejected in sample E4S95MSD for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs. All samples are affected.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Not applicable.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Aroclor-1260	E4S93DL, E4SB5

The following Aroclor sample has percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Aroclor-1248	E4SB5

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R."

Aroclor-1260	E4S95MSD
Aroclor-1016	E4S95MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where provided, the results from the diluted sample should be used.

Aroclor-1016	E4S95MS
Aroclor-1248	E4SA7, E4SA8
Aroclor-1260	E4S93

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 17, 2010

SUBJECT: Review of Data
Received for Review on: April 8, 2010

FROM: Eric Boring
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4SC2

Number and Type of Samples: 20 Sediment Samples

Sample Numbers: E4SC2, E4SD4-E4SD7, E4SE2, E4SF0, E4SF2-E4SF8, E4SG0-E4SG4, E4SG7

Laboratory: DATAC

Following are our findings:

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Receipt: Twenty (20) sediment samples labeled E4SC2, E4SD4 – E4SD7, E4SE2, E4SF0, E4SF2 - E4SF8, E4SG0 – E4SG4 and E4SG7 were shipped to DataChem Laboratories, Inc., in Salt Lake City, Utah. Samples E4SC2, E4SD4 – E4SD7, E4SE2, and E4SG7 were collected on 3/4/2010 and were received on 3/6/2010, intact and at 4 ºC. Sample E4SF0, E4SF2 – E4SF4 were collected on 3/4/2010 and received on 3/6/2010, intact and at 6 ºC. Samples E4SF5 - E4SF7 were collected on 3/5/2010 and were received on 3/6/2010, intact and at 6 ºC. Samples E4SG0 – E4SG4 were collected on 3/5/2010 and received, intact and at 4 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, ***with the following exception***. The laboratory requested permission to deviate from these MAs and extract the samples using ultrasonic extraction rather than Soxhlet extraction. GLNPO and the CLP Project Manager approved the request. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Some samples in this SDG were originally reported with results below the sample-specific MDLs and qualifier by the laboratory with a "J" flag. The EDD, Form 1s and other data summary forms for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s.

Several of the Form 1s reported target compound results less than the MDL for the semivolatile, Semivolatiles-SIM, and pesticide analyses. The forms were revised and resubmitted by the laboratory and should be used when viewing the data package. For the Semivolatiles-SIM analysis, however, some corrected Form 1s were not provided and are noted in the appropriate section of this report. For these samples, the EDD provides the sample results at the appropriate levels.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed. GLNPO may wish to obtain revised copies of the summary forms packages from the laboratory if there is a problem identifying the appropriate data based on the noted discrepancies.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples

Sample E4SF0 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Samples E4SC1/E4SC2, E4SE1/E4SE2, and E4SG1/E4SG4 were identified as field duplicates. Field Duplicate pairs E4SC1/E4SC2 and E4SE1/E4SE2 had high RPDs (> 50%) for many target compounds. In addition, it should be noted that E4SE1 was analyzed at a dilution factor of 10, while its duplicate, E4SE2 was analyzed at a dilution factor of 1. *Note: Samples E4SC1, E4SE1, and E4SE1DL were not part of this SDG. Sample E4SC1 is part of SDG E4RY5 and sample E4SE1 is part of SDG E4S57. Data from these three samples were added to the field duplicate tables in the narrative in order to calculate RPDs.*

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Benzo (g,h,i) perylene	E4SF4, E4SF7, E4SG0, E4SG2
Indeno (1,2,3-cd) pyrene	E4SF4, E4SF7, E4SG0, E4SG2
Benzo (b) fluoranthene	E4SF4, E4SF7, E4SG0, E4SG2

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The original analysis of the following semivolatile sample E4SG0 has a dilution factor greater than 5 and a deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene, Anthracene, Phenanthrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Pyrene, Acenaphthene E4SF0, E4SF0MS, E4SF0MSD

6B. LABORATORY CONTROL SAMPLE

An LCS was not required.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1/E4SE2 and E4SG1/E4SG4 were identified as field duplicates. Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Semivolatile Compounds	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	ND	1	ND	1	
Phenanthrene	ND	1	ND	1	
Anthracene	ND	1	ND	1	
Fluoranthene	ND	1	ND	1	
Pyrene	ND	1	ND	1	
Benzo(a)anthracene	ND	1	ND	1	
Chrysene	ND	1	ND	1	
Benzo(b)fluoranthene	ND	1	ND	1	
Benzo(k)fluoranthene	ND	1	ND	1	
Benzo(a)pyrene	ND	1	ND	1	
Indeno(1,2,3-cd)pyrene	ND	1	ND	1	
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	ND	1	ND	1	

E4SE1 and E4SE2

Semivolatile Compounds	E4SE1 µg/kg	DF	E4SE2 µg/kg	DF	%RPD
Naphthalene	ND	5	ND	1	
2-Methylnaphthalene	ND	5	ND	1	
Acenaphthylene	ND	5	ND	1	
Acenaphthene	410	5	130	1	100
Fluorene	340	5	120	1	96
Phenanthrene	2600	5	880	1	99
Anthracene	660	5	200	1	110
Fluoranthene	6700	5	1700	1	120
Pyrene	7600	5	2400	1	100
Benzo(a)anthracene	3400	5	1100	1	100
Chrysene	4200	5	1300	1	110
Benzo(b)fluoranthene	5800	5	1700	1	110
Benzo(k)fluoranthene	1400	5	510	1	93
Benzo(a)pyrene	3600	5	1200	1	100
Indeno(1,2,3-cd)pyrene	4000	5	1100	1	110
Dibenzo(a,h)anthracene	790	5	250	1	100
Benzo(g,h,i)perylene	3400	5	1000	1	110

E4SG1 and E4SG4

Semivolatile Compounds	E4SG1 µg/kg	DF	E4SG4 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	2	
2-Methylnaphthalene	ND	1	ND	2	
Acenaphthylene	ND	1	ND	2	
Acenaphthene	74	1	ND	2	
Fluorene	99	1	110	2	11
Phenanthrene	1100	1	1300	2	17
Anthracene	270	1	290	2	7.1
Fluoranthene	1700	1	2100	2	21
Pyrene	2300	1	2300	2	0
Benzo(a)anthracene	1300	1	1300	2	0
Chrysene	1400	1	1400	2	0
Benzo(b)fluoranthene	1700	1	1700	2	0
Benzo(k)fluoranthene	550	1	550	2	0
Benzo(a)pyrene	1300	1	1300	2	0
Indeno(1,2,3-cd)pyrene	1200	1	1000	2	18
Dibenzo(a,h)anthracene	260	1	210	2	21
Benzo(g,h,i)perylene	1000	1	890	2	12

For field duplicates E4SC1 and E4SC2, the RPD values could not be calculated because either one or both of the values was zero. For field duplicates E4SE1 and E4SE2 the RPDs are near 100% or higher for most of the detected analytes.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4SD4, E4SD5, E4SF2, E4SF3, E4SG0, E4SG1DL, E4SG4
Pyrene	E4SD6
Benzo (g,h,i) perylene	E4SD4, E4SD5, E4SF0, E4SF0MS, E4SF0MSD, E4SF3, E4SF4, E4SF6, E4SF7, E4SG0, E4SG2
Indeno (1,2,3-cd) pyrene	E4SD4, E4SD5, E4SF3, E4SF6, E4SG0, E4SG2
Benzo (b) fluoranthene	E4SD6

Fluoranthene	E4SD6
Benzo (k) fluoranthene	E4SD4, E4SD5, E4SF0, E4SF0MS, E4SF2, E4SF3, E4SF6, E4SF7, E4SG0, E4SG2
Chrysene	E4SF0, E4SF0MS, E4SF7
Benzo (a) pyrene	E4SD6, E4SF0, E4SF0MS, E4SF6
Dibenzo (a,h) anthracene	E4SG1DL, E4SG4
Benzo (a) anthracene	E4SF0, E4SF0MS, E4SF6, E4SF7
Acenaphthene	E4SE2, E4SF3, E4SF4, E4SF5, E4SG1
Phenanthrene	E4SD6, E4SF0, E4SF0MS, E4SF6, E4SF7
Fluorene	E4SE2, E4SF0MSD, E4SF3, E4SF5, E4SG1, E4SG4

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following semivolatile samples have reported concentrations that exceeded the calibration range. These results were flagged “E” by the laboratory and are estimated “J”. The results from the diluted sample analyses were within the calibration range.

Pyrene	E4SG1

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

No problems were found

4. BLANKS

The following semivolatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Indeno (1,2,3-cd) pyrene	E4SC2, E4SD4DL, E4SD6DL, E4SD7, E4SF0DL, E4SF2DL, E4SF3DL, E4SF6DL, E4SF7DL, E4SF8, E4SG2DL, E4SG3
Dibenzo (a,h) anthracene	E4SC2, E4SD4DL, E4SD6DL, E4SD7, E4SF0DL, E4SF2DL, E4SF3DL, E4SF6DL, E4SF7DL, E4SF8, E4SG2DL, E4SG3

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Diluted semivolatile-SIM sample E4SG0, with a dilution factor greater than 5, had a deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. All samples are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

Acenaphthene	E4SF0, E4SF0MS, E4SF0MSD

6B. LABORATORY CONTROL SAMPLE

An LCS was not required

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1/E4SE2 and E4SG1/E4SG4 were identified as field duplicates. Results are summarized in the following Tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Semivolatiles-SIM Compounds	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
Naphthalene	2.7	1	2	1	30
2-Methylnaphthalene	1.9	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	0.88	1	ND	1	
Phenanthrene	8.1	1	3.7	1	75
Anthracene	1.6	1	0.69	1	80
Fluoranthene	18	1	5.5	1	110
Pyrene	23	1	7.9	1	98
Benzo(a)anthracene	8.6	1	2.2	1	120
Chrysene	12	1	3.6	1	110
Benzo(b)fluoranthene	16	1	4.2	1	120
Benzo(k)fluoranthene	3.8	1	1.2	1	100
Benzo(a)pyrene	12	1	2.7	1	130
Indeno(1,2,3-cd)pyrene	10	1	2.9	1	110
Dibenzo(a,h)anthracene	2	1	2.4	1	18
Benzo(g,h,i)perylene	11	1	3.3	1	110

E4SE1 and E4SE2

Semivolatiles-SIM Compounds	E4SE1 µg/kg	DF	E4SE2 µg/kg	DF	%RPD
Naphthalene	40	10	13	1	100
2-Methylnaphthalene	42	10	11	1	120
Acenaphthylene	32	10	7	1	130
Acenaphthene	200	10	45	1	130
Fluorene	170	10	42	1	120
Phenanthrene	1600	10	570	1	95
Anthracene	390	10	130	1	100
Fluoranthene	6000	10	1700	1	110
Pyrene	3600	10	1200	1	100
Benzo(a)anthracene	1900	10	650	1	98
Chrysene	2100	10	640	1	110
Benzo(b)fluoranthene	4000	10	1600	1	86
Benzo(k)fluoranthene	1000	10	480	1	70
Benzo(a)pyrene	2200	10	1100	1	67
Indeno(1,2,3-cd)pyrene	1700	10	740	1	79
Dibenzo(a,h)anthracene	320	10	160	1	67
Benzo(g,h,i)perylene	1400	10	610	1	79

E4SG1 and E4SG4

Semivolatile Compounds	E4SG1 µg/kg	DF	E4SG4 µg/kg	DF	%RPD
Naphthalene	22	1	21	1	4.7
2-Methylnaphthalene	14	1	14	1	0
Acenaphthylene	17	1	19	1	11
Acenaphthene	29	1	34	1	16
Fluorene	36	1	45	1	22
Phenanthrene	650	1	940	1	37
Anthracene	140	1	200	1	35
Fluoranthene	1500	1	2100	1	33
Pyrene	1500	1	1800	1	18
Benzo(a)anthracene	950	1	1100	1	15
Chrysene	830	1	1000	1	19
Benzo(b)fluoranthene	1600	1	1800	1	12
Benzo(k)fluoranthene	370	1	470	1	24
Benzo(a)pyrene	990	1	1100	1	11
Indeno(1,2,3-cd)pyrene	660	1	740	1	11
Dibenzo(a,h)anthracene	140	1	160	1	13
Benzo(g,h,i)perylene	520	1	560	1	7.4

For field duplicates E4SC1 and E4SC2, the RPD values could not be calculated where one or both of the values was zero. Of those that could be calculated, only Naphthalene and Dibenzo(ah)anthracene had an RPD value below 50%. For field duplicates E4SE1 and E4SE2 the RPDs are near 100% or higher for all of the detected analytes. For field duplicates E4SG1 and E4SG4 all RPD values were below 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4SC2, E4SD6DL, E4SF0DL, E4SF6DL, E4SF7DL, E4SF8, E4SG3
Indeno (1,2,3-cd) pyrene	E4SD7, E4SG7
Benzo (b) fluoranthene	E4SD7, E4SG7
Fluoranthene	E4SD7, E4SG7

Benzo (k) fluoranthene	E4SC2, E4SD6DL, E4SD7, E4SF8
Acenaphthylene	E4SD4, E4SD5, E4SE2DL, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5DL, E4SF6, E4SF7DL, E4SG1DL, E4SG2, E4SG4DL
Chrysene	E4SD7, E4SG7
Benzo (a) pyrene	E4SD7, E4SG7
Dibenzo (a,h) anthracene	E4SC2, E4SD4DL, E4SD6DL, E4SD7, E4SF0DL, E4SF2DL, E4SF3DL, E4SF6DL, E4SF7DL, E4SF8, E4SG2DL, E4SG3
Benzo (a) anthracene	E4SC2, E4SD7, E4SG7
Acenaphthene	E4SD4DL, E4SD5DL, E4SD6, E4SF0, E4SF2DL, E4SF3DL, E4SF6, E4SF7, E4SF8, E4SG2DL, E4SG3
Phenanthrene	E4SD7, E4SG7
Fluorene	E4SD4DL, E4SD5DL, E4SD6, E4SF0MSD, E4SF2DL, E4SF6, E4SF8, E4SG2DL, E4SG3
Naphthalene	E4SC2, E4SF0, E4SF0MS, E4SF0MSD, E4SG7
2-Methylnaphthalene	E4SD5, E4SD6, E4SF0, E4SF0MS, E4SF0MSD, E4SF6

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following Semivolatiles-SIM samples have reported concentrations that exceeded the calibration range. These results were flagged “E” by the laboratory and are estimated “J”. The results from the diluted sample analyses were within the calibration range.

Phenanthrene	E4SD4, E4SD5, E4SE2, E4SF0, E4SF0MS, E4SF0MS, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, E4SG0, E4SG1, E4SG2, E4SG4
Anthracene	E4SD4, E4SD5, E4SE2, E4SF2, E4SF3, E4SF4, E4SF5, E4SG0, E4SG1, E4SG2, E4SG4
Fluoranthene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Pyrene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4

Benzo(a)anthracene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Chrysene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(b)fluoranthene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(k)fluoranthene	E4SD4, E4SD5, E4SE2, E4SF0, E4SF0MS, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(a)pyrene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Indeno(1,2,3-cd)pyrene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Benzo(g,h,i)perylene	E4SD4, E4SD5, E4SD6, E4SE2, E4SF0, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF4, E4SF5, E4SF6, E4SF7, EFSG0, E4SG1, E4SG2, E4SG4
Dibenzo(a,h)anthracene	E4SD4, E4SF0MS, E4SF0MSD, E4SF5, E4SG0, E4SG1, E4SG4
Acenaphthene	E4SE2, E4SF4, E4SF5, E4SG0, E4SG1, E4SG4
Fluorene	E4SE2, E4SF4, E4SF5, E4SG0, E4SG1, E4SG4

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated “J”. No further dilution analysis was performed and these diluted results should be used in the result validation.

Fluoranthene	E4SD5DL, E4SF4DL
Phenanthrene	E4SF4DL
Pyrene	E4SF4DL
Benzo(b)fluoranthene	E4SF4DL

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

beta-BHC	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endosulfan II	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
alpha-Chlordane	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endrin ketone	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Dieldrin	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endrin	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Methoxychlor	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
4,4'-DDD	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endrin aldehyde	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4
Endosulfan I	E4SC2, E4SD4, E4SD6, E4SD7, E4SE2, E4SF0, E4SF4, E4SF5, E4SG1, E4SG4

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SF5 had surrogate percent recoveries greater than 150% but less than or equal to 200%. Pesticide sample E4SF5 also had surrogate percent recoveries that are greater than 200% (the same surrogate was out on both columns). Detected compounds are qualified J. Nondetected compounds are not qualified.

Diluted pesticide sample E4SF5DL, with a dilution factor greater than 5 has surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

A high surrogate recovery was obtained on only one column for samples E4SE2DL, E4SF4, E4SF4DL, E4SG1, E4SG4, E4SG4DL, and E4SF2. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SF4, E4SG1, E4SG4, and E4SF2, the "J" flags applied during the automated check process for surrogate recovery have been removed for detected compounds.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

According to the modified analysis, the laboratory was required to spike MS/MSD analytes at levels different than the SOW. For samples E4SF0, E4SF0MS, E4SF0MSD, all analytes were within acceptance limits based on the modified analysis procedures; therefore, the "J" flags applied during the automated check process have been removed for the following compounds.

Aldrin, 4,4'DDT, Gamma-BHC (Lindane), Dieldrin, Endrin, and Heptachlor

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1/E4SE2DL and E4SG1/E4SG4 were identified as field duplicates. Results are summarized in the following Tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Pesticide compound	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
alpha-BHC	0.13	1	ND	1	
beta-BHC	ND	1	0.12	1	
delta-BHC	ND	1	0.12	1	
gamma-BHC (Lindane)	ND	1	ND	1	
Heptachlor	0.14	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	0.13	1	0.12	1	8
Endosulfan I	ND	1	ND	1	
Dieldrin	0.25	1	ND	1	

Pesticide compound	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
4,4'-DDE	0.25	1	0.24	1	4.1
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	0.083	1	0.24	1	97
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	0.25	1	ND	1	
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	0.1	1	
Toxaphene	ND	1	ND	1	

E4SE1 and E4SE2DL

Pesticide compound	E4SE1 µg/kg	DF	E4SE2DL µg/kg	DF	%RPD
alpha-BHC	ND	10	ND	10	
beta-BHC	ND	10	ND	10	
delta-BHC	ND	10	ND	10	
gamma-BHC (Lindane)	25	10		10	
Heptachlor	38	10	ND	10	
Aldrin	ND	10	ND	10	
Heptachlor epoxide	8.5	10		10	
Endosulfan I	ND	10	3.9	10	
Dieldrin	ND	10	7.6	10	
4,4'-DDE	25	10	11	10	78
Endrin	6.3	10	4.5	10	33
Endosulfan II	3.4	10	ND	10	
4,4'-DDD	ND	10	7.5	10	
Endosulfan sulfate	ND	10	3.3	10	
4,4'-DDT	ND	10	32	10	
Methoxychlor	ND	10	17	10	
Endrin ketone	ND	10	ND	10	
Endrin aldehyde	ND	10	3.3	10	
alpha-Chlordane	ND	10	3.3	10	
gamma-Chlordane	ND	10	ND	10	
Toxaphene	ND	10	ND	10	

E4SG1 and E4SG4

Pesticide compound	E4SG1 µg/kg	DF	E4SG4 µg/kg	DF	%RPD
alpha-BHC	0.14	1	ND	1	
beta-BHC		1		1	
delta-BHC	ND	1	ND	1	
gamma-BHC (Lindane)		1		1	
Heptachlor		1		1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide		1		1	
Endosulfan I	ND	1	ND	1	
Dieldrin	1.3	1	1.2	1	8
4,4'-DDE	3.4	1	3.4	1	0
Endrin		1	0.3	1	
Endosulfan II	0.28	1	0.3	1	6.9
4,4'-DDD	9.5	1	9.3	1	2.1
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	2.5	1		1	
Methoxychlor	1.4	1	1.5	1	6.9
Endrin ketone	ND	1	ND	1	
Endrin aldehyde		1		1	
alpha-Chlordane	0.83	1	0.89	1	7
gamma-Chlordane		1		1	
Toxaphene	ND	1	ND	1	

Results for beta-BHC, gamma-BHC(Lindane), Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDT, Endrin aldehyde, and gamma-Chlordane were rejected in one or both samples in field duplicate pairs E4SE1 and E4SE2DL and E4SG1 and E4SG4 for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs.

RPD values could not be calculated where one or both of the values was zero. For field duplicates E4SC1 and E4SC2, 4,4"-DDD had an RPD value above 50%. For field duplicates E4SE1 and E4SE2DL, gamma-BHC (Lindane) and 4,4'-DDE had RPD values above 50% . For field duplicates E4SG1 and E4SG4 all RPD values were below 50%.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Heptachlor epoxide	E4SF0, E4SF0MS
Aldrin	E4SF0MS
beta-BHC	E4SD7
4,4'-DDT	E4SE2, E4SF0MS, E4SF0MSD, E4SG1, E4SG2
alpha-Chlordane	E4SE2, E4SE2DL, E4SF5, E4SG1
gamma-Chlordane	E4SC2, E4SD4, E4SE2, E4SF0, E4SF2
Gamma-BHC (Lindane)	E4SF0MS, E4SF0MSD, E4SF6
Dieldrin	E4SF2
Endrin	E4SD4, E4SD5, E4SF2
4,4'-DDD	E4SE2DL, E4SF2, E4SF5, E4SG0
4,4'-DDE	E4SD5, E4SF6, E4SG0, E4SG1
Heptachlor	E4SF7

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

alpha-Chlordane	E4SG0
Endrin ketone	E4SF5DL
Dieldrin	E4SE2, E4SE2DL, E4SF3, E4SG1, E4SG4
Endrin	E4SE2DL
4,4'-DDD	E4SD5, E4SE2, E4SF3
4,4'-DDE	E4SE2, E4SE2DL, E4SG4
Endrin aldehyde	E4SF4
Heptachlor	E4SF5
Endosulfan I	E4SE2, E4SE2DL

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

alpha-BHC	E4SE2, E4SG1, E4SG2
beta-BHC	E4SC2, E4SF2, E4SF6, E4SF7, E4SF8, E4SG0, E4SG7
delta-BHC	E4SC2, E4SG2, E4SG3
Endosulfan II	E4SD4, E4SF0MS, E4SF0MSD, E4SF2, E4SF3, E4SF6, E4SG0, E4SG1, E4SG4, E4SG4DL
4,4'-DDT	E4SF0, E4SF7, E4SG3
alpha-Chlordane	E4SD4
Endrin ketone	E4SD4, E4SF2, E4SF3
Gamma-BHC (Lindane)	E4SD4, E4SG1DL, E4SG4DL
Dieldrin	E4SG1DL, E4SG4DL
Endrin	E4SF0, E4SF4DL, E4SF6, E4SG1DL, E4SG4, E4SG4DL
Methoxychlor	E4SD4, E4SE2DL, E4SF2, E4SF4DL, E4SF5DL, E4SG0, E4SG1, E4SG4
4,4'-DDD	E4SC2, E4SD5DL, E4SD6
4,4'-DDE	E4SC2, E4SF7, E4SF8, E4SG3, E4SG7
Endrin aldehyde	E4SD4, E4SD5, E4SD6, E4SE2DL, E4SF0MS, E4SF0MSD, E4SF4DL, E4SF7, E4SG2, E4SG4DL, E4SG7
Heptachlor	E4SG1DL, E4SG3, E4SG4DL
Endosulfan I	E4SD4, E4SG1DL

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Heptachlor epoxide	E4SD4, E4SE2DL, E4SF2, E4SF3, E4SF5DL, E4SF6, E4SG0, E4SG1, E4SG1DL, E4SG4, E4SG4DL
beta-BHC	E4SF3, E4SF4, E4SG1, E4SG4
Endosulfan II	E4SF4, E4SF5
4,4'-DDT	E4SD4, E4SF2, E4SF3, E4SF5, E4SG0, E4SG1DL, E4SG4, E4SG4DL

gamma-Chlordane	E4SF5, E4SG1, E4SG4
Endrin ketone	E4SF5
Gamma-BHC (Lindane)	E4SE2DL, E4SF3, E4SF4, E4SF4DL, E4SF5, E4SF5DL, E4SG0, E4SG1, E4SG4
Endrin	E4SG1
Methoxychlor	E4SE2, E4SF4, E4SF5
4,4'-DDD	E4SF0
4,4'-DDE	E4SG1DL, E4SG2
Endrin aldehyde	E4SE2, E4SF3, E4SF6, E4SG0, E4SG1, E4SG4
Heptachlor	E4SF4, E4SF4DL, E4SF6, E4SG1, E4SG4
Endosulfan I	E4SF5, E4SF5DL

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples had reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The result from the diluted sample should be used for result validation.

E4SD5	4,4’-DDT
E4SE2	4,4’-DDT, gamma-chlordane
E4SF4, ES4F5	Heptachlor, 4,4’-DDE, 4,4’-DDD
E4SG1, E4SG4	4,4’-DDD

The following pesticide samples had reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. However, the analyte was undetected in the diluted reanalysis and flagged “U” by the laboratory. The dilution factor should have been less than 10 for this analyte; however, the other analyte in this sample with an “E” flag was diluted within the calibration range.

E4SE2	gamma-Chlordane

For gamma-chlordane, the result from the original analysis, E4SE2, should be used.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

A high surrogate recovery, greater than 200%, was obtained on only one column for samples E4SD4, E4SF0, E4SF0MSD, and E4SG4. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SD4, E4SF0, E4SF0MSD, E4SG4, the "J" flags applied during the automated check process have been removed for detected compounds.

A high surrogate recovery, which exceed 150% but are less than or equal to 200%, was obtained on only one column for samples E4SF0, E4SF0MS and E4SF2. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SF0, E4SF0MS and E4SF2, the "J" flags applied during the automated check process have been removed for the following compounds.

Aroclor samples E4SE2, E4SF4, E4SF5, E4SG2, with dilution factors greater than 5 had surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

Aroclor samples E4SG1 and E4SG4DL, with dilution factors greater than five, had high surrogate recoveries, greater than 200%, on only one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For samples E4SG1 and E4SG4DL, detected and non-detected compounds are not qualified.

Aroclor samples E4SE2, E4SF4, E4SF5, E4SG0, with dilution factors greater than 5 had surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected and nondetected compounds are not qualified.

Aroclor sample E4SF3, with a dilution factor greater than five had a high surrogate recovery, which exceed 150% but was less than or equal to 200% on only one column. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the

surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. For sample E4SF3, detected and non-detected compounds are not qualified.

Aroclor sample E4SD5, with a dilution factor less than or equal to 5 had surrogate percent recoveries which exceed 150% but are less than or equal to 200%, and a surrogate recovery greater than 200%. Detected compounds are qualified J. Nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4SF0, the Aroclor MS and/or MSD samples have percent recoveries that are greater than the upper acceptance limit for Aroclor 1016 and less than the lower acceptance limit for Aroclor 1260 on the RTXCLP2 column. However, since the results of Aroclor 1016 and 1260 were reported from the RTXCLP column for all samples in this SDG, the data are not qualified. For samples E4SF0, E4SF0MS and E4SF90MSD, the "J" flags applied during the automated check process have been removed for the following compounds.

Aroclor 1016 and 1260

On the other column, RTX-CLP, the relative percent difference (RPD) between the MS and MSD, recalculated using concentrations instead of recoveries in the RPD calculation, is within the acceptance limits for both Aroclor 1016 and 1260. For samples E4SF0, E4SF0MS and E4SF90MSD, the "J" flags applied during the automated check process have been removed for the following compounds.

Aroclor 1016 and 1260

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC1/E4SC2 and E4SE1DL/E4SE2 and E4SG1/E4SG4DL were identified as field duplicates. Results are summarized in the following Tables. Note that results are not qualified based upon the results of the field duplicates. No field blank was collected for this SDG.

E4SC1 and E4SC2

Aroclor compound	E4SC1 µg/kg	DF	E4SC2 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	4.4	1	ND	1	
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	ND	1	ND	1	
Aroclor-1262	ND	1	ND	1	

E4SE1DL and E4SE2

Aroclor compound	E4SE1DL µg/kg	DF	E4SE2 µg/kg	DF	%RPD
Aroclor-1016	ND	1000	ND	100	
Aroclor-1221	ND	1000	ND	100	
Aroclor-1232	ND	1000	ND	100	
Aroclor-1242	ND	1000	ND	100	
Aroclor-1248	7100	1000	2200	100	110
Aroclor-1254	ND	1000	ND	100	
Aroclor-1260	ND	1000	ND	100	
Aroclor-1262	ND	1000	ND	100	

E4SG1 and E4SG4DL

Aroclor compound	E4SG1 µg/kg	DF	E4SG4DL µg/kg	DF	%RPD
Aroclor-1016	ND	10	ND	10	
Aroclor-1221	ND	10	ND	10	
Aroclor-1232	ND	10	ND	10	
Aroclor-1242	ND	10	ND	10	
Aroclor-1248	130	10	190	10	38
Aroclor-1254	ND	10	ND	10	
Aroclor-1260	ND	10	ND	10	
Aroclor-1262	ND	10	ND	10	

RPD values could not be calculated where one or both of the values were zero. For field duplicates E4SC1 and E4SC2, no RPD values were calculated. For field duplicates E4SE1 and E4SE2DL, Aroclor-1248 had an RPD value above 50%. For field duplicates E4SG1 and E4SG4 the RPD value calculated for Aroclor-1248 was below 50%.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260	E4SF0MS
Aroclor-1248	E4SD6, E4SF3, E4SF7, E4SF8, E4SG7

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1016	E4SF0MS

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1260	E4SD4, E4SF0
Aroclor-1016	E4SF0MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following sample reported concentration that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SG4	Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: August 4, 2010

Subject: **Revised Narrative Report**
Review of Data
Received for Review on: April 13, 2010

From: Julie Rest
Environmental Chemist, CSC

To: Data User: GLNPO

This data review narrative supersedes the narrative sent to you on June 24, 2010 for the review of data in SDG E4SC4. The changes made to the narrative include clarifications added to the Pesticide Additional Information section. These appear in bold face type. In addition, the "reportable results" field in the "Z" file has been updated to reflect the clarifications. No sample results or review qualifiers have been changed based on these corrections.

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39494 MRN: 1888.0, 1887.0, and 1886.0 SDG Number: E4SC4

Number and Type of Samples: 12 Sediment Samples

Sample Numbers: E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2 – E4SD4, E4SE6, E4SE9, E4SF1

Laboratory: ALS Laboratories (DATAC)

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Twelve (12) sediment samples labeled E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2 – E4SD4, E4SE6, E4SE9, and E4SF1 were shipped to ALS Laboratory Group (DataChem), in Salt Lake City, Utah. All were collected on 3/4/2010 and were received on 3/6/2010. Samples exceeded the proper shipping temperature range of 2 - 6 ºC and were received at the facility at 7 ºC. No data have been qualified based on receipt temperature.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 and Modification Reference Numbers 1886.0, 1887.0, and 1888.0, with the following exception. Both ultrasonic and PFE extraction were pre-approved by EPA as modifications to the MA(s). The laboratory chose to use ultrasonic extraction. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. The laboratory revised the EDD and many of the associated Form 1s, and resubmitted them to SMO. This review was based on the revised EDD, the original hard copy data package, the original data summary forms, and any revised Form 1s. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

Several inconsistencies have been noted between the hardcopy data, the B-file spreadsheet, and the Z-file superset EDD in some samples with compounds reported as nondetects (U values). In most instances, the "result value" in the B-file and the Z-file appear to be correct, while the Form 1 and Z-file "quantitation limit" are incorrect. Although the differences appear to be small (e.g., 110 vs. 120), the cause of this anomaly has not been determined. The values in the Superset EDD have not been changed.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

As designated by the samplers, Sample E4SD2 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SC5and E4SC6 as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES (PAH)

1. HOLDING TIME

For semivolatile sample E4SF1, the fourteen-day extraction holding time was exceeded by five days, due to poor deuterated monitoring compound (DMC) recoveries in the original analysis. All detected compounds are flagged "J". Nondetected compounds are flagged "UJ".

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening CCV percent difference (%D) outside criteria for fluoranthene. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SC5 – E4SC7, E4SC9, E4SD0, E4SD2, E4SD2MS, E4SD2MSD, E4SD3, E4SE4, E4SE6, E4SE9

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC5 and E4SC6 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4SC5 and E4SC6

Semivolatile compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
Acenaphthene	160	1	ND	1	
Fluorene	260	1	ND	1	

Semivolatile compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Phenanthrene	2100	1	500	1	120
Anthracene	690	1	90	1	150
Fluoranthene	3600	1	1600	1	77
Pyrene	3000	1	1300	1	79
Benzo(a)anthracene	1800	1	740	1	84
Chrysene	1400	1	790	1	56
Benzo(b)fluoranthene	2200	1	1200	1	59
Benzo(k)fluoranthene	650	1	440	1	39
Benzo(a)pyrene	1700	1	830	1	69
Indeno(1,2,3-cd)pyrene	950	1	550	1	53
Dibenzo(a,h)anthracene	200	1	120	1	50
Benzo(g,h,i)perylene	730	1	440	1	50

For field duplicates E4SC5 and E4SC6, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of benzo(k)fluoranthene, the RPD values were 50% or greater.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Anthracene	E4SC6, E4SC7
Pyrene	E4SF1
Benzo(g,h,i)perylene	E4SC4, E4SD2, E4SE9
Indeno(1,2,3-cd)pyrene	E4SE9
Benzo(b)fluoranthene	E4SD2, E4SD2MS, E4SD2MSD, E4SF1
Fluoranthene	E4SD2MS, E4SD2MSD, E4SF1
Benzo(k)fluoranthene	E4SC4, E4SE9
Chrysene	E4SD2, E4SE9

Benzo(a)pyrene	E4SD2, E4SD2MS, E4SE9
Dibenzo (a,h) anthracene	E4SC5DL, E4SC6, E4SC7, E4SD0, E4SE6DL
Benzo (a) anthracene	E4SD2, E4SE9
Acenaphthene	E4SC5, E4SC5DL, E4SC7, E4SD0
Phenanthrene	E4SC4, E4SE9, E4SF1
Fluorene	E4SC5DL, E4SD0
Naphthalene	E4SE6
2-Methylnaphthalene	E4SE6

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4SC5 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene and Pyrene; and sample E4SE6 reported concentrations that exceeded the calibrated range of the instrument for Benzo(b)fluoranthene, Fluoranthene, Phenanthrene and Pyrene. These results were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted samples E4SC5 and E4SE6 should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

For semivolatile-SIM sample E4SF1, the fourteen-day extraction holding time was exceeded by five days, due to poor deuterated monitoring compound (DMC) recoveries in the original analysis. All detected compounds are flagged "J". Nondetected compounds are flagged "UJ".

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pyrene was not recovered in the MSD prepared for sample E4SD2 and was recovered below criteria in the MS. All sample results for Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4SC5 and E4SC6 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4SC5 and E4SC6

Semivolatile-SIM compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	ND	10	ND	10	
Acenaphthene	100	10	22	10	130
Fluorene	140	10	22	10	150
Phenanthrene	1200	10	290	10	120
Anthracene	400	10	62	10	150
Fluoranthene	2200	10	900	10	84

Semivolatile-SIM compounds	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Pyrene	1700	10	780	10	74
Benzo(a)anthracene	1100	10	470	10	80
Chrysene	960	10	480	10	67
Benzo(b)fluoranthene	1500	10	710	10	72
Benzo(k)fluoranthene	420	10	200	10	71
Benzo(a)pyrene	1100	10	500	10	75
Indeno(1,2,3-cd)pyrene	820	10	410	10	67
Dibenzo(a,h)anthracene	160	10	78	10	69
Benzo(g,h,i)perylene	640	10	340	10	61

For field duplicates E4SC5 and E4SC6, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, all compounds had RPD values above 50%.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The original analysis for samples E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2, E4SE4, E4SE6, E4SE9, and E4SF1 was performed using a 10-fold dilution.

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4SC4, E4SD2, E4SE4, E4SE9, E4SF1
Benzo(g,h,i)perylene	E4SD2MS, E4SD2MSD
Indeno(1,2,3-cd)pyrene	E4SD2MS, E4SD2MSD, E4SD3
Benzo(k)fluoranthene	E4SD2, E4SD2MS, E4SD2MSD, E4SD3, E4SE9, E4SF1
Acenaphthylene	E4SC7, E4SD0, E4SE6
Chrysene	E4SD2MS, E4SD2MSD, E4SF1
Benzo(a)pyrene	E4SD2MS, E4SD2MSD, E4SD3
Dibenzo(a,h)anthracene	E4SC4, E4SD2, E4SE9, E4SF1
Benzo(a)anthracene	E4SD2MS, E4SD2MSD, E4SD3, E4SF1

Acenaphthene	E4SC6, E4SC9, E4SD2MS
Phenanthrene	E4SD2MS, E4SD2MSD, E4SD3
Fluorene	E4SC6, E4SC7, E4SC9, E4SE4

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J".

Acenaphthene	E4SE6
Anthracene	E4SC5, E4SC6
Benzo(a)anthracene	E4SC5 – E4SC7, E4SD0, E4SE6
Benzo(a)pyrene	E4SC5 – E4SC7, E4SD0, E4SE6
Benzo(b)fluoranthene	E4SC5 – E4SC7, E4SC9, E4SD0, E4SE4, E4SE6
Benzo(g,h,i)perylene	E4SC5, E4SC7, E4SD0, E4SE6
Benzo(k)fluoranthene	E4SC5, E4SE6
Chrysene	E4SC5 – E4SC7, E4SD0, E4SE6
Fluoranthene	E4SC5 – E4SC7, E4SC9, E4SD0, E4SE4, E4SE6
Fluorene	E4SE6
Indeno(1,2,3-cd)pyrene	E4SC5 – E4SC7, E4SD0, E4SE6
Phenanthrene	E4SC5, E4SD0, E4SE6
Pyrene	E4SC5 – E4SC7, E4SC9, E4SD0, E4SE4, E4SE6

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

The following pesticide samples are associated with a continuing PEM in which the percent difference between the nominal and calculated amounts for a surrogate compound is outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SD2MS, E4SD2MSD, E4SD3, E4SE4, E4SE6, E4SE6DL, E4SE9, E4SF1

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the surrogate compound Decachlorobiphenyl. All target pesticide compounds are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2, E4SD3, E4SE4, E4SE6, E4SE9, E4SF1

The following pesticide samples are associated with a CCV with % Difference that exceeded criteria for the target compounds Endosulfan sulfate, Endosulfan II, 4,4'-DDT, Endrin ketone, Endrin, Methoxychlor, 4,4'-DDD, 4,4'-DDE, and Endrin aldehyde. All samples are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SC4 – E4SC7, E4SC9, E4SD0, E4SD2, E4SD3, E4SE4, E4SE6, E4SE9, E4SF1

4. BLANKS

The following pesticide samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Endosulfan II	E4SC5, E4SC5DL, E4SC7, E4SC9, E4SD0, E4SE6DL
4,4'-DDT	E4SD3
Methoxychlor	E4SC4, E4SC5DL, E4SC9, E4SD2, E4SD2MS, E4SD2MSD, E4SE6DL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns. No sample results were qualified based on surrogate recovery.

However, a surrogate recovery between 150 – 200 % was obtained on only one column for samples E4SC6, E4SD0, E4SE6, and E4SF1. The high recovery likely indicates a coelution or matrix interference

on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

Diluted pesticide sample E4SE6DL, with a dilution factor greater than 5 had a surrogate percent recovery greater than 200%, and a surrogate percent recovery that was less than 10%. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Pesticide MSD sample E4SD2 had a percent recovery greater than the upper acceptance limit on RTX-CLP2 column for gamma-BHC and Heptachlor, and the MS had a percent recovery greater than the acceptance limit for Heptachlor. Also, the relative percent difference (RPD) between the MS and MSD exceeded criteria for Aldrin on the RTX-CLP2 column and for gamma-BHC on the RTX-CLP column. All samples are affected. Detected results for gamma-BHC are qualified "J" in all samples. Detected results for Heptachlor and Aldrin are qualified "J" in samples reported from the RTX-CLP column. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC5 and E4SC6 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

Results for Endosulfan I, 4,4'-DDE, Endosulfan II, Endrin, and 4,4'-DDD, were rejected in one or both samples in this field duplicate pair for reasons detailed later in this review. Therefore, those values were not used to calculate RPDs

E4SC5 and E4SC6

Pesticide compound	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	4.9	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	1.5	1		1	
Dieldrin	ND	1	3.1	1	
4,4'-DDE		1		1	
Endrin		1		1	
Endosulfan II	0.36	1		1	
4,4'-DDD		1		1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	9.8	1	3.7	1	90

Pesticide compound	E4SC5 µg/kg	DF	E4SC6 µg/kg	DF	%RPD
Methoxychlor	3.9	1	3.5	1	11
Endrin ketone	0.36	1	ND	1	
Endrin aldehyde	2.1	1	3.1	1	39
alpha-Chlordane		1	0.4	1	
gamma-Chlordane	6.2	1	3.6	1	53
Toxaphene	ND	1	ND	1	

For field duplicate samples E4SC5and E4SC6, where calculated, RPD values were less than 50 %, with the exception of 4,4'-DDT and gamma chlordane.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

4,4'-DDT	E4SC6, E4SD2MSD, E4SE9
alpha-chlordane	E4SC6, E4SC7, E4SC9, E4SE6
gamma-chlordane	E4SC4, E4SD0, E4SE6, E4SF1
gamma-BHC(Lindane)	E4SC5DL
Dieldrin	E4SD2MS, E4SD2MSD
Methoxychlor	E4SE9
4,4'-DDD	E4SC7, E4SD2
4,4'-DDE	E4SD2MSD, E4SF1, PLCSS1
Endrin aldehyde	E4SC7
Heptachlor	E4SD2MS

The following pesticide samples have percent differences between the results on the two GC columns in the range of 51-100%. Detected compounds are qualified "NJ".

Aldrin	E4SD2MSD

4,4'-DDT	E4SC4, E4SE4, E4SF1
gamma-Chlordane	E4SC5, E4SC7, E4SD2MS
gamma-BHC(Lindane)	E4SD2MS
Endrin	E4SE6
Methoxychlor	E4SC5, E4SC6, E4SC7, E4SD0, E4SE6, E4SF1
4,4'-DDD	E4SD0, E4SD2MS, E4SD2MSD, E4SE6, E4SE6DL
4,4'-DDE	E4SC7, E4SC9, E4SD2MS, E4SE4, E4SE9
Endrin aldehyde	E4SC5, E4SC6
Heptachlor	E4SD2MSD
Endosulfan I	E4SC5, E4SC5DL
Heptachlor epoxide	E4SF1

The following pesticide samples have percent differences between the results on the two GC columns exceeding 50% and the results are below CRQL. Detected compounds are qualified “U” and elevated to the CRQL. Nondetected compounds are not qualified.

Heptachlor epoxide	E4SD2, E4SD3, E4SE9
Endosulfan sulfate	E4SE9
alpha-BHC	E4SC9
beta-BHC	E4SD3
Endosulfan II	E4SC5, E4SC5DL, E4SC7, E4SC9, E4SD0, E4SE6DL
4,4'-DDT	E4SD3
alpha-Chlordane	E4SD2, E4SD2MS, E4SD2MSD, E4SE9, E4SF1
Endrin ketone	E4SC5, E4SC7, E4SC9, E4SD0, E4SE6, E4SE9
Dieldrin	E4SE9
Endrin	E4SC5DL, E4SC7, E4SC9, E4SD0, E4SD2, E4SE6DL, E4SF1
Methoxychlor	E4SC4, E4SC5DL, E4SC9, E4SD2, E4SD2MSD, E4SE6DL
Endrin aldehyde	E4SD0, E4SD2MS, E4SD2MSD, E4SE6DL, E4SE9
Heptachlor	E4SF1

Endosulfan I	E4SC4, E4SD0, E4SD2, E4SD2MS, E4SD2MSD

The following pesticide samples have percent differences between the results on the two GC columns exceeding 100%. Detected compounds are qualified "R".

Heptachlor epoxide	E4SC4, E4SC9, E4SD2MS, E4SD2MSD, E4SE6DL
alpha-BHC	E4SE4
beta-BHC	E4SC9, E4SE4
Endosulfan II	E4SC6, E4SE6
4,4'-DDT	E4SC9, E4SD2
alpha-Chlordane	E4SC5
Gamma-BHC(Lindane)	E4SE6DL
Endrin	E4SC5, E4SC6, E4SE4
Methoxychlor	E4SE4
4,4'-DDD	E4SC4, E4SC5, E4SC6, E4SC9, E4SF1
4,4'-DDE	E4SC4, E4SC5, E4SC6, E4SE6, E4SE6DL
Endrin aldehyde	E4SC5DL
Heptachlor	E4SC4
Endosulfan I	E4SC6

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where provided, the results from the diluted samples should be used for result validation.

4,4'-DDT	E4SC5, E4SE6
4,4'-DDD	E4SE6
gamma-BHC (Lindane)	**E4SC5**

Pesticide sample E4SE6 had an R-flagged result for 4,4'-DDE in both the neat analysis and the dilution. Consequently, no result is available for 4,4'-DDE for this sample. The "reportable result" in the EDD remains the result reported from the neat analysis.

The results for gamma-Chlordane in Pesticide samples E4SC5 and E4SE6 exceeded the calibration range in the neat analysis and were reported as non-detects in the dilutions. The qualified results from the neat analyses should be used for result validation.

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All samples in this SDG had acceptable surrogate recoveries on one or both columns, with the exception of the original analysis of samples E4SC5, E4SC6 and E4SE6, which have ten-fold dilutions; and diluted samples E4SC5DL – E4SC7DL, and E4SE6DL, which have 100-fold dilutions. None of the samples are qualified based on surrogate recovery.

However, a ten-fold dilution was used for the original analysis of Aroclor samples E4SC5, E4SC6, and E4SE6. Due to the dilution, detected and nondetected results are not qualified.

Aroclor samples E4SC5DL – E4SC7DL, E4SE4DL, and E4SE6DL with 100-fold dilutions have multiple surrogate failures. Detected and nondetected compounds are not qualified.

A surrogate recovery between 150 – 200 % was obtained on only one column for sample E4SE4. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared for sample E4SD2, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016 and Aroclor-1260. All samples are affected. Detected results are qualified “J”. Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SC5 and E4SC6 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4SC5 and E4SC6

Aroclor compounds	**E4SC5 µg/kg**	**DF**	**E4SC6 µg/kg**	**DF**	**%RPD**
Aroclor-1016	ND	10	ND	10	
Aroclor-1221	ND	10	ND	10	
Aroclor-1232	ND	10	ND	10	
Aroclor-1242	ND	10	ND	10	
Aroclor-1248	890	10	1400	10	44
Aroclor-1254	ND	10	ND	10	
Aroclor-1260	ND	10	ND	10	
Aroclor-1262	ND	10	ND	10	
Aroclor-1268	ND	10	ND	10	

E4SC5DL and E4SC6DL

Aroclor compounds	**E4SC5DL µg/kg**	**DF**	**E4SC6DL µg/kg**	**DF**	**%RPD**
Aroclor-1016	ND	100	ND	100	
Aroclor-1221	ND	100	ND	100	
Aroclor-1232	ND	100	ND	100	
Aroclor-1242	ND	100	ND	100	
Aroclor-1248	290	100	240	100	19
Aroclor-1254	ND	100	ND	100	
Aroclor-1260	ND	100	ND	100	
Aroclor-1262	ND	100	ND	100	
Aroclor-1268	ND	100	ND	100	

For the neat and diluted analysis of field duplicate samples E4SC5 and E4SC6, RPD values were not calculated when both values were nondetects. The RPD for Aroclor-1248 was below 50%.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4SD2MS, E4SD2MSD, E4SE4, E4SE4DL

Aroclor-1016 E4SD2MS, E4SD2MSD, E4SE4, E4SE4DL

The following Aroclor samples had percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1248 E4SC4

The following Aroclor samples had percent differences between analyte results exceeding 100% for Aroclor-1260. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1260 E4SE4, E4SE9, E4SF1

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used.

E4SC5 – E4SC7, E4SE6	Aroclor-1248
E4SE4	Aroclor-1016

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 14, 2010

Subject: Review of Data
Received for Review on May 12, 2010

From: Caryn Wojtowicz
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park (WI)

Case Number: 39668 MRN: none

SDG Number: E4SG8

Number and Type of Samples: Twenty (20) sediment samples

Sample Numbers: E4SG8, E4SG9, E4SH0-E4SH3, E4SK0-E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Three coolers containing twenty (20) sediment samples, labeled E4SG8, E4SG9, E4SH0-E4SH3, E4SK0-E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2 and E4SM4 were shipped to KAP Technologies, Inc. located in The Woodlands, Texas. The samples were collected on 04/14/2010 and 04/15/2010 and were received at the laboratory on 04/15/2010 and 04/16/2010 intact at 4.1, 2.6, and 3.3 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The Form 1 for semivolatile SIM analysis of sample E4SK9DL (page 1547) is missing from the data package. The quantitation report, chromatogram and spectral information were provided. The results for this sample are reported in both the spreadsheet and superset EDD.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Sample E4SG9 and E4SH0 are field duplicates. There are no field blanks associated with this SDG. No sample was designated for laboratory QC, i.e. MS/MSD. Sample E4SK9 was selected as the laboratory QC sample.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOM01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

Sample E4SK9DL is associated with an initial calibration percent relative standard deviation (%RSD) for Pentachlorophenol outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

The following semivolatile samples are associated with a % difference between the continuing calibration response factor and the initial calibration that exceeds criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. The relative response factor (RRF) for 4- Methyl phenol was greater in the continuing calibration than in the initial calibration, therefore the automated UJ flag affixed for nondetected 4-Methylphenol was overridden because the compound would have been detected if present.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3DL, E4SK0, E4SK1, E4SK1DL, E4SK1RE, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SMS

2,4-Dimethylphenol	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3
4-Methylphenol	E4SH3DL, E4SK1DL, E4SK1RE
4-Chloro-3-methylphenol	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3
Pentachlorophenol	E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4
2-Methylnaphthalene	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3DL, E4SK0, E4SK1, E4SK1DL, E4SK1RE, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Nitrobenzene-d_5 E4SK1, E4SK1RE
Affected compounds: 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Acetophenone, Hexachloroethane, N-Nitroso-di-n-propylamine, N-Nitrosodiphenylamine, Nitrobenzene

The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene-d_{10} E4SG8, E4SH3, E4SK0, E4SK5, E4SK9, E4SM2, E4SM4
Affected compounds: Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene

Dimethylphthalate-d_6 E4SK1
Affected compounds: 1,1'-Biphenyl, bis(2-Ethylhexyl)phthalate, Butylbenzylphthalate, Caprolactam, Di-n-butylphthalate, Di-n-octylphthalate, Diethylphthalate, Dimethylphthalate

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The percent recovery of 4-Nitrophenol exceeded the upper criterion in sample E4SK9MSD. Detected and nondetected compounds are not qualified.

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified. The automated NFG report mistakenly reported N-Nitroso-di-n-propylamine as an outlier when it was within limits. The J flag was removed for this compound.

E4SK9, E4SK9MS, E4SK9MSD Pyrene, Acenaphthene

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following table. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
Hexachlorocyclopentadiene	ND	ND	
2,4,6-Trichlorophenol	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	ND	ND	
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	150	280	60.5
Anthracene	ND	ND	
Carbazole	ND	ND	
Di-n-butylphthalate	140	190	30.3

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Fluoranthene	350	600	52.6
Pyrene	230	360	44.1
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	150	200	28.6
Chrysene	190	250	27.3
Bis(2-ethylhexyl)phthalate	ND	ND	
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	130	270	70
Benzo(k)fluoranthene	150	210	33.3
Benzo(a)pyrene	150	210	33.3
Indeno(1,2,3-cd)pyrene	110	170	42.9
Dibenzo(a,h)anthracene	ND	ND	
Benzo(g,h,i)perylene	140	190	30.3
2,3,4,6-Tetrachlorophenol	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, were less than 50 percent, with the exceptions of Phenanthrene and Fluoranthene, the RPD values.

7. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Perylene-d_{12} E4SK1, E4SK1RE
Affected compounds: Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SK1, E4SK1RE
Affected compounds: Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Bis(2-ehtykhexyl)phthalate, Chrysene

8. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

9. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3DL, E4SK0, E4SK1DL, E4SK2, E4SK5, E4SK6, E4SK8, E4SK9, E4SK9DL, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8

4-Methylphenol E4SH1
bis (2-Ethylhexyl) phthalate E4SK8, E4SK9, E4SK9MS, E4SK9MSD

Anthracene	E4SK0, E4SK5, E4SK9DL
Pyrene	E4SH1, E4SL6, E4SL8
Dibenzofuran	E4SH3DL, E4SK1DL
Benzo(g,h,i)perylene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK6, E4SL6, E4SL8
Indeno(1,2,3-cd)pyrene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK6, E4SL6, E4SL8
Benzo(b)fluoranthene	E4SG8, E4SG9, E4SH2, E4SK1DL, E4SL6, E4SL8
Fluoranthene	E4SH1
Benzo(k)fluoranthene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK1DL, E4SL6, E4SL8
Acenaphthylene	E4SH3
Chrysene	E4SG9, E4SH2, E4SL6, E4SL8
Benzo(a)pyrene	E4SG8, E4SG9, E4SH0, E4SH2, E4SK1DL, E4SL6, E4SL8
Dibenzo(a,h)anthracene	E4SH3DL, E4SK5, E4SK8, E4SK9DL, E4SL5
Benzo(a)anthracene	E4SG9, E4SH0, E4SH2, E4SL6, E4SL8
Acenaphthene	E4SH3DL, E4SK0, E4SK9DL
Di-n-butylphthalate	E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SK0, E4SK2
Phenanthrene	E4SG8, E4SG9, E4SH2, E4SK6, E4SL6, E4SL8
Fluorene	E4SH3DL, E4SK0, E4SK9DL
9H-Carbazole	E4SK9DL
Naphthalene	E4SK0
2-Methylnaphthalene	E4SK9
1,1'-Biphenyl	E4SH3, E4SK9MS

10. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

11. ADDITIONAL INFORMATION

The following semivolatile samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SH3	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK1	Naphthalene, 2-Methylnaphthalene, 1,1’-Biphenyl, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK1RE	Naphthalene, 2-Methylnaphthalene, 1,1’-Biphenyl, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene
E4SK9	Phenanthrene, Fluoranthene, Pyrene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo(g,h,i)perylene

E4SG8DL, E4SG9DL, E4SH0DL, E4SH1DL, E4SH2DL, E4SH3DL, E4SK0DL, E4SK1DL, E4SK4DL, E4SK5DL, E4SK6DL, E4SK8DL, E4SK9DL, E4SK9MS, E4SK9MSD, E4SL5DL, E4SL6DL, E4SL8DL, E4SM2DL, E4SM4DL

Pentachlorophenol

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

The following semivolatile samples are associated with an initial calibration with average relative response factors (mean RRFs) below the minimum required RRF for Pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

The following semivolatile samples are associated with a % difference between the continuing calibration response factor and the initial calibration that exceeds criteria. The relative response factor (RRF) for Dibenzo(a,h)anthracene was greater in the continuing calibration than in the initial calibration, therefore the automated UJ flag affixed for nondetected Dibenzo(a,h)anthracene was overridden as the compound would have been detected if present.

E4SH3DL, E4SH3RE, E4SH3RX, E4SK0, E4SK0DL, E4SK1, E4SK1DL, E4SK4, E4SK4DL, E4SK5, E4SK5DL, E4SK6, E4SK6DL, E4SK8, E4SK8DL, E4SK9, E4SK9DL, E4SK9MS, E4SK9MSD, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4, E4SM4DL, SBLK21

Benzo(g,h,i)perylene	E4SH3DL, E4SK0DL, E4SK1DL, E4SK4DL, E4SK6DL, E4SK8DL, E4SK9DL
Benzo(b)fluoranthene	E4SK5DL, E4SK9MS, E4SK9MSD, E4SM4DL

Benzo(k)fluoranthene	E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4
Dibenzo(a,h)anthracene	E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4
Pentachlorophenol	E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) below the minimum required RRF for Pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4SG8, E4SG9, E4SH0, E4SH1, E4SH2, E4SH3, E4SH3RE, E4SH3RX, E4SK0, E4SK1, E4SK2, E4SK3, E4SK4, E4SK5, E4SK6, E4SK8, E4SK9, E4SL5, E4SL6, E4SL8, E4SM2, E4SM4

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Fluoranthene-d_{10} E4SH3, E4SH3RE, E4SH3RX
Affected compounds: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

The following diluted semivolatile samples with dilution factors greater than 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

2-Methylnaphthalene-d_{10} E4SM2DL
Affected compounds: 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, Pentachlorophenol, Phenanthrene

Fluoranthene-d_{10} E4SH3DL, E4SK1DL, E4SM2DL
Affected compounds: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The semivolatile-SIM matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit for all three spiked compounds. Detected compounds are qualified J. Nondetected compounds are not qualified. Because the spiking level was inappropriately low in comparison to the native levels of Acenaphthene and Pyrene present in the samples, no other samples were qualified based on the MS/MSD failure.

E4SK9, E4SK9MS, E4SK9MSD Acenaphthene, Pentachlorophenol, Pyrene

The relative percent difference (RPD) between the following semivolatile-SIM matrix spike and matrix spike duplicate recoveries is outside criteria for all three spiked compounds. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SK9, E4SK9MS, E4SK9MSD Acenaphthene, Pentachlorophenol, Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatile SIM.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following tables, original analyses and diluted analyses. Results for Pentachlorophenol were rejected in one or both samples in this field duplicate pair for reasons detailed elsewhere in this review. Therefore, those values were not used to calculate RPDs. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Naphthalene	ND	12	
2-Methylnaphthalene	ND	4.3	
Acenaphthylene	4.6	ND	
Acenaphthene	10	29	97.4
Fluorene	12	30	85.7
Phenanthrene	170	320	61.2
Anthracene	39	63	47.1
Fluoranthene	490	720	38
Pyrene	370	560	40.9
Benzo(a)anthracene	220	340	42.9
Chrysene	240	350	37.3
Benzo(b)fluoranthene	120	180	40
Benzo(k)fluoranthene	73	110	40.4
Benzo(a)pyrene	100	160	46.2
Indeno(1,2,3-cd)pyrene	78	110	34
Dibenzo(a,h)anthracene	36	52	36.4
Benzo(g,h,i)perylene	84	120	35.3
Pentachlorophenol			

Semivolatile Analyte	E4SG9DL (ug/kg)	E4SH0DL (ug/kg)	%RPD
Naphthalene	ND	ND	
2-Methylnaphthalene	ND	ND	
Acenaphthylene	ND	ND	

Semivolatile Analyte	E4SG9DL (ug/kg)	E4SH0DL (ug/kg)	%RPD
Acenaphthene	ND	ND	
Fluorene	ND	ND	
Phenanthrene	220	400	58.1
Anthracene	70	100	35.3
Fluoranthene	510	720	34.1
Pyrene	370	550	39.1
Benzo(a)anthracene	170	260	41.9
Chrysene	230	320	32.7
Benzo(b)fluoranthene	130	200	42.4
Benzo(k)fluoranthene	130	190	37.5
Benzo(a)pyrene	130	180	32.3
Indeno(1,2,3-cd)pyrene	83	110	28
Dibenzo(a,h)anthracene	53	49	7.8
Benzo(g,h,i)perylene	96	130	30.1
Pentachlorophenol	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples the RPD values were less than 50 percent, with the exception of Acenaphthene, Fluorene and Phenanthrene in the undiluted analysis and Phenanthrene in the diluted analysis.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SH3, E4SH3RE, E4SH3RX, E4SK1, E4SK3, SBLK19

Acenaphthene-d_{10} E4SH3, E4SK1
Affected compounds: Acenaphthylene, Acenaphthene, Fluorene

Perylene-d_{12} E4SH3, E4SH3RE, E4SH3RX, E4SK3
Affected compounds: Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SH3
Affected compounds: Pyrene, Benzo(a)anthracene, Chrysene

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SH2, E4SK3, E4SK4, E4SL6, E4SM2DL, E4SM4, E4SM4DL

Anthracene	E4SK4
Benzo(b)Fluoranthene	E4SM4DL
Benzo(k)fluoranthene	E4SM4DL
Chrysene	E4SM2DL
Dibenzo(a,h)anthracene	E4SK3
Fluorene	E4SM4
Naphthalene	E4SH2
2-Methylnaphthalene	E4SL6

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4SG8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SG9	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SH0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SH1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SH2	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SH3	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SH3RE	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E4SH3RX	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK0	Naphthalene, 2-Methylnaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK1	Naphthalene, 2-Methylnaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK4	Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
E4SK5	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK8	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SK9	Naphthalene, 2-Methylnaphthylene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL5	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM2	Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E4SM4	Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(a)pyrene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4SG8DL	Fluoranthene
E4SG9DL	Fluoranthene
E4SH0DL	Fluoranthene, Pyrene
E4SH2DL	Fluoranthene
E4SH3DL	Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene
E4SK0DL	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, Pyrene,
E4SK1DL	2-Methylnaphthalene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene
E4SK5DL	Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene
E4SK6DL	Fluoranthene
E4SK8DL	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Phenanthrene, Pyrene
E4SK9DL	Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene
E4SL5DL	Fluoranthene, Pyrene
E4SL6 DL	Fluoranthene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide sample E4SH3 had Tetrachloro-m-xylene surrogate percent recovery on one column equal to the upper limit of 150%. The NFG automated report stated the surrogate as being greater than 150% but less than or equal to 200%. No data was qualified for surrogate recovery.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following table. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Pesticide Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	

Pesticide Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
4,4'-DDE	ND	ND	
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	ND	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	1.7	0.82	69.8
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected.

8. INTERNAL STANDARDS

Not applicable for Pesticides.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide sample has percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

alpha-Chlordane E4SL6

11. SYSTEM PERFORMANCE

No problems were found.

12. ADDITIONAL INFORMATION

For reasons that could not be determined, the NFG automated flagging report flagged 4,4-DDE in the following samples U as not detected at the stated concentration. These compounds are present. The NFG flag was overridden in the spreadsheet and superset EDD.

E4SK5, E4SK8

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following Aroclor matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SK9, E4SK9MS, E4SK9MSD Aroclor-1016

The following Aroclor matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified J. Nondetected compounds are not qualified. NFG automated flags were overridden for Aroclor-1260 as the spike recovery was equal to, not greater than, the upper limit.

E4SK9, E4SK9MS, E4SK9MSD Aroclor-1260, Aroclor-1016

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SG9 and E4SH0 were identified as field duplicates**.** Results are summarized in the following table. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Aroclor Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	

Aroclor Analyte	E4SG9 (ug/kg)	E4SH0 (ug/kg)	%RPD
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	ND	ND	
Aroclor-1254	ND	ND	
Aroclor-1260	ND	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	ND	ND	
Aroclor-1254	ND	ND	
Aroclor-1260	ND	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

For field duplicates, RPDs were not calculated where one or both results were nondetected.

8. INTERNAL STANDARDS

Not Applicable for Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SM4 Aroclor-1248

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

E4SK1, E4SK5, E4SK6, E4SK8, E4SK8DL, E4SK9MS Aroclor-1248

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

E4SK0, E4SL5 Aroclor-1248

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E4SL5	Aroclor-1254
E4SM4	Aroclor-1248

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

E4SK8, E4SK8DL, E4SK9, E4SK9MS, E4SK9MSD Aroclor-1254

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Sample E4SK8 reported concentration of Aroclor-1248 that exceeded the calibration range of the instrument and was flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 9, 2010

Subject: Review of Data
Received for Review on: May 11, 2010

From: Julie Rest
Environmental Chemist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39668 MRN: NA SDG Number: E4SH4

Number and Type of Samples: 20 Sediment Samples

Sample Numbers: E4SH4 – E4SH9, E4SJ0 – E4SJ9, E4SL0 – E4SL3

Laboratory: KAP Technologies

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Twenty (20) sediment samples, labeled E4SH4 – E4SH9, E4SJ0 – E4SJ9, and E4SL0 – E4SL3, were shipped to KAP Technologies, Inc., in The Woodlands, Texas. Samples E4SH4 – E4SH9, and E4SJ0 – E4SJ9 were collected on 4/14/2010 and were received on 4/16/2010. Samples E4SL0 – E4SL3 were collected on 4/15/2010 and were received on 4/16/2010. The cooler temperatures on receipt were 4.2 ºC and at 2.9 ºC.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2. Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. As detailed later in this narrative, sample results reported below the reporting detection limit have been elevated to the quantitation limit and qualified "U" in the "B" and "Z" files. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOM01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

No QC sample was designated on the traffic reports for this SDG. Sample E4SH9 was used for laboratory QC, i.e., MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SL2 and E4SL3 as a field duplicate pair.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

2,4-Dimethylphenol	E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ4, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL0RE, E4SL1, E4SL1RE, E4SL2, E4SL3
4-Chloro-3-methylphenol	E4SJ9DL, E4SL0DL, E4SL0RE, E4SL1RE
Pentachlorophenol	E4SH4, E4SH5, E4SH6, E4SH7, E4SH8, E4SH9, E4SJ0, E4SJ1, E4SJ2, E4SJ3
2-Methylnaphthalene	E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ4, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL0RE, E4SL1, E4SL1RE, E4SL2, E4SL3

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene	E4SJ8, E4SJ9, E4SL2, E4SJ9DL

The following semivolatile sample has a deuterated monitoring compound recovery for 4-Nitrophenol-d_4 below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

2,4-Dinitrophenol, 2-Nitroaniline, 3-Nitroaniline, 4-Nitroaniline, 4-Nitrophenol	E4SH9

Semivolatile sample E4SJ9DL, with a dilution factor less than or equal to five, had a deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Sample results for Benzo(a)anthracene, Chrysene, Fluoranthene, and Pyrene are affected. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SL2 and E4SL3 were identified as field duplicates**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

E4SL2 and E4SL3

Semivolatile compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Benzaldehyde	ND	1	ND	1	
Phenol	ND	1	ND	1	
Bis(2-chloroethyl)ether	ND	1	ND	1	
2-Chlorophenol	ND	1	ND	1	
2-Methylphenol	ND	1	ND	1	
2,2'-Oxybis(1-chloropropane)	ND	1	ND	1	
Acetophenone	ND	1	ND	1	
4-Methylphenol	ND	1	ND	1	
N-Nitroso-di-n-propylamine	ND	1	ND	1	
Hexachloroethane	ND	1	ND	1	
Nitrobenzene	ND	1	ND	1	
Isophorone	ND	1	ND	1	
2-Nitrophenol	ND	1	ND	1	
Bis(2-chloroethoxy)methane	ND	1	ND	1	
2,4-Dichlorophenol	ND	1	ND	1	
Naphthalene	ND	1	ND	1	
4-Chloroaniline	ND	1	ND	1	
2,4-Dimethylphenol	ND	1	ND	1	
Hexachlorobutadiene	ND	1	ND	1	
Caprolactam	ND	1	ND	1	
4-Chloro-3-methylphenol	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Hexachlorocyclopentadiene	ND	1	ND	1	
2,4,6-Trichlorophenol	ND	1	ND	1	
2,4,5-Trichlorophenol	ND	1	ND	1	
1,1'-Biphenyl	ND	1	ND	1	
2-Chloronaphthalene	ND	1	ND	1	
2-Nitroaniline	ND	1	ND	1	
Dimethylphthalate	ND	1	ND	1	

Semivolatile compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
2,6-Dinitrotoluene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
3-Nitroaniline	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
2,4-Dinitrophenol	ND	1	ND	1	
4-Nitrophenol	ND	1	ND	1	
Dibenzofuran	ND	1	ND	1	
2,4-Dinitrotoluene	ND	1	ND	1	
Diethylphthalate	ND	1	ND	1	
Fluorene	ND	1	ND	1	
4-Chlorophenyl-phenylether	ND	1	ND	1	
4-Nitroaniline	ND	1	ND	1	
4,6-Dinitro-2-methylphenol	ND	1	ND	1	
N-Nitrosodiphenylamine	ND	1	ND	1	
1,2,4,5-Tetrachlorobenzene	ND	1	ND	1	
4-Bromophenyl-phenylether	ND	1	ND	1	
Hexachlorobenzene	ND	1	ND	1	
Atrazine	ND	1	ND	1	
Pentachlorophenol	ND	1	ND	1	
Phenanthrene	230	1	190	1	19
Anthracene	ND	1	ND	1	
Carbazole	ND	1	ND	1	
Di-n-butylphthalate	230	1	230	1	0
Fluoranthene	460	1	380	1	19
Pyrene	320	1	270	1	17
Butylbenzylphthalate	ND	1	ND	1	
3,3'-Dichlorobenzidine	ND	1	ND	1	
Benzo(a)anthracene	230	1	170	1	30
Chrysene	250	1	220	1	13
Bis(2-ethylhexyl)phthalate	240	1	97	1	85
Di-n-octylphthalate	ND	1	ND	1	
Benzo(b)fluoranthene	210	1	210	1	0
Benzo(k)fluoranthene	190	1	170	1	11
Benzo(a)pyrene	210	1	200	1	4.9
Indeno(1,2,3-cd)pyrene	140	1	130	1	7.4
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	150	1	150	1	0
2,3,4,6-Tetrachlorophenol	ND	1	ND	1	

For field duplicates E4SL2 and E4SL3, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of Bis(2-ethylhexyl)phthalate, the RPD values were less than 50 percent.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J for the affected compounds. Nondetected compounds are not qualified.

Perylene-d_{12} E4SL0, E4SL0RE, E4SL1, E4SL1RE

Affected analytes: Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SL0, E4SL1

Affected analytes: Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene

As described above, the original semivolatile analysis for samples E4SL0 and E4SL1 had internal standard area counts for Chrysene-d_{12} and Perylene-d_{12} that were above the upper criteria limit. The samples were subsequently reanalyzed by the laboratory as samples E4SL0RE and E4SL1RE. For both E4SL0 and E4SL1, the reanalysis had area counts above the upper criteria limit only for Perylene-d_{12}. Since the target compound results compare favorably between the original analysis and the reanalysis for both samples, the results from the reanalyses should be used for result validation.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Target compound Benzo(a)pyrene had a concentration below the MDL for sample E4SJ0. The sample result is qualified "U" and reported at the CRQL.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

Bis(2-Ethylhexyl)phthalate	E4SH6, E4SH6DL, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ9DL, E4SL0DL, E4SL3
Anthracene	E4SH6DL, E4SJ1, E4SJ2, E4SL0DL
Pyrene	E4SH4, E4SH7, E4SH9, E4SJ0
Dibenzofuran	E4SL0, E4SL0RE
Benzo(g,h,i)perylene	E4SH5, E4SH7, E4SJ0, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SL0DL, E4SL2, E4SL3
Indeno(1,2,3-cd)pyrene	E4SH5, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SL0DL, E4SL2, E4SL3

Benzo(b)fluoranthene	E4SH4, E4SH5, E4SH9MS, E4SJ0, E4SJ3, E4SJ4, E4SJ5, E4SL3
Fluoranthene	E4SH4, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0
Benzo(k)fluoranthene	E4SH5, E4SH7, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SL2, E4SL3
Chrysene	E4SH4, E4SH5, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ3, E4SJ4, E4SJ5
Benzo(a)pyrene	E4SH5, E4SH7, E4SJ3, E4SJ4, E4SJ5, E4SL3
Dibenzo(a,h)anthracene	E4SH6DL, E4SJ1, E4SJ2, E4SJ9DL, E4SL1RE
Benzo(a)anthracene	E4SH5, E4SH7, E4SJ0, E4SJ3, E4SJ4, E4SJ5, E4SL3
Acenaphthene	E4SH6, E4SH6DL
Di-n-butylphthalate	E4SH4, E4SH5, E4SH6DL, E4SH7, E4SH8, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3, E4SJ6, E4SJ7, E4SJ8, E4SJ9, E4SL0, E4SL0RE, E4SL1, E4SL1RE
Phenanthrene	E4SJ0, E4SJ3, E4SJ5, E4SJ8, E4SL3
Fluorene	E4SH6DL, E4SL0DL, E4SL1, E4SL1RE
9H-Carbazole	E4SH6, E4SH6DL

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile samples reported concentrations that exceeded the calibrated range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged estimated, “J”. The results from the diluted samples should be used for result validation. Note that for sample E4SL0RE, the results from the dilution of the original analysis should be used for result validation.

Anthracene	E4SJ9
Benzo(a)anthracene	E4SJ9
Phenanthrene	E4SL0, E4SL0RE
Fluoranthene	E4SH6, E4SJ9, E4SL0, E4SL0RE
Chrysene	E4SJ9
Pyrene	E4SJ9

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile-SIM samples are associated with an initial calibration with an average relative response factor (mean RRF) for pentachlorophenol that are below the minimum required RRF. Detected compounds are qualified J. Nondetected compounds are qualified R.

E4SH4, E4SH4DL, E4SH5, E4SH5DL, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH7DL, E4SH8, E4SH8DL, E4SH9, E4SH9DL, E4SJ0, E4SJ0DL, E4SJ1, E4SJ1DL, E4SJ2, E4SJ2DL, E4SJ3, E4SJ3DL, E4SJ4, E4SJ4DL, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ8DL, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL1, E4SL1DL, E4SL2, E4SL2DL, E4SL3, E4SL3DL

The following semivolatile-SIM samples are associated with initial calibration percent relative standard deviations (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo(g,h,i)perylene	ESH9MS, E4SH9MSD, E4SJ5DL
Chrysene	E4SH4, E4SH5, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH8, E4SH9, E4SJ0, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5
Pentachlorophenol	E4SH4, E4SH4DL, E4SH5, E4SH5DL, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH7DL, E4SH8, E4SH8DL, E4SH9, E4SH9DL, E4SJ0, E4SJ0DL, E4SJ1, E4SJ1DL, E4SJ2, E4SJ2DL, E4SJ3, E4SJ3DL, E4SJ4, E4SJ4DL, E4SJ5, E4SJ6, E4SJ7, E4SJ8, E4SJ8DL, E4SJ9, E4SJ9DL, E4SL0, E4SL0DL, E4SL1, E4SL1DL, E4SL2, E4SL2DL, E4SL3, E4SL3DL

The following semivolatile-SIM samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Pyrene	E4SH4, E4SH6, E4SH8, E4SH9, E4SJ0
Benzo (b) fluoranthene	E4SH5, E4SH6DL, E4SH6RE, E4SH7, E4SH9MS, E4SH9MSD, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5, E4SJ5DL
Chrysene	E4SH5, E4SH6DL, E4SH6RE, E4SH7, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5

The following semivolatile-SIM samples are associated with a CCV with a relative response factor (RRF50) for pentachlorophenol below the minimum required RRF. Detected compounds are qualified J. Nondetected compounds are qualified R.

Pentachlorophenol	E4SH4, E4SH5, E4SH6, E4SH6DL, E4SH6RE, E4SH7, E4SH8, E4SH9, E4SJ0, E4SJ1, E4SJ2, E4SJ3, E4SJ4, E4SJ5, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL, E4SL3DL, SBLK11

4. BLANKS

For the semivolatile-SIM method blank, SBLK11, the nondetected Pentachlorophenol result was flagged "R" by the NFG automated check procedure due to RRF failures in the associated initial and continuing calibrations. This method blank is also associated with samples E4SH9MS, E4SH9MSD, and E4SJ5DL which are not affected by calibration failures. Therefore, the nondetect result for pentachlorophenol in SBLK11 has not been removed from the "B" or "Z" files and is flagged "U," in order to preserve the nondetect flag.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Diluted semivolatile-SIM sample E4SJ8DL with dilution factors *greater* than 5 had a deuterated monitoring compound recovery for Fluoranthene-d_{10} above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

Diluted semivolatile-SIM samples E4SL0DL and E4SL1DLwith dilution factors *less* than or equal to 5 had a deuterated monitoring compound recovery for Fluoranthene-d_{10} above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Affected analytes: Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4SL2 and E4SL3 are identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates.

E4SL2 and E4SL3

Semivolatile-SIM compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Pentachlorophenol					
Naphthalene	6.4	1	4.3	1	39
2-Methylnaphthalene	4.8	1	ND	1	
Acenaphthylene	16	1	8.1	1	66
Acenaphthene	14	1	17	1	19

Semivolatile-SIM compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Fluorene	26	1	21	1	21
Phenanthrene	220	1	180	1	20
Anthracene	84	1	63	1	28
Fluoranthene	520	1	460	1	12
Pyrene	430	1	390	1	10
Benzo(a)anthracene	340	1	270	1	23
Chrysene	300	1	260	1	14
Benzo(b)fluoranthene	200	1	180	1	11
Benzo(k)fluoranthene	110	1	93	1	17
Benzo(a)pyrene	180	1	160	1	12
Indeno(1,2,3-cd)pyrene	150	1	130	1	14
Dibenzo(a,h)anthracene	79	1	66	1	18
Benzo(g,h,i)perylene	150	1	130	1	14

E4SL2DL and E4SL3DL

Semivolatile-SIM compounds	E4SL2DL µg/kg	DF	E4SL3DL µg/kg	DF	%RPD
Pentachlorophenol					
Naphthalene	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Acenaphthylene	50	1	ND	1	
Acenaphthene	ND	1	ND	1	
Fluorene	37	1	ND	1	
Phenanthrene	260	1	220	1	17
Anthracene	120	1	98	1	20
Fluoranthene	620	1	540	1	14
Pyrene	440	1	350	1	23
Benzo(a)anthracene	560	1	350	1	46
Chrysene	560	1	360	1	44
Benzo(b)fluoranthene	440	1	400	1	9.5
Benzo(k)fluoranthene	340	1	220	1	43
Benzo(a)pyrene	470	1	360	1	27
Indeno(1,2,3-cd)pyrene	400	1	280	1	35
Dibenzo(a,h)anthracene	210	1	150	1	33
Benzo(g,h,i)perylene	420	1	290	1	37

For field duplicates E4SL2 and E4SL3, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, all RPD values for all compounds except Acenaphthylene were below 50%.

For reasons noted elsewhere in this narrative, the pentachlorophenol results for E4SL2 and E4SL3 have been rejected and the results removed from the “B” and “Z” files.

8. INTERNAL STANDARDS

The following semivolatile-SIM samples have internal standard area counts that are outside the upper criteria limit. Detected compounds are qualified J. Nondetected compounds are not qualified.

Phenanthrene-d_{10} E4SH6, E4SH6RE

Affected analytes: 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine, 4-Bromophenyl-phenylether, Hexachlorobenzene, Atrazine, Pentachlorophenol, Phenanthrene, Anthracene, Carbazole, Di-n-butylphthalate, Fluoranthene

Perylene-d_{12} E4SH6, E4SH6RE, E4SJ9DL

Affected analytes: Di-n-octylphthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

Chrysene-d_{12} E4SH6, E4SH6RE

Affected analytes: Pyrene, Butylbenzylphthalate, 3,3'-Dichlorobenzidine, Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene

As described above, the original semivolatile analysis for sample E4SH6 had internal standard area counts for Phenanthrene-d_{10}, Chrysene-d_{12} and Perylene-d_{12} that were above the upper criteria limit. The sample was reanalyzed by the laboratory as sample E4SH6RE. The reanalysis had the same internal standard failures. The results from the original analysis should be used for result validation.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile-SIM samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J". Nondetected compounds are not qualified.

Anthracene	E4SJ0DL
Acenaphthylene	E4SH7, E4SJ3
Fluorene	E4SL2DL
Pentachlorophenol	E4SJ2, E4SJ3DL

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". The results from the diluted samples should be used for result validation.

Naphthalene	E4SL0
2-Methylnaphthalene	E4SH6, E4SL0, E4SL1
Acenaphthylene	E4SJ9, E4SL0, E4SL1
Acenaphthene	E4SH6, E4SJ1, E4SJ2, E4SJ9, E4SL0, E4SL1
Fluorene	E4SH6, E4SJ1, E4SJ2, E4SJ9, E4SL0, E4SL1
Phenanthrene	E4SH4 – E4SH6, E4SH7, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Anthracene	E4SH5, E4SH6, E4SJ1, E4SJ2, E4SJ5, E4SJ8, E4SJ9, E4SJ0, E4SL1, E4SL2, E4SL3,
Fluoranthene	E4SH4, E4SH6, E4SH7 – E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ2, E4SJ3, E4SJ4, E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Pyrene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(a)anthracene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Chrysene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0, E4SJ1, E4SJ2, E4SJ3 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(b)fluoranthene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(k)fluoranthene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(a)pyrene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Indeno(1,2,3-cd)pyrene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3

Dibenzo(a,h)anthracene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3
Benzo(g,h,i)perylene	E4SH4 – E4SH6, E4SH7, E4SH9, E4SH9MS, E4SH9MSD, E4SJ0 – E4SJ5, E4SJ8, E4SJ9, E4SL0, E4SL1, E4SL2, E4SL3

Semivolatile-SIM sample E4SJ1 reported concentrations for Acenaphthene and Fluorene that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". The result from the diluted sample was nondetected for Acenaphthene and Fluorene. The result from the original analysis should be used for result validation.

The following diluted semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". No further dilutions were performed. The results from these diluted samples should be used for result validation.

2-Methylnaphthalene	E4SL0DL
Acenaphthene	E4SL0DL
Fluorene	E4SJ9DL, E4SL0DL
Phenanthrene	E4SH6DL, E4SJ2DL, E4SJ9DL, E4SL0DL, E4SL1DL
Anthracene	E4SH6DL, E4SJ9DL, E4SJ0DL, E4SL1DL
Fluoranthene	E4SH6DL, E4SJ2DL, E4SJ3DL, E4SJ4DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL, E4SL3DL
Pyrene	E4SH6DL, E4SJ2DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(a)anthracene	E4SH6DL, E4SJ2DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Chrysene	E4SH6DL, E4SJ2DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(b)fluoranthene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(k)fluoranthene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Benzo(a0pyrene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Indeno(1,2,3-cd)pyrene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL
Dibenzo(a,h)anthracene	E4SH6DL, E4SJ8DL, E4SJ9DL,E4SL0DL, E4SL1DL, E4SL2DL,
Benzo(g,h,i)perylene	E4SH6DL, E4SJ8DL, E4SJ9DL, E4SL0DL, E4SL1DL, E4SL2DL

Sample E4SH6RE represents a reanalysis performed due to internal standard failure in the original analysis. For this analysis the following compounds had concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. No dilutions were performed for this reanalyses. The results from the dilution of the original analysis should be used for result validation.

Affected analytes: 2-Methylnaphthalene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

No problems were found

4. BLANKS

No problems were found

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

A surrogate recovery between 150 – 200 % was obtained on only one column for sample E4SL0. The high recovery likely indicates a coelution or matrix interference on that column at the retention time for that surrogate. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. The sample results are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SL2 and E4SL3 were identified as field duplicates**.** Results are summarized in the following table. Sample results are not qualified based on the results of field duplicates. No field blank was associated with this SDG.

E4SL2 and E4SL3

Pesticide compound	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	ND	1	ND	1	

Pesticide compound	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	3.8	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	ND	1	5.8	1	
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicates E4SL2 and E4SL3, RPDs were not calculated because one or both results were nondetected.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations reported below the MDL. The affected results are elevated to the quantitation limit and are flagged “U”.

4,4’-DDE	E4SH5, E4SJ5, E4SL1, E4SL2, E4SL3
4,4’-DDD	E4SJ5, E4SJ7
Endosulfan II	E4SJ7
4,4’-DDT	E4SJ7, E4SL2
Methoxychlor	E4SJ7
Endrin ketone	E4SJ7
Endosulfan sulfate	E4SJ7

The following pesticide samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

4,4'-DDT	E4SL1

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

4,4'-DDE	E4SJ2

The following pesticide sample had a percent difference between the results on the two GC columns exceeding 50% and the result is below the CRQL. Detected compounds are qualified "U" and elevated to the CRQL. Nondetected compounds are not qualified.

4,4'-DDT	E4SJ2

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

Results for the following samples were flagged "U" during the NFG automated checking process. It is unclear why this flag was applied, and based on our review findings the results for the following compounds in the samples are valid. Consequently the "U" validator flags have been removed from the "B" and "Z" files.

Dieldrin	E4SJ5, E4SH9MS, E4SH9MSD
Endrin	E4SJ5, E4SH9MS, E4SH9MSD
4,4'-DDT	E4SL0
4,4'-DDE	E4SH9, E4SJ1, E4SJ9, E4SL0, E4SH9MS, E4SH9MSD

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

All Aroclor samples in this SDG had acceptable surrogate recoveries on one or both columns for the original analyses. No samples were qualified based on surrogate recovery.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared from sample E4S60, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016 and Aroclor-1260, and the RPD exceeded criteria for Aroclor-1260 on one column. This is likely due to high levels of Aroclor-1248 and Aroclor-1260 in the unspiked sample. Only sample E4S60 is affected. Detected results are qualified "J". Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SL2 and E4SL3 were identified as field duplicates**.** Results are summarized in the following table: Sample results are not qualified based on the results of field duplicates. Note that no field blank was collected for this SDG.

E4SL2 and E4SL3

Aroclor compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	200	1	240	1	18
Aroclor-1254					

Aroclor compounds	E4SL2 µg/kg	DF	E4SL3 µg/kg	DF	%RPD
Aroclor-1260	21	1	49	1	80
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4SL2 and E4SL3, RPD values are not calculated when one or both results are nondetects. Aroclor-1260 had an RPD value above 50 percent.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1248 E4SH4, E4SJ2, E4SL1

Aroclor-1254 E4SH4, E4SH7, E4SJ3, E4SJ4, E4SL1

Aroclor-1260 E4SJ9

The following Aroclor samples have percent differences between analyte results in the range of 26 – 50%. Detected compounds are qualified "J".

Aroclor-1260 E4SJ9DL

Aroclor-1254 E4SH9

Aroclor-1248 E4SH5, E4SH6, E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ1, E4SJ9, E4SJ9DL, E4SL0, E4SL3

Aroclor-1016 E4SH9MS, E4SH9MSD

The following Aroclor samples had percent differences between analyte results in the range of 51 – 100%. Detected compounds are qualified "NJ".

Aroclor-1254 E4SJ1DL, E4SL0

Aroclor-1248 E4SH9, E4SJ1DL, E4SL2

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260 E4SJ1DL

Aroclor-1254 E4SJ2, E4SJ9DL

Aroclor-1248 E4SH7, E4SJ3, E4SJ4, E4SL1

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1254 E4SH5, E4SH6, E4SH6DL, E4SH9MS, E4SH9MSD, E4SJ1, E4SJ9, E4SL2, E4SL3

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where dilutions are provided the results from the diluted sample should be used.

E4SH6, E4SJ1 Aroclor-1248

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 16, 2010

Subject: Review of Data
Received for Review on May 12, 2010

From: Caryn Wojtowicz
Senior Chemist

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39668 MRN: None SDG Number: E4SL4

Number and Type of Samples: Twenty (20) sediment samples

Sample Numbers: E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8, E4SM9, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Introduction: Three coolers containing twenty (20) sediment samples, labeled E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5 through E4SM9 and E4SN0 through E4SN8, were shipped to KAP Technologies, Inc. located in The Woodlands, Texas. The samples were collected on 04/15/2010 and 04/16/2010 and were received at the laboratory on 04/16/2010 and 04/17/2010, intact at 3.3, 1.6, and 1.5°C.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2.Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Three sets of field duplicates are associated with this SDG; E4SM0 and E4SM1, E4SM6 and E4SM7, and E4SN5 and E4SN6. There are no field blanks associated with this SDG. Sample E4SM9 was designated for laboratory QC, i.e. MS/MSD.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOM01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatile-SIM, Pesticides, and Aroclors.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

Semivolatile method blanks SBLK17 and SBLK19 are associated with an initial calibration in which a surrogate/DMC exceeded percent relative standard deviation (%RSD) criteria. Detected and nondetected compounds are not qualified.

Semivolatile method blanks SBLK17 and SBLK19 are associated with initial calibration percent relative standard deviations (%RSD) for various target analytes were outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria for pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SL9, E4SM3, E4SM7 Pentachlorophenol

The following semivolatile samples are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Less sensitivity was found in the continuing calibration than was present in the initial calibration. Nondetected compounds are qualified UJ.

E4SM0, E4SM5, E4SM8DL, E4SN4, E4SN6, E4SN7DL 2,4-Dimethylphenol

Semivolatile method blanks SBLK17 and SBLK19 are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Less sensitivity was found in the continuing calibration than was present in the initial calibration. Nondetected compounds are qualified UJ.

Semivolatile method blanks SBLK17 and SBLK19 are associated with a CCV with relative response factors for Pentachlorophenol (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.

Semivolatile method blanks SBLK17 and SBLK19 are associated with a continuing calibration in which a surrogate/DMC exceeded percent difference (%D) criteria. Detected and nondetected compounds are not qualified.

4. BLANKS

No problems were found other than those mentioned regarding the calibrations with which they are associated.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

E4SL9 Anthracene-d_{10}	Anthracene, Atrazine, Hexachlorobenzene, Phenanthrene
E4SL9 Phenol-d_5	Benzaldehyde, Phenol
E4SM0 Fluorene-d_{10}	4-Bromophenyl-phenylether, 4-Chlorophenyl-phenylether, Carbazole, Dibenzofuran, Fluorene
E4SL9, E4SM0 Acenaphthylene-d_8	2-Chloronaphthalene, 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Naphthalene

Diluted semivolatile sample E4SM8DL with dilution factors less than or equal to 5 has deuterated monitoring compound recovery above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo(a)pyrene-d_{12}	Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for semivolatiles.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 AND E4SN5/E4SN6. Results are summarized in the following tables. For field duplicates, RPDs are not calculated where one or both results were nondetected. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
Bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	ND	ND	
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	370	340	8.5
Anthracene	ND	ND	
Carbazole	ND	ND	
Di-n-butylphthalate	ND	110	
Fluoranthene	800	830	3.7
Pyrene	490	540	9.7

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	300	260	14.3
Chrysene	330	350	5.9
Bis(2-ethylhexyl)phthalate	180	ND	
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	230	370	46.7
Benzo(k)fluoranthene	260	330	23.7
Benzo(a)pyrene	320	310	3.2
Indeno(1,2,3-cd)pyrene	230	250	8.3
Dibenzo(a,h)anthracene	100	110	9.5
Benzo(g,h,i)perylene	260	270	3.8
2,3,4,6-Tetrachlorophenol	ND	ND	

All RPD values were less than 50 percent.

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
Bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	ND	ND	
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	160	210	27
Anthracene	ND	ND	
Carbazole	ND	ND	
Di-n-butylphthalate	240	130	59.5
Fluoranthene	540	840	43.5
Pyrene	390	930	81.8
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	230	390	51.6
Chrysene	250	380	41.3
Bis(2-ethylhexyl)phthalate	ND	2100	
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	260	340	26.7
Benzo(k)fluoranthene	230	230	0
Benzo(a)pyrene	260	340	26.7
Indeno(1,2,3-cd)pyrene	170	190	11.1
Dibenzo(a,h)anthracene	ND	ND	
Benzo(g,h,i)perylene	180	210	15.4
2,3,4,6-Tetrachlorophenol	ND	ND	

With the exception of Di-n-butylphthalate, Pyrene, and Benzo(a)anthracene all RPD values were less than 50 percent.

Semivolatile Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
Benzaldehyde	ND	ND	
Phenol	ND	ND	
Bis(2-chloroethyl)ether	ND	ND	
2-Chlorophenol	ND	ND	
2-Methylphenol	ND	ND	
2,2'-Oxybis(1-chloropropane)	ND	ND	
Acetophenone	ND	ND	
4-Methylphenol	ND	ND	
N-Nitroso-di-n-propylamine	ND	ND	
Hexachloroethane	ND	ND	
Nitrobenzene	ND	ND	
Isophorone	ND	ND	
2-Nitrophenol	ND	ND	
Bis(2-chloroethoxy)methane	ND	ND	
2,4-Dichlorophenol	ND	ND	
Naphthalene	ND	ND	
4-Chloroaniline	ND	ND	
2,4-Dimethylphenol	ND	ND	
Hexachlorobutadiene	ND	ND	
Caprolactam	ND	ND	
4-Chloro-3-methylphenol	ND	ND	
2-Methylnaphthalene	ND	ND	
2,4,5-Trichlorophenol	ND	ND	
1,1'-Biphenyl	ND	ND	
2-Chloronaphthalene	ND	ND	
2-Nitroaniline	ND	ND	
Dimethylphthalate	ND	ND	
2,6-Dinitrotoluene	ND	ND	
Acenaphthylene	ND	ND	
3-Nitroaniline	ND	ND	
Acenaphthene	ND	ND	
2,4-Dinitrophenol	ND	ND	
4-Nitrophenol	ND	ND	
Dibenzofuran	ND	ND	
2,4-Dinitrotoluene	ND	ND	
Diethylphthalate	ND	ND	
Fluorene	120	120	0
4-Chlorophenyl-phenylether	ND	ND	
4-Nitroaniline	ND	ND	

Semivolatile Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
4,6-Dinitro-2-methylphenol	ND	ND	
N-Nitrosodiphenylamine	ND	ND	
1,2,4,5-Tetrachlorobenzene	ND	ND	
4-Bromophenyl-phenylether	ND	ND	
Hexachlorobenzene	ND	ND	
Atrazine	ND	ND	
Pentachlorophenol	ND	ND	
Phenanthrene	1100	1000	9.5
Anthracene	290	230	23.1
Carbazole	110	100	9.5
Di-n-butylphthalate	250	270	7.7
Fluoranthene	2600	2700	3.8
Pyrene	1200	1200	0
Butylbenzylphthalate	ND	ND	
3,3'-Dichlorobenzidine	ND	ND	
Benzo(a)anthracene	810	740	9
Chrysene	930	890	4.4
Bis(2-ethylhexyl)phthalate	260	1300	133.3
Di-n-octylphthalate	ND	ND	
Benzo(b)fluoranthene	620	810	26.6
Benzo(k)fluoranthene	640	740	14.5
Benzo(a)pyrene	570	760	28.6
Indeno(1,2,3-cd)pyrene	490	560	13.3
Dibenzo(a,h)anthracene	240	270	11.8
Benzo(g,h,i)perylene	500	610	19.8
2,3,4,6-Tetrachlorophenol	ND	ND	

With the exception of Bis(2-ethylhexyl)phthalate, all RPD values were less than 50 percent.

7. INTERNAL STANDARDS

No problems were found.

8. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that compounds were properly identified.

9. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

4-Methylphenol	E4SL7
Bis(2-Ethylhexyl)phthalate	E4SL4, E4SL7, E4SM0, E4SM8, E4SN3, E4SN8

Anthracene	E4SL4, E4SL7, E4SL9, E4SM5, E4SM9, E4SM9MS, 4SM9MSD, E4SN0, E4SN6, E4SN7DL
Pyrene	E4SM3
Dibenzofuran	E4SN1
Benzo(g,h,i)perylene	E4SL9, E4SM3, E4SM6, E4SM7
Indeno(1,2,3-cd)pyrene	E4SL9, E4SM6, E4SM7
Benzo(b)fluoranthene	E4SM3
Benzo(k)fluoranthene	E4SL9, E4SM3, E4SM6, E4SM7
Chrysene	E4SM3
Benzo(a)pyrene	E4SM3
Dibenzo(a,h)anthracene	E4SL4, E4SL7, E4SM0, E4SM1, E4SM8DL, E4SM9, E4SM9MSD, E4SN2, E4SN3, E4SN4, E4SN7DL, E4SN8
Benzo(a)anthracene	E4SM3, E4SM6
Acenaphthene	E4SN1DL, E4SN7
Di-n-butylphthalate	E4SL7, E4SM1, E4SM3, E4SM7, E4SM9MSD, E4SN0, E4SN1DL, E4SN4, E4SN7
Phenanthrene	E4SM6, E4SM7
Butylbenzylphthalate	E4SN1
Fluorene	E4SL4, E4SM8, E4SN1DL, E4SN5, E4SN6
9H-Carbazole	E4SM8, E4SN1DL, E4SN5, E4SN6, E4SN

10. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

11. ADDITIONAL INFORMATION

The following semivolatile samples reported concentrations that exceeded the calibration range of the instrument and were flagged “E” by the laboratory. As per the NFG, these results are flagged “J”. The results from the diluted sample should be used for result validation.

E4SM8	Fluoranthene
E4SN1	Fluoranthene, Pyrene
E4SN7	Fluoranthene

SEMIVOLATILES SIM (PAH-SIM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

All semivolatile SIM samples are associated with an initial calibration percent relative standard deviation for Benzo(g,h,i)perylene (%RSD) outside criteria. Detected Benzo(g,h,i)perylene is qualified J. Nondetected Benzo(g,h,i)perylene is not qualified.

All semivolatile SIM samples are associated with incorrect initial calibration sequences. All compounds listed exhibit a decrease in sensitivity. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

Benzo(g,h,i)perylene	E4SM7DL, E4SM8DL, E4SM9DL, E4SN0DL, E4SN1DL, E4SN2DL, E4SN3DL, E4SN4DL, E4SN5DL, E4SN6DL, E4SN7DL, E4SN8DL
Benzo(b)fluoranthene	E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8
Phenanthrene	E4SL4, E4SL4DL, E4SL7, E4SL7DL, E4SL9, E4SL9DL, E4SM0, E4SM0DL, E4SM1, E4SM1DL, E4SM3, E4SM3DL, E4SM5, E4SM5DL, E4SM6, E4SM6DL, E4SM7, E4SM8, E4SM9, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

The following semivolatile samples are associated with a CCV for Pentachlorophenol with relative response factors (RRF50) outside criteria. Detected Pentachlorophenol is qualified J. Nondetected Pentachlorophenol is qualified R.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted semivolatile samples with dilution factors greater than 5 have deuterated monitoring compound recovery above the upper limit of the criteria window. Detected and nondetected compounds are not qualified.

E4SN7DL Fluoranthene-d_{10}

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The semivolatile-SIM matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit for Pentachlorophenol. Detected compounds are qualified J. Nondetected compounds are not qualified. The MS/MSD samples have negative percent recoveries that are greater than the acceptance limit for Pyrene. As the spiking level was inappropriately low in comparison to the native levels of Pyrene present in the sample, no data were qualified based on the Pyrene failure.

E4SK9, E4SK9MS, E4SK9MSD Pentachlorophenol, Pyrene

6B. LABORATORY CONTROL SAMPLE

Not applicable to semivolatile-SIM.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 and E4SN5/E4SN6. Results are summarized in the following tables. For field duplicates, RPDs are not calculated where one or both results were nondetected. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Semivolatile Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Naphthalene	4.5	4.3	4.5
2-Methylnaphthalene	3.7	3.8	2.7
Acenaphthylene	7.3	8.7	17.5
Acenaphthene	21	16	27
Fluorene	26	19	31.1
Phenanthrene	310	310	0
Anthracene	74	40	59.6
Fluoranthene	660	750	12.8
Pyrene	490	570	15.1
Benzo(a)anthracene	310	290	6.7
Chrysene	300	350	15.4
Benzo(b)fluoranthene	330	410	21.6
Benzo(k)fluoranthene	230	290	23.1
Benzo(a)pyrene	270	290	7.1
Indeno(1,2,3-cd)pyrene	120	160	28.6
Dibenzo(a,h)anthracene	60	71	16.8
Benzo(g,h,i)perylene	120	160	28.6
Pentachlorophenol	4.5	ND	

With the exception of Anthracene, all RPD values were less than 50 percent.

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
Naphthalene	6.2	4.9	23.4

Semivolatile Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
2-Methylnaphthalene	ND	7.8	
Acenaphthylene	37	99	91.2
Acenaphthene	6.7	6.8	1.5
Fluorene	12	12	0
Phenanthrene	140	190	30.3
Anthracene	51	68	28.6
Fluoranthene	480	760	45.2
Pyrene	380	730	63.1
Benzo(a)anthracene	270	480	56
Chrysene	250	390	43.8
Benzo(b)fluoranthene	230	350	41.4
Benzo(k)fluoranthene	180	310	53.1
Benzo(a)pyrene	210	400	62.3
Indeno(1,2,3-cd)pyrene	98	140	35.3
Dibenzo(a,h)anthracene	46	65	34.2
Benzo(g,h,i)perylene	98	140	35.3
Pentachlorophenol	ND	6.5	

With the exception of Acenaphthylene, Pyrene, Benzo(a)anthracene, Benzo(k)fluoranthene, and Benzo(a)pyrene, all RPD values were less than 50 percent.

Semivolatile Analyte	E4SM6DL ug/kg	E4SM7DL ug.kg	%RPD
Naphthalene	ND	ND	
2-Methylnaphthalene	ND	ND	
Acenaphthylene	ND	74	
Acenaphthene	ND	ND	
Fluorene	ND	ND	
Phenanthrene	160	210	27
Anthracene	83	96	14.5
Fluoranthene	520	790	41.2
Pyrene	380	790	70.1
Benzo(a)anthracene	210	370	55.2
Chrysene	230	390	51.6
Benzo(b)fluoranthene	99	96	3.1
Benzo(k)fluoranthene	130	120	8
Benzo(a)pyrene	130	150	14.3
Indeno(1,2,3-cd)pyrene	78	58	29.4
Dibenzo(a,h)anthracene	ND	ND	
Benzo(g,h,i)perylene	89	67	28.2
Pentachlorophenol	ND	ND	

With the exception of Pyrene, Benzo(a)anthracene and Chrysene, all RPD values were less than 50 percent.

Semivolatile Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
Naphthalene	12	18	40
2-Methylnaphthalene	12	12	0
Acenaphthylene	41	32	24.7
Acenaphthene	64	58	9.8
Fluorene	92	95	3.2
Phenanthrene	850	820	3.6
Anthracene	230	210	9.1
Fluoranthene	1700	1900	11.1
Pyrene	1400	1300	7.4
Benzo(a)anthracene	950	870	8.8
Chrysene	910	900	1.1
Benzo(b)fluoranthene	740	1200	47.4
Benzo(k)fluoranthene	520	850	48.2
Benzo(a)pyrene	560	900	46.6
Indeno(1,2,3-cd)pyrene	230	400	54
Dibenzo(a,h)anthracene	110	190	53.3
Benzo(g,h,i)perylene	230	400	54
Pentachlorophenol	5.1	ND	

With the exception of Dibenzo(a,h)anthracene, all RPD values were less than 50 percent.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the selected ion monitoring and chromatograms it appears that compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J.

Anthracene	E4SM3DL
Acenaphthene	E4SL9DL
Pentachlorophenol	E4SM0, E4SM7, E4SM8, E4SN0, E4SN5
2-Methylnaphthalene	E4SL9, E4SM0, E4SM1

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4SL4	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL7	Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM8	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM9	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SL9	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM0	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM1	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM3	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SM5	Acenaphthylene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E4SM6	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SM7	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM8	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM9	Acenaphthylene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN0	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN1	Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN2	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN3	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN4	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN5	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN6	Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

E4SN7	Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SN8	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated. "J". No further dilution analysis was performed. Refer to the full-scan analysis for results within the calibrated range.

E4SL4DL	Phenanthrene, Fluoranthene, Pyrene
E4SL7DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
E4SL9DL	Fluoranthene
E4SM0DL	Fluoranthene
E4SM1DL	Fluoranthene, Pyrene
E4SM5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene,
E4SM6DL	Fluoranthene
E4SM7DL	Fluoranthene, Pyrene
E4SM8DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenzo(a,h)anthracene, Benzo(g,h,i)perylene
E4SM9DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
E4SN0DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene,
E4SN1DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SN2DL	Fluoranthene, Benzo(b)fluoranthene
E4SN3DL	Fluoranthene, Pyrene, Chrysene, Benzo(k)fluoranthene, Benzo(a)Pyrene
E4SN4DL	Fluoranthene, Pyrene

E4SN5DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
E4SN6DL	Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
E4SN7DL	Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene
E4SN8DL	Fluoranthene, Pyrene

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found in the pesticide method blanks. Several instrument blanks had target compounds present below the CRQL.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The MSD result for Aldrin has percent recovery greater than the upper acceptance limit on one column. Since the surrogate recovery was acceptable on the other column, the extraction procedure is not suspect. Detected compounds and nondetected compounds are not qualified. The "J" flag applied in the automated check process was overridden, unless applied for another reason. Detected and nondetected compounds are not qualified.

E4SM9, E4SM9MSD Aldrin

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 AND E4SN5/E4SN6. Results are summarized in the following tables. For field duplicates, RPDs are not calculated where one or both results were nondetected. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Pesticide Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	

Pesticide Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	
4,4'-DDE	ND	ND	
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	ND	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	ND	ND	
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

All RPD values were less than 50 percent.

Pesticide Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	
4,4'-DDE	9.8	11	11.5
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	13	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	6.8	7	2.9
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	

Pesticide Analyte	E4SM6 ug/kg	E4SM7 ug/kg	%RPD
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

All RPD values were less than 50 percent.

Pesticide Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
alpha-BHC	ND	ND	
beta-BHC	ND	ND	
delta-BHC	ND	ND	
gamma-BHC (Lindane)	ND	ND	
Heptachlor	ND	ND	
Aldrin	ND	ND	
Heptachlor epoxide	ND	ND	
Endosulfan I	ND	ND	
Dieldrin	ND	ND	
4,4'-DDE	1.7	ND	
Endrin	ND	ND	
Endosulfan II	ND	ND	
4,4'-DDD	ND	ND	
Endosulfan sulfate	ND	ND	
4,4'-DDT	5.9	ND	
Methoxychlor	ND	ND	
Endrin ketone	ND	ND	
Endrin aldehyde	ND	ND	
alpha-Chlordane	ND	ND	
gamma-Chlordane	ND	ND	
Toxaphene	ND	ND	

8. INTERNAL STANDARDS

Not applicable to pesticides.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples are associated with an instrument blank which has compound concentrations below the MDL. Detected compounds are qualified U and reported at the CRQL if the sample concentration is above the MDL but less than the CRQL. Nondetected compounds are not qualified. Sample results above the CRQL are not qualified.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8, E4SM9, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

Heptachlor epoxide, Endosulfan sulfate, gamma-Chlordane, gamma-BHC (Lindane), Dieldrin, Endrin, 4,4'-DDE

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

4,4'-DDT	E4SM5, E4SM7, E4SN1
gamma-BHC (Lindane)	E4SM9MSD
4,4'-DDD	E4SM6
4,4'-DDE	E4SM5, E4SM7

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aldrin	E4SM9MSD

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aldrin	E4SM9MS

11. SYSTEM PERFORMANCE

No problems were found.

12. ADDITIONAL INFORMATION

No dilution analyses were required for pesticides.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following Aroclor samples are associated with an opening or closing CCV with % Difference of a surrogate exceeding criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3, E4SM5, E4SM6, E4SM7, E4SM8, E4SM9, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN4, E4SN5, E4SN6, E4SN7, E4SN8

The RT of Aroclor-1248 in the midpoint Aroclor CCV fell outside the RT window established during the initial calibration. Detected and nondetected compounds are not qualified.

E4SL4, E4SL7, E4SL9, E4SM0, E4SM1, E4SM3

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following diluted Aroclor samples with dilution factors greater than 5 have surrogate percent recoveries that are greater than 200%. Detected and nondetected compounds are not qualified.

E4SM8DL, E4SN7DL

Aroclor sample E4SN7 has surrogate percent recoveries which exceed 150% but are less than or equal to 200%. Detected compounds are qualified J. Nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The Aroclor matrix spike and matrix spike duplicate sample have percent recovery of Aroclor-1016 that is greater than the upper acceptance limit on one column. The NFG automated flagging of detected Aroclor-1016 as J in the original sample, MS and MSD has been overridden. No data has been qualified based on MS/MSD results.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Three sets of field duplicates are associated with this SDG; E4SM0/E4SM1, E4SM6/E4SM7 AND E4SN5/E4SN6. Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates. No field blank sample was collected for this SDG.

Aroclor Analyte	E4SM0 ug/kg	E4SM1 ug/kg	%RPD
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	ND	55	
Aroclor-1254	ND	41	
Aroclor-1260	ND	10	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

Aroclor Analyte	E4SM6 ug/kg	E4SM7 ug/kg	
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	250	310	21.4
Aroclor-1254	220	320	37
Aroclor-1260	ND	76	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

Aroclor Analyte	E4SN5 ug/kg	E4SN6 ug/kg	%RPD
Aroclor-1016	ND	ND	
Aroclor-1221	ND	ND	
Aroclor-1232	ND	ND	
Aroclor-1242	ND	ND	
Aroclor-1248	150	ND	
Aroclor-1254	61	ND	
Aroclor-1260	25	ND	
Aroclor-1262	ND	ND	
Aroclor-1268	ND	ND	

RPDs were not calculated where one or both results were nondetects. All calculated RPDs were below the 50% criterion.

8. INTERNAL STANDARDS

Not applicable to Aroclors.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified J. Nondetected compounds are not qualified.

Aroclor-1254	E4SM3, E4SM8DL, E4SN0DL
Aroclor-1248	E4SN2, E4SN4

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified J.

Aroclor-1260	E4SL9, E4SM1, E4SN1, E4SN5
Aroclor-1254	E4SN7DL
Aroclor-1248	E4SL4, E4SM1, E4SM3, E4SM8DL, E4SM9MS, E4SM9MSD, E4SN0, E4SN1, E4SN2, E4SN3, E4SN5

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified NJ.

Aroclor-1254	E4SL4DL, E4SL7, E4SM5, E4SM6, E4SM7, E4SM9, E4SM9MS, E4SM9MSD, E4SN3, E4SN7, E4SN8
Aroclor-1248	E4SL4DL, E4SL7, E4SL9

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260	E4SL4DL, E4SM8DL, E4SN0DL
Aroclor-1254	E4SM1, E4SM3, E4SM8DL, E4SN0DL, E4SN2
Aroclor-1248	E4SN4

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified R.

Aroclor-1254	E4SL4, E4SL9, E4SM8, E4SN0, E4SN1, E4SN5
Aroclor-1248	E4SN8
Aroclor-1016	E4SM9MS, E4SM9MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibration range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". The results from the diluted sample should be used for result validation.

E4SM8	Aroclor-1248
E4SN0	Aroclor-1248
E4SN7	Aroclor-1248, Aroclor-1254

Sample E4SL4 was analyzed at a dilution, although it was not required, because Aroclor-1248 was within the calibrated range in the original analysis.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 13, 2010

Subject: Review of Data
Received for Review on: April 26, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park (WI)

Case Number: 39668 MRN: NA SDG Number: E4SN9

Number and Type of Samples: 17 Sediment Samples

Sample Numbers: E4SN9, E 4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2,E4SQ3, E4SQ4, E4SQ5

Laboratory: KAP Technologies

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: Seventeen (17) sediment samples labeled E4SN9, E 4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, and E4SQ5, were shipped to KAP Technologies, Inc., in The Woodlands, Texas. All samples were collected on 4/16/2010 and were received at the laboratory on 4/17/2010 at 1.4 – 1.5 °C.

Sample Analysis and Data Review: All samples were analyzed according to CLP SOW SOM01.2 . Samples were reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of Data, USEPA Contract Laboratory Program.

Contrary to the CLP reporting requirements that censor results at the sample-specific quantitation limits, the results for some samples in this SDG were reported at values below the sample-specific detection limits and qualified by the lab with the "J" flag. The EDD, Form 1s, and other data summary forms (3 and 10) for the samples in this SDG were affected. As detailed later in this narrative, sample results reported below the reporting detection limit have been elevated to the quantitation limit and qualified "U" in the "B" and "Z" files. GLNPO may wish to obtain revised copies of the summary forms package from the laboratory if there is a problem identifying the appropriate data because of these discrepancies.

When the laboratory detects an analyte at a concentration that is less than the CRQL (but at or above the MDL), the CLP SOW requires that they report the concentration with the "J" flag. In addition, the automated data checking process used at SMO examines the final results on Form 1 and applies a validator flag of "J" if the result is at or below the CRQL, rather than strictly below the CRQL. Examination of the raw data shows that some of the validator "J" flags are applied to results that round up to the CRQL, but that are below the CRQL before rounding. CSC has not removed the validator J flags for such samples.

Tentatively Identified Compounds (TICs): As per the CLP SOW SOMO01.2, for the semivolatile analysis, TICs were identified by the laboratory and reported on the Form 1 for each sample. These compounds are not included in the "B" or "Z" files and were not evaluated by the reviewer.

MS/MSD evaluation: In instances where the matrix spike recoveries or the RPDs are negative, those negative values do not reflect the performance of the analytical method in the matrix of interest, but are a function of disparities between default spiking levels and the background concentrations in the original unspiked sample. Therefore, no sample results will be qualified when negative recoveries or RPDs are encountered.

Samples E4SP6 and E4SP7 failed the acceptance limits for one or more internal standards for SVOA and SVOA-SIM analyses; repeat analyses also failed. Failure was due to the sample matrix.

Sample E4SP6 had target compound concentrations above the calibration range for SVOA analysis and was analyzed using sample dilutions. All samples had target compound concentrations above the calibration range for SVOA-SIMs analysis and were analyzed using sample dilutions.

Sample E4SP6 also had target compound concentrations above the calibration range for Aroclors analysis and was analyzed at dilutions within the calibration range.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples in this SDG. The samples are actually "sediment" samples.

No QC sample was designated on the traffic reports for this SDG. Sample E4SP6 was used for laboratory QC, i.e. MS/MSDs.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified samples E4SP0/E4SP1and E4SP8/E4SP9 as field duplicate pairs.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Pentachlorophenol	E4SP6MS, E4SP6MSD, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5

The following semivolatile samples are associated with a CCV with a relative response factor (RRF50) for pentachlorophenol below the minimum required RRF. Detected compounds are qualified "J." Nondetected compounds are qualified "R."

E4SP6MS, E4SP6MSD, E4SQ5

The following semivolatile samples are associated with a closing CCV standard that has a percent difference value outside criteria (±50%).

E4SP6MS, E4SP6MSD, E4SQ5

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery for 4-Methylphenol-d_8 above the upper limit of the criteria window. Detected compounds are qualified "J." Nondetected compounds are not qualified.

2,4-Dimethylphenol, 2-Methylphenol, 4-Methylphenol	E4SQ1, E4SQ4

The following semivolatile samples have deuterated monitoring compound recovery for Pyrene-d_{10} below the lower limit of the criteria window. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Benzo(a)anthracene, Chrysene, Fluoranthene, Pyrene	E4SP2, E4SP5, E4SP6, E4SP6RE, E4SP7, E4SP7RE

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Semivolatile compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Benzaldehyde	ND	1	ND	1	
Phenol	ND	1	ND	1	
Bis(2-chloroethyl)ether	ND	1	ND	1	
2-Chlorophenol	ND	1	ND	1	
2-Methylphenol	ND	1	ND	1	
2,2'-Oxybis(1-chloropropane)	ND	1	ND	1	
Acetophenone	ND	1	ND	1	
4-Methylphenol	ND	1	ND	1	
N-Nitroso-di-n-propylamine	ND	1	ND	1	
Hexachloroethane	ND	1	ND	1	
Nitrobenzene	ND	1	ND	1	
Isophorone	ND	1	ND	1	
2-Nitrophenol	ND	1	ND	1	
Bis(2-chloroethoxy)methane	ND	1	ND	1	
2,4-Dichlorophenol	ND	1	ND	1	
Naphthalene	ND	1	ND	1	
4-Chloroaniline	ND	1	ND	1	
2,4-Dimethylphenol	ND	1	ND	1	
Hexachlorobutadiene	ND	1	ND	1	
Caprolactam	ND	1	ND	1	
4-Chloro-3-methylphenol	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Hexachlorocyclopentadiene	ND	1	ND	1	
2,4,6-Trichlorophenol	ND	1	ND	1	
2,4,5-Trichlorophenol	ND	1	ND	1	
1,1'-Biphenyl	ND	1	ND	1	
2-Chloronaphthalene	ND	1	ND	1	
2-Nitroaniline	ND	1	ND	1	

Semivolatile compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Dimethylphthalate	ND	1	ND	1	
2,6-Dinitrotoluene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
3-Nitroaniline	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
2,4-Dinitrophenol	ND	1	ND	1	
4-Nitrophenol	ND	1	ND	1	
Dibenzofuran	ND	1	ND	1	
2,4-Dinitrotoluene	ND	1	ND	1	
Diethylphthalate	ND	1	ND	1	
Fluorene	ND	1	ND	1	
4-Chlorophenyl-phenylether	ND	1	ND	1	
4-Nitroaniline	ND	1	ND	1	
4,6-Dinitro-2-methylphenol	ND	1	ND	1	
N-Nitrosodiphenylamine	ND	1	ND	1	
1,2,4,5-Tetrachlorobenzene	ND	1	ND	1	
4-Bromophenyl-phenylether	ND	1	ND	1	
Hexachlorobenzene	ND	1	ND	1	
Atrazine	ND	1	ND	1	
Pentachlorophenol	ND	1	ND	1	
Phenanthrene	130	1	200	1	42
Anthracene	ND	1	ND	1	
Carbazole	ND	1	ND	1	
Di-n-butylphthalate	ND	1	ND	1	
Fluoranthene	280	1	500	1	56
Pyrene	250	1	350	1	33
Butylbenzylphthalate	ND	1	ND	1	
3,3'-Dichlorobenzidine	ND	1	ND	1	
Benzo(a)anthracene	160	1	250	1	44
Chrysene	200	1	310	1	43
Bis(2-ethylhexyl)phthalate	ND	1	ND	1	
Di-n-octylphthalate	ND	1	ND	1	
Benzo(b)fluoranthene	150	1	310	1	70
Benzo(k)fluoranthene	140	1	240	1	53
Benzo(a)pyrene	170	1	270	1	46
Indeno(1,2,3-cd)pyrene	130	1	160	1	21
Dibenzo(a,h)anthracene	ND	1	ND	1	
Benzo(g,h,i)perylene	140	1	170	1	19
2,3,4,6-Tetrachlorophenol	ND	1	ND	1	

For field duplicates E4SP0 and E4SP1, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of Fluoranthene, Benzo(b)fluoranthene, and Benzo(k)fluoranthene, the RPD values were less than 50 percent.

E4SP8 and E4SP9

Semivolatile compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Benzaldehyde	ND	1	ND	1	
Phenol	ND	1	ND	1	
Bis(2-chloroethyl)ether	ND	1	ND	1	
2-Chlorophenol	ND	1	ND	1	
2-Methylphenol	ND	1	ND	1	
2,2'-Oxybis(1-chloropropane)	ND	1	ND	1	
Acetophenone	ND	1	ND	1	
4-Methylphenol	ND	1	ND	1	
N-Nitroso-di-n-propylamine	ND	1	ND	1	
Hexachloroethane	ND	1	ND	1	
Nitrobenzene	ND	1	ND	1	
Isophorone	ND	1	ND	1	
2-Nitrophenol	ND	1	ND	1	
Bis(2-chloroethoxy)methane	ND	1	ND	1	
2,4-Dichlorophenol	ND	1	ND	1	
Naphthalene	ND	1	ND	1	
4-Chloroaniline	ND	1	ND	1	
2,4-Dimethylphenol	ND	1	ND	1	
Hexachlorobutadiene	ND	1	ND	1	
Caprolactam	ND	1	ND	1	
4-Chloro-3-methylphenol	ND	1	ND	1	
2-Methylnaphthalene	ND	1	ND	1	
Hexachlorocyclopentadiene	ND	1	ND	1	
2,4,6-Trichlorophenol	ND	1	ND	1	
2,4,5-Trichlorophenol	ND	1	ND	1	
1,1'-Biphenyl	ND	1	ND	1	
2-Chloronaphthalene	ND	1	ND	1	
2-Nitroaniline	ND	1	ND	1	
Dimethylphthalate	ND	1	ND	1	
2,6-Dinitrotoluene	ND	1	ND	1	
Acenaphthylene	ND	1	ND	1	
3-Nitroaniline	ND	1	ND	1	
Acenaphthene	ND	1	ND	1	
2,4-Dinitrophenol	ND	1	ND	1	
4-Nitrophenol	ND	1	ND	1	
Dibenzofuran	ND	1	ND	1	
2,4-Dinitrotoluene	ND	1	ND	1	

Semivolatile compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Diethylphthalate	ND	1	ND	1	
Fluorene	ND	1	ND	1	
4-Chlorophenyl-phenylether	ND	1	ND	1	
4-Nitroaniline	ND	1	ND	1	
4,6-Dinitro-2-methylphenol	ND	1	ND	1	
N-Nitrosodiphenylamine	ND	1	ND	1	
1,2,4,5-Tetrachlorobenzene	ND	1	ND	1	
4-Bromophenyl-phenylether	ND	1	ND	1	
Hexachlorobenzene	ND	1	ND	1	
Atrazine	ND	1	ND	1	
Pentachlorophenol	ND	1	ND	1	
Phenanthrene	600	1	350	1	53
Anthracene	ND	1	ND	1	
Carbazole	ND	1	ND	1	
Di-n-butylphthalate	ND	1	ND	1	
Fluoranthene	1600	1	990	1	47
Pyrene	1300	1	850	1	42
Butylbenzylphthalate	ND	1	ND	1	
3,3'-Dichlorobenzidine	ND	1	ND	1	
Benzo(a)anthracene	790	1	520	1	41
Chrysene	1100	1	750	1	38
Bis(2-ethylhexyl)phthalate	340	1	250	1	31
Di-n-octylphthalate	ND	1	ND	1	
Benzo(b)fluoranthene	1000	1	790	1	24
Benzo(k)fluoranthene	900	1	560	1	47
Benzo(a)pyrene	980	1	670	1	38
Indeno(1,2,3-cd)pyrene	690	1	480	1	36
Dibenzo(a,h)anthracene	320	1	250	1	25
Benzo(g,h,i)perylene	790	1	530	1	39
2,3,4,6-Tetrachlorophenol	ND	1	ND	1	

For field duplicates E4SP8 and E4SP9, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, with the exception of Phenanthrene, the RPD values were less than 50 percent.

8. INTERNAL STANDARDS

The following semivolatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified "J" for the affected analytes. Nondetected compounds are not qualified.

Perylene-d_{12}	E4SP6, E4SP6RE, E4SP7, E4SP7RE

As noted above, the original analysis for samples E4SLP6 and E4SP7 had internal standard area counts for Perylene-d_{12} that were above the upper criteria limit. The samples were subsequently reanalyzed by the laboratory as samples E4SP6RE and E4SP7RE and again failed due to sample matrix. Since the reanalysis provided no additional useful information, the data from the original analyses should be used for result validation.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following semivolatile samples have compound concentrations reported below the MDL. Detected compounds are qualified "U." and reported at the CRQL. Nondetected compounds are not qualified.

Benzo(a)pyrene	E4SP4

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

4-Chloroaniline	E4SP6MSD
Bis (2-Ethylhexyl) phthalate	E4SP5, E4SP7, E4SP8, E4SP9, E4SQ3, E4SQ4
Anthracene	E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP6RE, E4SP7, E4SP7RE, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4
Pyrene	E4SP4
Benzo(g,h,i)perylene	E4SN9, E4SP0, E4SP1, E4SP2
Indeno(1,2,3-cd)pyrene	E4SN9, E4SP0, E4SP1, E4SP2
Benzo(b)fluoranthene	E4SP0, E4SP4
Fluoranthene	E4SP4
Benzo(k)fluoranthene	E4SN9, E4SP0, E4SP4
Chrysene	E4SP0, E4SP4
Benzo(a)pyrene	E4SP0, E4SP2
Dibenzo(a,h)anthracene	E4SP5, E4SP8, E4SP9, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Benzo(a)anthracene	E4SP0, E4SP2
Acenaphthene	E4SQ1

Di-n-butylphthalate	E4SP1, E4SP4, E4SP8, E4SQ1, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Phenanthrene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP9

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

Semivolatile sample E4SQ1 reported concentrations that exceeded the calibrated range of the instrument for Fluoranthene. These results were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". The results from the diluted sample should be used for result validation.

SEMIVOLATILES-SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) for Pentachlorophenol below the minimum required RRF. Detected compounds are qualified "J." Nondetected compounds are qualified "R."

E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP3DL, E4SP4, E4SP4DL, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9DL, E4SQ0DL, E4SQ1DL, E4SQ2DL, E4SQ3DL, E4SQ4DL, E4SQ5DL

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) for Benzo(g,h,i)perylene outside criteria. Detected compounds are qualified "J." Nondetected compounds are not qualified.

E4SN9, E4SN9DL, E4SP0, E4SP0DL, E4SP1, E4SP1DL, E4SP2, E4SP2DL, E4SP3, E4SP3DL, E4SP4, E4SP4DL, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Semivolatile-SIM sample E4SP6 had deuterated monitoring compound recovery for Fluoranthene-d_{10} below the lower limit of the criteria window. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Pyrene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries was outside criteria. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Acenaphthene	E4SP6MS, E4SP6MSD

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Semivolatile-SIM compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Pentachlorophenol	ND	1	ND	1	
Naphthalene	5.5	1	5.1	1	7.5
2-Methylnaphthalene	6.5	1	5.5	1	17
Acenaphthylene	12	1	15	1	22
Acenaphthene	14	1	17	1	19
Fluorene	20	1	24	1	18
Phenanthrene	180	1	290	1	47
Anthracene	49	1	76	1	43
Fluoranthene	450	1	740	1	49
Pyrene	370	1	610	1	49
Benzo(a)anthracene	260	1	430	1	49
Chrysene	270	1	440	1	48
Benzo(b)fluoranthene	350	1	570	1	48
Benzo(k)fluoranthene	280	1	430	1	42
Benzo(a)pyrene	300	1	450	1	40
Indeno(1,2,3-cd)pyrene	130	1	210	1	47
Dibenzo(a,h)anthracene	57	1	98	1	53
Benzo(g,h,i)perylene	130	1	210	1	47

E4SP0DL and E4SP1DL

Semivolatile-SIM compounds	E4SP0DL µg/kg	DF	E4SP1DL µg/kg	DF	%RPD
Pentachlorophenol	ND	10	ND	10	
Naphthalene	ND	10	ND	10	
2-Methylnaphthalene	ND	10	ND	10	
Acenaphthylene	ND	10	ND	10	
Acenaphthene	ND	10	ND	10	
Fluorene	ND	10	ND	10	
Phenanthrene	210	10	290	10	32
Anthracene	81	10	93	10	14
Fluoranthene	480	10	710	10	39
Pyrene	330	10	480	10	37

Semivolatile-SIM compounds	E4SP0DL µg/kg	DF	E4SP1DL µg/kg	DF	%RPD
Benzo(a)anthracene	330	10	360	10	8.7
Chrysene	390	10	400	10	2.5
Benzo(b)fluoranthene	420	10	330	10	24
Benzo(k)fluoranthene	320	10	290	10	9.8
Benzo(a)pyrene	400	10	320	10	22
Indeno(1,2,3-cd)pyrene	260	10	210	10	21
Dibenzo(a,h)anthracene	130	10	100	10	26
Benzo(g,h,i)perylene	260	10	210	10	21

For field duplicates E4SP0 and E4SP1, RPDs were not calculated where one or both results were nondetected. Where detected, results were reported for both samples, all RPD values for all compounds except Dibenzo(a,h)anthracene were below 50%.

E4SP8 and E4SP9

Semivolatile-SIM compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Pentachlorophenol	ND	1	ND	1	
Naphthalene	13	1	12	1	8
2-Methylnaphthalene	11	1	8.6	1	25
Acenaphthylene	59	1	47	1	23
Acenaphthene	49	1	28	1	55
Fluorene	61	1	40	1	42
Phenanthrene	880	1	470	1	61
Anthracene	180	1	110	1	48
Fluoranthene	2400	1	1400	1	53
Pyrene	2100	1	1200	1	55
Benzo(a)anthracene	1500	1	860	1	54
Chrysene	1600	1	950	1	51
Benzo(b)fluoranthene	1500	1	1200	1	22
Benzo(k)fluoranthene	900	1	740	1	20
Benzo(a)pyrene	1000	1	860	1	15
Indeno(1,2,3-cd)pyrene	540	1	450	1	18
Dibenzo(a,h)anthracene	260	1	220	1	17
Benzo(g,h,i)perylene	550	1	460	1	18

E4SP8DL and E4SP9DL

Semivolatile-SIM compounds	E4SP8DL µg/kg	DF	E4SP9DL µg/kg	DF	%RPD
Pentachlorophenol	ND	5	ND	10	
Naphthalene	ND	5	ND	10	
2-Methylnaphthalene	ND	5	ND	10	
Acenaphthylene	55	5	ND	10	
Acenaphthene	45	5	ND	10	

Semivolatile-SIM compounds	E4SP8DL µg/kg	DF	E4SP9DL µg/kg	DF	%RPD
Fluorene	55	5	ND	10	
Phenanthrene	920	5	510	10	57
Anthracene	300	5	200	10	40
Fluoranthene	2800	5	1600	10	55
Pyrene	1800	5	1100	10	48
Benzo(a)anthracene	1100	5	660	10	50
Chrysene	1400	5	890	10	45
Benzo(b)fluoranthene	1500	5	830	10	58
Benzo(k)fluoranthene	1300	5	900	10	36
Benzo(a)pyrene	1300	5	880	10	39
Indeno(1,2,3-cd)pyrene	660	5	450	10	38
Dibenzo(a,h)anthracene	390	5	270	10	36
Benzo(g,h,i)perylene	700	5	490	10	35

For field duplicates E4SP8 and E4SP9, RPDs were not calculated where one or both results were nondetected. Where detected results were reported for both samples, all RPD values for all compounds were below 50%, except Acenaphthene, Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, and Benzo(b)fluoranthene.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile-SIM compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The samples E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, and E4SQ5 had target compound concentrations above the calibration range and were analyzed using a dilution within the calibration range.

The following semivolatile samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Acenaphthylene	E4SQ2DL
Acenaphthene	E4SP8DL, E4SQ4DL
Fluorene	E4SQ4DL
Pentachlorophenol	E4SP2

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

The following semivolatile-SIM samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". Where dilutions are provided, the results from the diluted samples should be used for result validation.

Acenaphthene	E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SQ1
Acenaphthylene	E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SQ0, E4SQ1, E4SQ4, E4SQ5
Anthracene	E4SN9, E4SP0, E4SP1, E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Benzo(a)anthracene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Benzo(a)pyrene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Benzo(b)fluoranthene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Benzo(g,h,i)perylene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP7, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5, E4SQ5DL
Benzo(k)fluoranthene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Chrysene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD,

	E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Dibenzo(a,h)anthracene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5
Fluoranthene	E4SN9, E4SN9DL, E4SP0, E4SP0DL, E4SP1, E4SP1DL, E4SP2, E4SP2DL, E4SP3, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Fluorene	E4SP5, E4SP6, E4SP6MS, E4SP7, E4SQ0, E4SQ1, E4SQ1DL
Indeno(1,2,3-cd)pyrene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ3, E4SQ4, E4SQ5, E4SQ5DL
Phenanthrene	E4SN9, E4SP0, E4SP1, E4SP2, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL
Pyrene	E4SN9, E4SN9DL, E4SP0, E4SP1, E4SP1DL, E4SP2, E4SP3, E4SP4, E4SP5, E4SP5DL, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP7DL, E4SP8, E4SP8DL, E4SP9, E4SP9DL, E4SQ0, E4SQ0DL, E4SQ1, E4SQ1DL, E4SQ2, E4SQ2DL, E4SQ3, E4SQ3DL, E4SQ4, E4SQ4DL, E4SQ5, E4SQ5DL

PESTICIDES

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

The following pesticide samples are associated with a CCV with % Difference for Decachlorobiphenyl, Endrin, and Endosulfan I exceeding criteria. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, E4SQ5

4. BLANKS

No problems were found

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

Surrogate recovery for Tetrachloro-m-xylene was greater than 150% but less than or equal to 200% on both columns for sample E4SP2. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The following pesticide matrix/matrix spike duplicate samples have percent recoveries that are greater than the upper acceptance limit Detected compounds are qualified "J." Nondetected compounds are not qualified.

Aldrin	E4SP6MS, E4SP6MSD
4,4'-DDT	E4SP6MS, E4SP6MSD
gamma-BHC (Lindane)	E4SP6MS, E4SP6MSD
Dieldrin	E4SP6MS, E4SP6MSD
Endrin	E4SP6MS, E4SP6MSD
Heptachlor	E4SP6MS, E4SP6MSD

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Pesticide compound	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	ND	1	ND	1	
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	ND	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	2.2	1	1.6	1	32
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	ND	1	ND	1	
Toxaphene	ND	1	ND	1	

For field duplicates E4Sp0 and E4Sp1, RPDs were not calculated where one or both results were nondetected. All RPD values were less than 50 %.

E4SP8 and E4SP9

Pesticide compound	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
alpha-BHC	ND	1	ND	1	
beta-BHC	ND	1	ND	1	
delta-BHC	ND	1	ND	1	
gamma-BHC(Lindane)	ND	1	ND	1	
Heptachlor	ND	1	ND	1	
Aldrin	ND	1	ND	1	
Heptachlor epoxide	ND	1	ND	1	
Endosulfan I	ND	1	ND	1	

Pesticide compound	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Dieldrin	ND	1	ND	1	
4,4'-DDE	ND	1	ND	1	
Endrin	ND	1	ND	1	
Endosulfan II	ND	1	ND	1	
4,4'-DDD	ND	1	ND	1	
Endosulfan sulfate	ND	1	ND	1	
4,4'-DDT	9.7	1	16	1	49
Methoxychlor	ND	1	ND	1	
Endrin ketone	ND	1	ND	1	
Endrin aldehyde	ND	1	ND	1	
alpha-Chlordane	ND	1	ND	1	
gamma-Chlordane	5	1	8.8	1	55
Toxaphene	ND	1	ND	1	

For field duplicates E4SP8 and E4SP9, RPDs were not calculated where one or both results were nondetected. The RPD value for gamma-Chlordane was greater than 50 %.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following pesticide samples have compound concentrations below the MDL for Heptachlor epoxide, Endosulfan sulfate, gamma-Chlordane, gamma-BHC (Lindane), Dieldrin, Endrin, and 4,4'-DDE. Detected compounds are qualified "U." Nondetected compounds are not qualified. Sample results are reported at the CRQL.

E4SN9, E4SP0, E4SP1, E4SP2, E4SP3, E4SP4, E4SP5, E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP7, E4SP8, E4SP9, E4SQ0, E4SQ1, E4SQ2, E4SQ3, E4SQ4, E4SQ5

The following pesticide samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

4,4'-DDT	E4SP6, E4SQ2
alpha-Chlordane	E4SP6MSD
gamma-Chlordane	E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SP9
4,4'-DDE	E4SP6
Endrin aldehyde	E4SP7

The following pesticide samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

alpha-Chlordane	E4SP6MS
gamma-Chlordane	E4SP7, E4SQ0

The following pesticide samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Heptachlor epoxide	E4SP7
4,4'-DDT	E4SP8
gamma-Chlordane	E4SP8
Dieldrin	E4SP7

The following pesticide samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aldrin	E4SP6MS, E4SP6MSD
gamma-BHC (Lindane)	E4SP6MS, E4SP6MSD
Dieldrin	E4SP6MS, E4SP6MSD
Heptachlor	E4SP6MS, E4SP6MSD

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

The following pesticide samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged estimated, "J". Where dilutions are provided, the results from the diluted samples should be used for result validation.

4,4'-DDE	E4SP6, E4SP6MS, E4SP6MSD
4,4'-DDT	E4SP6, E4SP6MS, E4SP6MSD
gamma-Chlordane	E4SP6, E4SP6MS, E4SP6MSD
Dieldrin	E4SP6MS, E4SP6MSD
gamma-BHC (Lindane)	E4SP6MS, E4SP6MSD

AROCLORS

1. HOLDING TIME

No problems were found

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

Aroclor sample E4SP6DL with a dilution factor greater than 5 had surrogate percent recoveries that were greater than 200% for Decachlorobiphenyl on one column and exceeded 150% but were less than or equal to 200% on the second column. All compounds are affected. Detected and nondetected compounds are not qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For the Aroclor MS and MSD prepared for sample E4SP6, recoveries on both columns were greater than the upper acceptance limit for Aroclor-1016, and greater than the upper acceptance limit for Aroclor-1260 on one column. In addition, the RPD exceeded criteria on one column for Aroclor-1016 and Aroclor-1260. This is likely due to high levels of Aroclor-1248 and Aroclor-1260 in the unspiked sample. Only sample E4SP6 is affected. Detected results are qualified "J". Nondetected results remain unchanged.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E4SP0/E4SP1 and E4SP8/E4SP9 were identified as field duplicate pairs**.** Results are summarized in the following tables. Note that results are not qualified based upon the results of the field duplicates.

E4SP0 and E4SP1

Aroclor compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	

Aroclor compounds	E4SP0 µg/kg	DF	E4SP1 µg/kg	DF	%RPD
Aroclor-1248	210	1	170	1	21
Aroclor-1254	ND	1	ND	1	
Aroclor-1260	22	1	14	1	44
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4SP0 and E4SP1, RPD values are not calculated when one or both results are nondetects. All RPD values were less than 50 %.

E4SP8 and E4SP9

Aroclor compounds	E4SP8 µg/kg	DF	E4SP9 µg/kg	DF	%RPD
Aroclor-1016	ND	1	ND	1	
Aroclor-1221	ND	1	ND	1	
Aroclor-1232	ND	1	ND	1	
Aroclor-1242	ND	1	ND	1	
Aroclor-1248	96	1	520	1	140
Aroclor-1254	96	1	340	1	110
Aroclor-1260	96	1	170	1	56
Aroclor-1262	ND	1	ND	1	
Aroclor-1268	ND	1	ND	1	

For the analysis of field duplicate samples E4SP8 and E4SP9, RPD values are not calculated when one or both results are nondetects. Aroclor 1248, Aroclor 1254, and Aroclor 1260 RPD values greater than 50 %.

8. INTERNAL STANDARDS

Not applicable

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor samples have compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Aroclor-1248 E4SP7, E4SP8, E4SQ5

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Aroclor-1260 E4SP1

Aroclor-1248	E4SP0, E4SP1, E4SQ3

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Aroclor-1254	E4SP7, E4SP9, E4SQ0, E4SQ3, E4SQ4
Aroclor-1248	E4SP2, E4SP6DL, E4SQ2

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260	E4SP8
Aroclor-1254	E4SP8
Aroclor-1248	E4SP7, E4SP8

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R" and the results are removed from the "B" and "Z" files.

Aroclor-1254	E4SP6, E4SP6DL, E4SP6MS, E4SP6MSD, E4SQ2
Aroclor-1016	E4SP6MS, E4SP6MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

The following Aroclor samples reported concentrations that exceeded the calibrated range of the instrument and were flagged "E" by the laboratory. As per the NFG, these results are flagged "J". Where dilutions are provided the results from the diluted sample should be used.

Aroclor-1016	E4SP6MS, E4SP6MSD
Aroclor-1248	E4SP6, E4SP6MS, E4SP6MSD
Aroclor-1254	E4SP6, E4SP6MS, E4SP6MSD
Aroclor-1260	E4SP6, E4SP6MS, E4SP6MSD

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: June 24, 2010

SUBJECT: Review of Data
Received for Review on May 8, 2010

FROM: Eric Boring
Senior Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 SDG Number: E4SQ6

Number and Type of Samples: 1 Water Sample (Field QC)

Sample Numbers: E4SQ6

Laboratory: KAP Technologies Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: One (1) water sample labeled E4SQ6 and designated as field QC was shipped to KAP Technologies, Inc., in the Woodlands, TX. Sample E4SQ6 was collected on 4/16/2010 and was received on 4/17/2010, intact and at 1.5 ºC.

Sample Analysis and Data Review: The sample was analyzed according to CLP SOW SOM01.2.

This report is ordered by fraction in the following order: Semivolatiles, Semivolatiles-SIM, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R,” “NJ,” “UJ,” “U,” “J.”

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Pentachlorophenol	E4SQ6

The following semivolatile samples are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Use professional judgment to qualify the data.

2,4-Dimethylphenol	E4SQ6
Hexachlorocyclopentadiene	E4SQ6
Pentachlorophenol	E4SQ6

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.

Pentachlorophenol	E4SQ6

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following semivolatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ.

4,6-Dinitro-2-methylphenol	E4SQ6

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required.

6B. LABORATORY CONTROL SAMPLE

LCS was not required.

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

No additional information to report.

SEMIVOLATILES – SIM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following semivolatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Nondetected compounds are not qualified.

Benzo (g,h,i) perylene	E4SQ6

The following semivolatile samples are associated with incorrect initial calibration sequence. Detected compounds are qualified J. Nondetected compounds are qualified UJ. Use professional judgment to qualify the data.

Benzo (b) fluoranthene	E4SQ6
Phenanthrene	E4SQ6

The following semivolatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.

Pentachlorophenol	E4SQ6

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required

6B. LABORATORY CONTROL SAMPLE

LCS was not required

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No problems were found.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

GC/MS baseline of method blanks indicated acceptable performance.

12. ADDITIONAL INFORMATION

No additional information to report.

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found

3. CALIBRATION

No problems were found

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

No additional information to report.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSDs were not required.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD BLANK AND FIELD DUPLICATE

Field blanks and field duplicates were not required.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

No additional information to report.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 1, 2010

Subject: Review of Data
Received for Review on: June 6, 2010

From: Eric Boring, Environmental Chemist
CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: 1690.4 SDG Number: E4SQ7

Number and Type of Samples: 1 water for TCLP

Sample Numbers: E4SQ7

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Scott Cieniawski, EPA
Louis Blume, EPA
Theo Von Wallmenich, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: E4SQ7
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

SDG Summary

Sample Receipt: One water sample labeled E4SQ7 was shipped to KAP Technologies, Inc., in The Woodlands, Texas. The sample was collected on 4/19/2010 and received at the facility on 4/20/2010, intact, and at 3.3 ºC.

Sample Analysis and Data Review: The water sample was prepared using separatory funnel extraction, and esterification by diazomethane, according to SW-846 Method 8151A, and MA 1690.4. The sample was analyzed for herbicide compounds, 2,4-D and 2,4,5-TP (Silvex), by GC/ECD, according to SW-846 Method 8151A and the specifications in MA 1690.4. The sample was reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and according to the specifications in MA 1690.4, SW-846 Method 8151A, and SW-846 Method 1311.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “NJ”, “UJ”, “U”, “J”.

Although specified in MA 1690.4, no MS/MSD was prepared for this SDG. No sample was designated by the samplers to be used for laboratory QC.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicate sets were identified.

HERBICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD was performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

No target herbicide compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

Case Number: 39668 SDG Number: E4SQ7
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: **August 4, 2010**

Subject: **Revised Review Narrative Report**
Review of Data
Received for Review on: June 16, 2010

From: Melody Jensen
Senior Scientist, CSC

To: Data User: GLNPO

This data review narrative supersedes the narrative sent on July 13, 2010 for the review of data in SDG E4S89. The change made to this narrative includes a clarification added to the Aroclor Additional Information section of the narrative. The change has been highlighted in bold face type. In addition, the "reportable results" field in the "Z" file has been updated to reflect the clarification. No sample results or review qualifiers have been changed.

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39668 MRN: 1689.5, 1722.1, and 1723.0 SDG Number: E4SQ8

Number and Type of Samples: 2 Sediment Samples

Sample Numbers: E4SQ7, E4SQ8

Laboratory: KAP Technologies

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: One (1) investigation-derived waste (IDW) sample labeled E4SQ7 and one (1) trip blank labeled E4SQ8 were shipped to KAP Technologies in Woodlands, Texas. Both samples were collected and shipped on 4/19/2010 and were received on 4/20/2010 at 3.3 °C.

Sample Analysis and Data Review: The IDW sample (E4SQ7) was prepared and analyzed for Volatile (VOA), Semivolatile (SVOA), and Pesticide analytes according to CLP SOW SOM01.2, Modification Reference Numbers 1689.5, 1722.1, and 1723.0, and SW-846 TCLP Method 1311, and for Aroclors according to routine CLP SOW SOM01.2. The trip blank (E4SQ8) was prepared and analyzed for Volatiles only. The sample data were reviewed according to the NFG for SOM01.2, the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and Modification Reference Numbers 1689.5, 1722.1, and 1723.0.

Sample E4SQ7 is reported on the traffic report as a "waste" sample, requiring TCLP extraction/analysis for the Volatile, Semivolatile and Pesticide fractions. The Aroclor fraction required routine analysis according to CLP SOW SOM01.2. For the Aroclor fraction, sample E4SQ7 was prepared and reported on the Form 1 as a "soil" sample. The percent moisture for this sample was 26%.

According to Modified Analyses 1689.5, 1722.1, and 1723.0, associated with this SDG, the laboratory was required to provide the supporting data for the TCLP procedure (laboratory bench sheets, logs, and notebook pages). This includes the determination of extraction fluid, amount of liquid (if any) extracted from the solid phase, mass of solid material extracted, and volume of extraction fluid used. These items were missing from the data package

Although not requested in the Modified Analysis (MA), the laboratory reported tentatively identified compounds (TICs) for Volatile and Semivolatile analyses.

The MA reference number 1690.4 is reported on the Form 1s for the Aroclor analysis in error. It is not part of the Aroclor analysis that was performed according to the CLP SOW SOM01.2 (without MA).

MS/MSD evaluation: Although specified in MA 1689.5, no MS/MSD was prepared for Pesticide analysis. An MS/MSD was prepared for Aroclor analyses (E4SQ7MS/E4SQ7MSD). No sample results were qualified.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no samples were identified as field duplicate pairs.

This report is ordered by fraction in the following order: Volatiles, Semivolatiles, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R," "NJ," "UJ," "U," "J."

VOLATILES (LOW MEDIUM)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

The recovery of DMC compound 2-Butanone-d_5 was slightly below criteria. An examination of the raw data was performed, which confirmed that target compounds were not present in the blank.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information.

SEMIVOLATILES (PAH)

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

Semivolatile sample E4SQ7 is associated with an initial calibration in which the surrogate/DMC 2-Butanone-d_5 exceeded percent relative standard deviation (%RSD) criterion. No target compounds were affected. Detected and nondetected compounds are not qualified.

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Although one of the automated reports specified that an MS/MSD should be prepared for semivolatile analysis, no MS/MSD was prepared, nor was one requested in MA 1723.0. No sample results were qualified.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms, it appears that the semivolatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC/MS baseline indicated acceptable performance for the samples in this SDG.

12. ADDITIONAL INFORMATION

No additional information.

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems were found.

6B. LABORATORY CONTROL SAMPLE

No problems found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

No samples were identified as field duplicates.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the pesticide compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

12. ADDITIONAL INFORMATION

No additional information.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following Aroclor sample is associated with an opening or closing CCV with % Difference exceeding criteria. Detected compounds are qualified "J." Nondetected compounds are qualified "UJ."

Aroclor-1248	E4SQ7DL

4. BLANKS

No problems were found

5. SURROGATE RECOVERY

No problems were found

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

For sample E4SQ7, the Aroclor matrix/matrix spike duplicate samples (E4SQ7MS/E4SQ7MSD) have percent recoveries that are greater than the upper acceptance limit for Aroclor-1016 on both columns due to high spike levels. Recoveries for Aroclor-1260 were acceptable. Detected compounds are qualified "J." Nondetected compounds are not qualified.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD DUPLICATE AND EQUIPMENT BLANK

Not applicable.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following Aroclor sample has compound concentrations above the MDL and below the CRQL. Detected compounds are qualified "J." Nondetected compounds are not qualified.

Aroclor-1254	E4SQ7DL

The following Aroclor samples have percent differences between analyte results in the range of 26-50%. Detected compounds are qualified "J."

Aroclor-1248	E4SQ7DL, E4SQ7MS, E4SQ7MSD

The following Aroclor samples have percent differences between analyte results in the range of 51-100%. Detected compounds are qualified "NJ."

Aroclor-1016	E4SQ7MS, E4SQ7MSD

The following Aroclor samples have percent differences between analyte results exceeding 50% and the results are below CRQL. Detected compounds are qualified "U." Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Aroclor-1260	E4SQ7DL
Aroclor-1254	E4SQ7DL

The following Aroclor samples have percent differences between analyte results exceeding 100%. Detected compounds are qualified "R."

Aroclor-1254	E4SQ7, E4SQ7MS, E4SQ7MSD

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor analyses was acceptable.

12. ADDITIONAL INFORMATION

Aroclor sample E4SQ7 reported a concentration for Aroclor-1248 that exceeded the calibration range of the instrument and was flagged "E" by the laboratory. As per the NFG, this result is flagged "J". The result from the dilute analysis should be used for result validation.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 2, 2010

Subject: Review of Data
Received for Review on: June 16, 2010

From: Eric Boring, Environmental Chemist
CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39668 MRN: 1690.4 SDG Number: E4SQ9

Number and Type of Samples: 1 water for TCLP

Sample Numbers: E4SQ9

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: E4SQ9
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

SDG Summary

Sample Receipt: One water sample, labeled E4YQ9, was shipped to KAP Technologies, Inc., in The Woodlands, Texas. The sample was collected on 4/23/2010 and received at the facility on 04/24/10, intact, and at 4.6 ºC.

Sample Analysis and Data Review: The water sample was prepared using separatory funnel extraction, and esterification by diazomethane, according to SW-846 Method 8151A, and MA 1690.4. The sample was analyzed for herbicide compounds, 2,4-D and 2,4,5-TP (Silvex), by GC/ECD, according to SW-846 Method 8151A and the specifications in MA 1690.4. The sample was reviewed according to the NFG for SOM01.2 and the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and according to the specifications in MA 1690.4, SW-846 Method 8151A, and SW-846 Method 1311.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “NJ”, “UJ”, “U”, “J”.

Although specified in MA 1690.4, no MS/MSD was prepared for this SDG. No sample was designated by the samplers to be used for laboratory QC.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicate sets were identified.

HERBICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD was performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

No target herbicide compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

Case Number: 39668 SDG Number: E4SQ9
Site Name: Lincoln Park Laboratory: KAP, Technologies, Inc.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

Date: July 13, 2010

Subject: Review of Data
Received for Review on: June 16, 2010

From: Julie Rest, Environmental Chemist
CSC

To: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39668 MRN: 1689.5, 1722.1, and 1723.0 SDG Number: E4SR0

Number and Type of Samples: 2 Water Samples; TCLP and Routine CLP Analysis

Sample Numbers: E4SR0, E4SQ9

Laboratory: KAP Technologies, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Receipt: One water sample and one wastewater sample, labeled E4SR0 and E4SQ9, were shipped to KAP Technologies, Inc., in The Woodlands, Texas. The samples were collected on 4/23/2010 and received at the facility on 04/24/10, intact, and at 4.6 ºC.

Sample Analysis and Data Review: One investigation-derived waste (IDW) sample, E4SQ9, was prepared and analyzed for Volatile, Semivolatile and Pesticide analytes according to CLP SOW SOM01.2, Modification Reference Numbers 1689.5, 1722.1, and 1723.0, and SW-846 TCLP Method 1311; and for Aroclors according to routine CLP SOW SOM01.2. One trip blank, E4SR0, was prepared and analyzed for Volatiles only. The sample data were reviewed according to the NFG for SOM01.2, the USEPA Region 2 SOPs for data validation of data, USEPA Contract Laboratory Program, and Modification Reference Numbers 1689.5, 1722.1, and 1723.0.

According to Modified Analyses 1689.5, 1722.1, and 1723.0, associated with this SDG, the laboratory was required to provide the supporting data for the TCLP procedure (laboratory bench sheets, logs, and notebook pages). This includes the determination of extraction fluid and volume of extraction fluid used. This information was missing from the data package.

The laboratory reported tentatively identified compounds (TICs) for the Volatile and Semivolatile Analysis, although not requested in the Modified Analysis (MA).

The MA reference number 1690.4 is reported on the Form 1s for the Aroclor analysis in error, and is not part of the Aroclor analyses which were performed according to the CLP SOW SOM01.2, without MA.

This report is ordered by fraction in the following order: Volatiles, Semivolatiles, Pesticides, and Aroclors.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by EXES NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by the EXES NFG is left intact. However, if at least one of the associated qualifiers described by EXES NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “NJ”, “UJ”, “U”, “J”.

VOLATILES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DMC RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No volatile MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. TRIP BLANK AND FIELD DUPLICATE

Trip blank E4SR0 was included with this SDG. No volatile target compounds were detected in this sample. All associated QC was acceptable. No field duplicate samples were collected for this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No target volatile compounds were detected in the samples included in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

SEMIVOLATILES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DMC RECOVERY

Some deuterated monitoring compound recoveries were below the lower limit of the criteria window. These surrogates were not associated with target compounds for TCLP analysis. No results have been qualified.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No semivolatile MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

No target semivolatile compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

No problems were found.

PESTICIDES

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No pesticide MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

No target pesticide compounds were detected in the sample in this SDG.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

No problems were found.

11. SYSTEM PERFORMANCE

The GC baseline for pesticide analyses was acceptable.

AROCLORS

1. HOLDING TIME

No problems were found.

2. GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No Aroclor MS/MSD was designated by the samplers or performed for this SDG.

6B. LABORATORY CONTROL SAMPLE

No problems were found.

7. FIELD BLANK AND FIELD DUPLICATE

No field duplicates or field blanks were collected for this SDG.

8. INTERNAL STANDARDS

Not applicable.

9. COMPOUND IDENTIFICATION

After reviewing the chromatograms, it appears that the Aroclor compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

In Aroclor sample E4SQ9, Aroclor-1260 had a concentration that was above the MDL and below the CRQL. The result for Aroclor-1260 in this sample is qualified "J."

Aroclor sample E4SQ9 had a percent difference between Aroclor-1248 results in the range of 26-50%. The result for Aroclor-1248 in sample E4SQ9 is qualified "J."

Aroclor sample E4SQ9 had a percent difference between Aroclor-1254 results that exceeded 100%. The result for Aroclor-1254 in sample E4SQ9 is qualified "R." "R" flagged results are removed from the "B" and "Z" files.

11. SYSTEM PERFORMANCE

The GC baseline for Aroclor performance was acceptable.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/4/2010

SUBJECT: Review of Data
Received for Review on: 3/24/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4RS0

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4RS0, ME4RS1, ME4RS2, ME4RS3, ME4RS4, ME4RS5, ME4RS6, ME4RS7, ME4RS8, ME4RS9. ME4RT0, ME4RT1, ME4RT2, ME4RT3, ME4RT4, ME4RT5, ME4RT6, ME4RY2, ME4RY3, ME4RY4

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4RS0 - ME4RS9, ME4RT0 - ME4RT6, and ME4RY2 - ME4RY4 were shipped to A4 Scientific, Inc. Samples ME4RS0 - ME4RS9 and ME4RT0-ME4RT6 were collected on 2/25/2010 and samples ME4RY2 - ME4RY4 were collected on 2/24/2010. All twenty sediment samples were received at the facility on 2/27/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4RS1 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4RT5/ME4RT6 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4RS3	Aluminum, Iron
ME4RS4	Aluminum, Iron
ME4RS5	Aluminum, Iron
ME4RS6	Aluminum, Iron
ME4RS7	Aluminum, Iron
ME4RS8	Aluminum, Iron
ME4RS9	Aluminum, Iron
ME4RT0	Aluminum, Iron
ME4RT1	Aluminum, Iron
ME4RT2	Aluminum, Iron
ME4RT3	Aluminum, Iron
ME4RT4	Aluminum, Iron

The following inorganic soil samples are associated with an CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4RS0	Mercury
ME4RS1	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RS0	Barium, Potassium
ME4RS1	Barium, Potassium
ME4RS2	Barium, Potassium
ME4RS3	Barium, Potassium
ME4RS4	Barium, Potassium
ME4RS5	Barium, Potassium
ME4RS6	Barium, Potassium

ME4RS7	Barium, Potassium
ME4RS8	Barium, Potassium
ME4RS9	Barium, Potassium
ME4RT0	Barium, Potassium
ME4RT1	Barium, Potassium
ME4RT2	Barium, Potassium
ME4RT3	Barium, Potassium
ME4RT4	Barium, Potassium
ME4RT5	Barium, Potassium
ME4RT6	Barium, Potassium
ME4RY2	Barium, Potassium
ME4RY3	Barium, Potassium
ME4RY4	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Metal Analytes	ME4RT5 (mg/kg)	ME4RT6 (Field DUP) (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3530	4000	Y	12.5	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.7	3.6	N	-	0.1	≤2xCRQL
Barium	91.7	94.5	N	-	2.8	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	1.9	1.3	N	-	0.6	≤2xCRQL
Calcium	76900	89900	Y	15.6	-	-
Chromium	58.4	34.5	Y	51.5	-	-
Cobalt	5	5.4	NA	NA	NA	NA
Copper	37.7	24.6	Y	42.1	-	-
Iron	9130	9130	Y	0	-	-
Lead	120	82.3	Y	37.3	-	-
Magnesium	31100	33900	Y	8.6	-	-
Manganese	404	402	Y	0.5	-	-
Mercury	0.2	0.12	N	-	0.08	≤2xCRQL
Nickel	18.6	12.6	N	-	6	≤2xCRQL
Potassium	443	509	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	0.88	ND	N	-	0.34	≤2xCRQL
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.3	12.1	N	-	1.8	≤2xCRQL
Zinc	175	143	Y	20.1	-	-

6. ICP ANALYSIS

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RS3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RS7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RS8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RT3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RT4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4RS0	Calcium
ME4RS1	Calcium
ME4RS3	Calcium
ME4RS4	Calcium
ME4RS5	Calcium

ME4RS6	Calcium
ME4RS7	Calcium
ME4RS8	Calcium
ME4RS9	Calcium
ME4RT0	Calcium
ME4RT1	Calcium
ME4RT3	Calcium
ME4RT4	Calcium
ME4RT5	Calcium
ME4RT6	Calcium
ME4RY2	Calcium
ME4RY3	Calcium
ME4RY4	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL).

All results below the CRQL are qualified "J".

ME4RS0	Arsenic, Cadmium, Cobalt, Potassium
ME4RS1	Cobalt, Mercury, Potassium
ME$RS2	Cobalt, Mercury, Potassium
ME4RS4	Arsenic, Cadmium, Cobalt, Potassium
ME4RS5	Arsenic, Cobalt, Mercury, Potassium, Silver
ME4RS6	Cobalt, Potassium
ME4RS7	Cobalt, Mercury, Potassium
ME4RS8	Potassium
ME4RS9	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4RT0	Cobalt, Mercury, Potassium
ME4RT1	Cobalt, Mercury, Potassium, Silver
ME4RT2	Cobalt, Potassium, Silver
ME4RT3	Beryllium
ME4RT4	Arsenic, Cadmium, Cobalt, Nickel, Potassium
ME4RT5	Cobalt, Potassium, Silver
ME4RT6	Cobalt, Mercury, Potassium

ME4RY2	Arsenic, Cobalt, Mercury, Potassium
ME4RY3	Beryllium, Cobalt, Potassium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/1/2010

SUBJECT: Review of Data
Received for Review on: 3/24/2010

FROM: Cris Robinson
Environmental Scientist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4RT7

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4RT7, ME4RT8, ME4RT9, ME4RW0, ME4RW0, ME4RW1, ME4RW2, ME4RW3, ME4RW4, ME4RW5, ME4RW6, ME4RW7, ME4RW8, ME4RW9, ME4RX0, ME4RX1, ME4RX2, ME4RX3, ME4RX4, ME4RX5, ME4RX6

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4RT7-ME4RT 9, ME4RW0-ME4RW 9, ME4RX0-ME4RX 6 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 2/25/2010, and were received at the facility on 2/27/2010, intact and at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, sample ME4RT8 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4RT9/ME4RW0, MERW1/MERW2, and MERW3/MERW4 as field duplicate sets. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to also perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No defects were found for the calibration blanks or preparation blank.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RT7	Barium, Potassium
ME4RT8	Barium, Potassium
ME4RT9	Barium, Potassium
ME4RW0	Barium, Potassium
ME4RW1	Barium, Potassium
ME4RW2	Barium, Potassium
ME4RW3	Barium, Potassium
ME4RW4	Barium, Potassium
ME4RW5	Barium, Potassium
ME4RW6	Barium, Potassium
ME4RW7	Barium, Potassium
ME4RW8	Barium, Potassium
ME4RW9	Barium, Potassium
ME4RX0	Barium, Potassium
ME4RX1	Barium, Potassium
ME4RX2	Barium, Potassium

ME4RX3 Barium, Potassium

ME4RX4 Barium, Potassium

ME4RX5 Barium, Potassium

ME4RX6 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Each of the following tables contains data for a sample/field duplicate pair in this SDG.

Metal analytes	ME4RT9 mg/kg	ME4RW0 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3750	4390	Y	15.7	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.2	2.1	N	-	0.1	≤2xCRQL
Barium	66	70.6	N	-	4.6	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.65	0.61	NA	NA	NA	NA
Calcium	90600	96800	Y	6.6	-	-
Chromium	13.1	15.2	Y	14.8	-	-
Cobalt	4.9	6.1	NA	NA	NA	NA
Copper	40.5	21.7	Y	60.5	-	-
Iron	8580	10000	Y	15.3	-	-
Lead	37.5	45.9	Y	20.1	-	-
Magnesium	28900	31800	Y	9.6	-	-
Manganese	390	408	Y	4.5	-	-
Mercury	0.13	0.12	NA	NA	NA	NA
Nickel	10.7	13	N	-	2.3	≤2xCRQL
Potassium	575	723	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.9	12.2	N	-	1.3	≤2xCRQL
Zinc	262	121	Y	73.6	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

Metal analytes	ME4RW1 mg/kg	ME4RW2 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	7450	6180	Y	18.6	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.3	3.8	N	-	0.5	≤2xCRQL
Barium	56.6	54.4	N	-	2.2	≤2xCRQL
Beryllium	0.36	0.31	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA

Metal analytes	ME4RW1 mg/kg	ME4RW2 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Calcium	74300	71500	Y	3.8	-	-
Chromium	14.1	12.1	Y	15.3	-	-
Cobalt	10	9.9	N	-	0.1	≤2xCRQL
Copper	22.9	35.2	Y	42.3	-	-
Iron	15200	13400	Y	12.6	-	-
Lead	10.6	13.4	Y	23.3	-	-
Magnesium	35500	35000	Y	1.4	-	-
Manganese	399	373	Y	6.7	-	-
Mercury	0.061	0.056	NA	NA	NA	NA
Nickel	25	23.2	N	-	1.8	≤2xCRQL
Potassium	1530	1350	N	-	180	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	20.3	17.5	N	-	2.8	≤2xCRQL
Zinc	51	45.5	Y	11.4	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

Metal analytes	ME4RW3 mg/kg	ME4RW4 mg/kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	5840	5300	Y	9.7	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	4.1	3.4	N	-	0.7	≤2xCRQL
Barium	55.5	52.5	N	-	3	≤2xCRQL
Beryllium	0.3	0.27	NA	NA	NA	NA
Cadmium	0.21	0.19	NA	NA	NA	NA
Calcium	80700	82800	Y	2.6	-	-
Chromium	12.3	12.2	Y	0.8	-	-
Cobalt	8.5	8.3	N	-	0.2	≤2xCRQL
Copper	22	51.5	Y	80.3	-	-
Iron	12900	11600	Y	10.6	-	-
Lead	18.7	19.3	Y	3.2	-	-
Magnesium	37600	34900	Y	7.4	-	-
Manganese	349	335	Y	4.1	-	-
Mercury	0.065	0.068	NA	NA	NA	NA
Nickel	20.6	19.5	N	-	1.1	≤2xCRQL
Potassium	1270	1090	N	-	180	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	16	15	N	-	1	≤2xCRQL
Zinc	63.8	64.6	Y	1.2	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4RT9/ME4RW0 Copper, Zinc

ME4RW1/ME4RW2 Copper

ME4RW3/ME4RW4 Copper

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4RT8 Potassium

ME4RW1 Potassium

ME4RW2 Potassium

ME4RW3 Potassium

ME4RW5 Potassium

ME4RW6 Potassium

ME4RW7 Potassium

ME4RW8 Potassium

ME4RW9 Potassium

ME4RX4 Potassium

ME4RX5 Potassium

ME4RX6 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RT8 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RW1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RW2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RW9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RX5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RX6 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

The following inorganic samples are associated with an ICP serial dilution percent difference which is > 10% but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4RT7 Calcium, Manganese

ME4RT8 Calcium, Manganese

ME4RT9 Calcium, Manganese

ME4RW0 Calcium, Manganese

ME4RW1 Calcium, Manganese

ME4RW2 Calcium, Manganese

ME4RW3 Calcium, Manganese

ME4RW4 Calcium, Manganese

ME4RW5 Calcium, Manganese

ME4RW6 Calcium, Manganese

ME4RW7 Calcium, Manganese

ME4RW8 Calcium, Manganese

ME4RW9 Calcium, Manganese

ME4RX0 Calcium, Manganese

ME4RX1 Calcium, Manganese

ME4RX2 Calcium, Manganese

ME4RX3 Calcium, Manganese

ME4RX4 Calcium, Manganese

ME4RX5 Calcium, Manganese

ME4RX6 Calcium, Manganese

7. SAMPLE RESULTS

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because

calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4RT7	Calcium
ME4RT8	Calcium
ME4RT9	Calcium
ME4RW0	Calcium
ME4RW1	Calcium
ME4RW2	Calcium
ME4RW3	Calcium
ME4RW4	Calcium
ME4RW5	Calcium
ME4RW6	Calcium
ME4RW7	Calcium
ME4RW8	Calcium
ME4RW9	Calcium
ME4RX0	Calcium
ME4RX1	Calcium
ME4RX2	Calcium
ME4RX3	Calcium
ME4RX4	Calcium
ME4RX5	Calcium
ME4RX6	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4RT7	Cadmium, Mercury
ME4RT8	Beryllium, Mercury
ME4RT9	Cobalt, Mercury, Potassium
ME4RW0	Cadmium, Cobalt, Mercury, Potassium
ME4RW1	Beryllium, Mercury
ME4RW2	Beryllium, Mercury
ME4RW3	Beryllium, Cadmium, Mercury
ME4RW4	Beryllium, Mercury
ME4RW5	Beryllium, Mercury
ME4RW6	Beryllium, Cadmium
ME4RW7	Beryllium, Mercury
ME4RW8	Beryllium, Mercury
ME4RW9	Beryllium, Mercury
ME4RX0	Cobalt, Potassium
ME4RX1	Beryllium, Cadmium, Mercury
ME4RX2	Beryllium, Cadmium, Cobalt, Potassium
ME4RX3	Beryllium, Mercury
ME4RX4	Beryllium, Mercury
ME4RX5	Beryllium, Mercury
ME4RX6	Beryllium, Mercury

Case Number: 39494
Site Name: Lincoln Park
SDG Number: ME4RT7
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/2/2010

SUBJECT: Review of Data
Received for Review on: 3/24/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

Site Name: Lincoln Park

Case Number: 39494 SDG Number: ME4RX7

Number and Type of Samples: 5 Sediment Samples (Metals)

Sample Numbers: ME4RX7, ME4RX8, ME4RX9, ME4RY0, ME4RY1

Laboratory: A4 Scientific

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Five (5) sediment samples labeled ME4RX7, ME4RX8, ME4RX9 ME4RY0, and ME4RY were shipped to A4 Scientific, Inc. All five (5) samples were collected on February 25, 2010,and were received at the facility at 4°C on February 27, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4RX8 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicates were identified.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that samples ME4RX7 and ME4RY1 had more than 20 mL of free standing liquid on top. EPA directed the laboratory to decant the standing water and proceed with the analysis of the samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

Laboratory blanks for mercury had a negative concentration greater or equal to the MDL, but less than or equal to the CRQL. Samples reported as detected (ME4X8, ME4X9, ME4Y1), may have a negative bias and were therefore flagged as “J-”. The sample reported as not found (ME4RY0) may possibly be a false negative, but this cannot be determined from the data.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects found.

3. BLANKS

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL), but less than or equal to the CRQL. Detects may have a negative bias and are qualified as "J-".

ME4RX8 Mercury

ME4RX9 Mercury

ME4RY0 Mercury

ME4RY1 Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

The following inorganic sediment samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RX7 Barium, Potassium

ME4RX8 Barium, Potassium

ME4RX9 Barium, Potassium

ME4RY0 Barium, Potassium

ME4RY1 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) primary criteria. All associated sample results ≥ MDL but < 5× CRQL, and with an absolute difference between sample and duplicate > 2 × CRQL, are qualified "J". Non-detects are qualified "UJ".

ME4RX7 Chromium, Lead, Zinc

ME4RX8 Chromium, Lead, Zinc

ME4RX9 Chromium, Lead, Zinc

ME4RY0 Chromium, Lead, Zinc

ME4RY1 Chromium, Lead, Zinc

6. ICP ANALYSIS

The following inorganic samples have one or more interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RX7 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RX8 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RX9 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RY0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RY1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

No defects were found due to ICP serial dilution.

7. SAMPLE RESULTS

The following inorganic sample has analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4RY0 Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but

on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

ME4RX7	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4RX8	Cobalt, Potassium
ME4RX9	Cobalt, Mercury, Potassium
ME4RY0	Cadmium, Cobalt, Potassium
ME4RY1	Cadmium, Cobalt, Mercury, Potassium

Case Number: 39494 SDG Number: ME4RX7
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 5/4/2010

SUBJECT: Review of Data Received for Review on: 3/25/2010

FROM: Andrew Hahn, Environmental Analyst
CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4RY5

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4RY5, ME4RY6, ME4RY7, ME4RY8, ME4RY9, ME4RZ0, ME4RZ1, ME4RZ2, ME4RZ3, ME4RZ4, ME4RZ5, ME4RZ6, ME4RZ7, ME4RZ8, ME4RZ9, ME4S00, ME4S01, ME4S02, ME4S03, ME4S05

Laboratory: A4 Scientific, Inc

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4RY5 - ME4S05 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 2/26/2010 and were received on 3/2/2010, intact at the facility at 4 ºC.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4RZ1 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4RZ3 and ME4RZ4 as field duplicates.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No issues were identified.

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4RY5	Barium, Sodium
ME4RY6	Barium, Potassium
ME4RY7	Barium, Potassium
ME4RY8	Barium, Potassium
ME4RY9	Barium, Potassium
ME4RZ0	Barium, Potassium
ME4RZ1	Barium, Potassium
ME4RZ2	Barium, Potassium
ME4RZ3	Barium, Potassium
ME4RZ4	Barium, Potassium
ME4RZ5	Barium, Potassium
ME4RZ6	Barium, Potassium
ME4RZ7	Barium, Potassium
ME4RZ8	Barium, Potassium
ME4RZ9	Barium, Potassium
ME4S00	Barium, Potassium
ME4S01	Barium, Potassium
ME4S02	Barium
ME4S03	Barium, Potassium
ME4S05	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

Analyte	ME4RZ3 Result (mg/kg)	ME4RZ4 Result (mg/kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	5920	5180	Y	13.3	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	4.1	3.5	N	-	0.6	≤2xCRQL
Barium	92.1	85.4	N	-	6.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	1.9	1.6	N	-	0.3	≤2xCRQL
Calcium	88000	86600	Y	1.6	-	-
Chromium	27.6	28.5	Y	3.2	-	-
Cobalt	6.1	5.6	NA	NA	NA	NA
Copper	27.2	25.7	Y	5.7	-	-
Iron	11800	11200	Y	5.2	-	-
Lead	99.2	94.1	Y	5.3	-	-
Magnesium	31800	32400	Y	1.9	-	-
Manganese	475	450	Y	5.4	-	-
Mercury	0.16	0.16	N	-	0	≤2xCRQL
Nickel	15.1	13.3	N	-	1.8	≤2xCRQL
Potassium	690	615	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	0.62	0.71	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	15.7	14.5	N	-	1.2	≤2xCRQL
Zinc	154	138	Y	11	-	-

6. ICP ANALYSIS

No issues were found with the serial dilution samples.

The following inorganic samples have one or more interferents present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4RY5 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RY6 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RZ0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4RZ1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RZ5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RZ6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4RZ9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S00	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S01	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S02	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S05	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium and not to perform diluted analyses solely to address calcium. Sample results are qualified "J".

ME4RY5	Calcium
ME4RY6	Calcium
ME4RY7	Calcium
ME4RY8	Calcium

ME4RY9	Calcium
ME4RZ0	Calcium
ME4RZ1	Calcium
ME4RZ2	Calcium
ME4RZ3	Calcium
ME4RZ4	Calcium
ME4RZ5	Calcium
ME4RZ6	Calcium
ME4RZ7	Calcium
ME4RZ8	Calcium
ME4RZ9	Calcium
ME4S00	Calcium
ME4S01	Calcium
ME4S02	Calcium
ME4S03	Calcium
ME4S05	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4RY5	Copper, Mercury, Nickel
ME4RY6	Arsenic, Barium, Nickel, Vanadium
ME4RY7	Barium, Cobalt, Potassium, Vanadium
ME4RY8	Barium, Nickel, Vanadium
ME4RY9	Arsenic, Barium, Cadmium, Mercury, Nickel, Vanadium
ME4RZ0	Mercury, Vanadium
ME4RZ1	Cobalt
ME4RZ2	Mercury, Nickel, Vanadium
ME4RZ3	Vanadium
ME4RZ4	Vanadium
ME4RZ5	Arsenic, Barium, Cadmium, Cobalt, Mercury, Nickel, Vanadium
ME4RZ6	Barium, Cobalt, Potassium
ME4RZ7	Mercury, Nickel, Vanadium
ME4RZ8	Arsenic, Cadmium, Mercury, Nickel, Vanadium
ME4RZ9	Mercury, Nickel, Vanadium
ME4S00	Cobalt, Potassium

ME4S01	Cobalt, Potassium
ME4S03	Cadmium, Mercury, Vanadium
ME4S05	Barium, Cobalt, Potassium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 5/5/2010

SUBJECT: Review of Data
Received for Review on: 3/25/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: None SDG Number: ME4S06

Number and Type of Samples: 5 Sediment Samples (Metals)

Sample Numbers: ME4S06, ME4S07, ME4S08, ME4S09, ME4S10,

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Five (5) sediment samples labeled ME4S06, ME4S07, ME4S08 ME4S09, and ME4S10 were shipped to A4 Scientific, Inc. All five (5) samples were collected on February 26, 2010, and were received at the facility at 4 °C on March 2, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4S07 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4S07/ME4S08 as a field duplicate set.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that sample ME4S06 contained < 50% solids. EPA directed the laboratory to proceed with the analysis of the sample and report the results on a dry-weight basis using the percent solids determination.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found.

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is also less than or equal to the CRQL. Detects are qualified "U" and the sample result was raised to the CRQL.

ME4S06 Mercury

ME4S10 Mercury

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. The sample result is greater than the CRQL. No sample results are qualified based on this issue.

ME4S06 Aluminum, Iron

ME4S07 Aluminum, Iron, Mercury

ME4S08 Aluminum, Iron, Mercury

ME4S09 Aluminum, Iron, Mercury

ME4S10 Aluminum, Iron

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

The following inorganic sediment samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S06 Barium, Potassium

ME4S07 Barium, Potassium

ME4S08 Barium, Potassium

ME4S09 Barium, Potassium

ME4S10 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found with the laboratory duplicate analysis.

Metal analytes	MES07 mg/kg	MES08 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Aluminum	6890	6920	Y	0.4	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.9	4.8	N	-	1.9	≤2xCRQL
Barium	101	105	N	-	4	≤2xCRQL
Beryllium	0.37	0.37	NA	NA	NA	NA
Cadmium	1.8	1.8	N	-	0	≤2xCRQL
Calcium	97200	95500	Y	1.8	-	-
Chromium	25.9	26	Y	0.4	-	-
Cobalt	6.2	6.7	NA	NA	NA	NA
Copper	32.2	31.4	Y	2.5	-	-
Iron	13400	13500	Y	0.7	-	-
Lead	80.6	87	Y	7.6	-	-
Magnesium	30900	30200	Y	2.3	-	-
Manganese	528	543	Y	2.8	-	-
Mercury	0.22	0.27	N	-	0.05	≤2xCRQL
Nickel	14.7	15.5	N	-	0.8	≤2xCRQL
Potassium	751	763	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	17.1	17	N	-	0.1	≤2xCRQL
Zinc	166	177	Y	6.4	-	-

6. ICP ANALYSIS

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S09 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S10 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

No defects were found for the ICP serial dilution.

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium and not perform diluted analyses solely to address calcium.. Sample results are qualified "J".

ME4S06	Calcium
ME4S07	Calcium
ME4S08	Calcium
ME4S09	Calcium
ME4S10	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

ME4S06	Cadmium, Cobalt, Mercury, Potassium
ME4S07	Beryllium, Cobalt, Potassium
ME4S08	Beryllium, Cobalt, Potassium
ME4S09	Beryllium, Cobalt, Potassium
ME4S10	Beryllium, Mercury

Case Number: 39494
Site Name: Lincoln Park
SDG Number: ME4S06
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/4/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Sarah Bentley
Environmental Analyst

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S11

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4S11, ME4S12, ME4S13, ME4S14, ME4S15, ME4S16, ME4S17, ME4S18, ME4S19, ME4S20, ME4S21, ME4S22, ME4S23, ME4S24, ME4S41, ME4S42, ME4S43, ME4S44, ME4S46, ME4S48

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4S11- ME4S24, ME4S41-ME4S44, ME4S46, and ME4S48 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 03/01/2010, and were received at the facility on 03/03/2010, intact, and at 4 ºC.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4S20 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4S14 and ME4S15 as field duplicates. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgement, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No issues were identified.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S11	Barium, Potassium
ME4S12	Barium, Potassium
ME4S13	Barium, Potassium
ME4S14	Barium, Potassium
ME4S15	Barium, Potassium
ME4S16	Barium, Potassium
ME4S17	Barium, Potassium
ME4S18	Barium, Potassium
ME4S19	Barium
ME4S20	Barium
ME4S20D	Barium
ME4S21	Barium
ME4S22	Barium
ME4S23	Barium
ME4S24	Barium, Potassium
ME4S41	Barium, Potassium

ME4S42 Barium, Potassium

ME4S43 Barium, Potassium

ME4S44 Barium, Potassium

ME4S46 Barium

ME4S48 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

Metal analytes	ME4S14 mg/Kg	ME4S15 mg/Kg	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3460	3260	Y	6	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	1.8	1.8	N	-	0	≤2xCRQL
Barium	43.7	40.4	N	-	3.3	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.33	0.26	NA	NA	NA	NA
Calcium	92800	86200	Y	7.4	-	-
Chromium	13.1	10.2	Y	24.9	-	-
Cobalt	5.1	5.7	NA	NA	NA	NA
Copper	13.8	12.1	N	-	1.7	≤2xCRQL
Iron	7810	7920	Y	1.4	-	-
Lead	14	11.9	Y	16.2	-	-
Magnesium	44800	40200	Y	10.8	-	-
Manganese	405	442	Y	8.7	-	-
Mercury	0.042	0.051	NA	NA	NA	NA
Nickel	10	10.6	N	-	0.6	≤2xCRQL
Potassium	465	528	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	11.5	11.4	N	-	0.1	≤2xCRQL
Zinc	51.5	47.1	Y	8.9	-	-

6. ICP ANALYSIS

No issues were found with the serial dilution samples.

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher

than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest in this project, the laboratory was instructed to report the initial analyses for calcium. All results which exceed the linear range are qualified "J".

ME4S11	Calcium
ME4S12	Calcium
ME4S13	Calcium
ME4S14	Calcium
ME4S15	Calcium
ME4S16	Calcium
ME4S17	Calcium
ME4S18	Calcium
ME4S19	Calcium
ME4S20	Calcium
ME4S20D	Calcium
ME4S21	Calcium
ME4S22	Calcium
ME4S23	Calcium
ME4S24	Calcium
ME4S41	Calcium
ME4S42	Calcium
ME4S43	Calcium
ME4S44	Calcium
ME4S46	Calcium
ME4S48	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4S11	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4S12	Cobalt, Mercury, Potassium
ME4S13	Cobalt, Mercury, Potassium, Silver
ME4S14	Cadmium, Cobalt, Mercury, Potassium
ME4S15	Cadmium, Cobalt, Mercury, Potassium
ME4S16	Arsenic, Cadmium, Cobalt, Mercury, Potassium
ME4S17	Arsenic, Cobalt, Potassium
ME4S18	Cadmium, Cobalt, Mercury
ME4S19	Barium, Copper, Nickel

ME4S20	Barium, Copper, Nickel, Vanadium
ME4S21	Barium, Copper, Nickel, Vanadium
ME4S22	Barium, Copper, Nickel, Vanadium
ME4S23	Barium, Copper, Nickel, Vanadium
ME4S24	Cobalt, Potassium
ME4S41	Potassium
ME4S42	Potassium
ME4S43	Cadmium, Cobalt, Mercury, Potassium
ME4S44	Cobalt, Mercury, Potassium
ME4S46	Arsenic, Cobalt, Mercury, Nickel, Vanadium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/18/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Joshua Vinson
Environmental Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S25

Number and Type of Samples: 16 Sediment Samples (Metals)

Sample Numbers: ME4S25, ME4S26, ME4S27, ME4S29, ME4S30, ME4S31, ME4S32, ME4S33, ME4S34, ME4S35, ME4S36, ME4S38, ME4S39, ME4S40, ME4S49, ME4S50

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Sixteen (16) sediment samples labeled ME4S25-ME4S27, ME4S29-ME4S36, ME4S38-ME4S40, ME4S49, and ME4S50 were shipped to A4 Scientific, Inc. All sixteen samples were collected on 03/01/2010 and were received at the facility on 03/03/2010, intact and at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, sample ME4S35 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4S39/ME4S40 as a field duplicate set. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples."

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

No problems were found

2. CALIBRATION

No problems were found

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. Because sample results are significantly greater than the CRQL no sample results were qualified based on this issue.

ME4S27	Aluminum
ME4S29	Aluminum
ME4S30	Aluminum
ME4S31	Aluminum
ME4S32	Aluminum
ME4S33	Aluminum
ME4S34	Aluminum
ME4S36	Aluminum
ME4S38	Aluminum
ME4S39	Aluminum
ME4S40	Aluminum
ME4S49	Aluminum
ME4S50	Aluminum

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No Defects were found for matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S25	Barium, Potassium
ME4S26	Barium, Potassium
ME4S27	Barium, Potassium
ME4S29	Barium, Potassium
ME4S30	Barium, Potassium
ME4S31	Barium, Potassium
ME4S32	Barium, Potassium
ME4S33	Barium, Potassium
ME4S34	Barium, Potassium
ME4S35	Barium, Potassium
ME4S36	Barium, Potassium
ME4S38	Barium, Potassium
ME4S39	Barium, Potassium
ME4S40	Barium, Potassium

ME4S49 Barium
ME4S50 Barium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

The following table contains data for a sample/field duplicate pair in this SDG.

Analyte	ME4S39 (mg/kg)	ME4S40 (mg/kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3360	2770	Y	19.2	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.1	2.6	N	-	0.5	≤2xCRQL
Barium	32.5	31.8	N	-	0.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.29	0.41	NA	NA	NA	NA
Calcium	105000	83500	Y	22.8	-	-
Chromium	8	7.7	Y	3.8	-	-
Cobalt	7.7	5.4	N	-	2.3	≤2xCRQL
Copper	13.7	11	N	-	2.7	≤2xCRQL
Iron	9240	6960	Y	28.1	-	-
Lead	12.9	19.8	Y	42.2	-	-
Magnesium	54300	41600	Y	26.5	-	-
Manganese	606	444	Y	30.9	-	-
Mercury	0.042	ND	N	-	0.01	≤2xCRQL
Nickel	13.2	9.4	N	-	3.8	≤2xCRQL
Potassium	580	416	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	13.9	10.5	N	-	3.4	≤2xCRQL
Zinc	43.6	50.5	Y	14.7	-	-

The following inorganic sample/field duplicate results are > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4S39/ME4S40 Lead

6. ICP ANALYSIS

The following inorganic samples have one or more interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S33	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S34	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S38	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S39	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S40	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S49	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S50	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4S25	Calcium
ME4S26	Calcium
ME4S27	Calcium
ME4S29	Calcium
ME4S30	Calcium
ME4S31	Calcium
ME4S32	Calcium
ME4S33	Calcium
ME4S35	Calcium
ME4S36	Calcium
ME4S38	Calcium
ME4S39	Calcium
ME4S40	Calcium
ME4S49	Calcium
ME4S50	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4S25	Cadmium, Cobalt, Mercury, Potassium
ME4S26	Cadmium, Cobalt, Mercury, Potassium
ME4S30	Cadmium, Cobalt, Mercury, Potassium
ME4S29	Potassium
ME4S31	Cobalt, Mercury, Potassium
ME4S32	Cobalt, Mercury, Potassium
ME4S38	Cobalt, Mercury, Potassium
ME4S33	Cadmium, Potassium
ME4S34	Arsenic, Cobalt, Mercury, Potassium
ME4S35	Cobalt, Mercury, Potassium, Silver
ME4S36	Cobalt, Mercury, Potassium, Silver
ME4S39	Cadmium, Mercury, Potassium
ME4S40	Cadmium, Cobalt, Potassium
ME4S49	Arsenic, Barium, Copper, Nickel, Vanadium
ME4S50	Arsenic, Barium, Nickel

Case Number: 39494 SDG Number: ME4S25
Site Name: Lincoln Park Laboratory: A4 Scientific, Inc.

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/4/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S51

Number and Type of Samples: 16 Sediment Samples (Metals)

Sample Numbers: ME4S51, ME4S52, ME4S53, ME4S54, ME4S55, ME4S56, ME4S57, ME4S58, ME4S59, ME4S60, ME4S61, ME4S62, ME4S63, ME4S64, ME4S65, ME4S66

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Sixteen (16) sediment samples labeled ME4S51-ME4S66 were shipped to A4 Scientific, Inc. All Sixteen (16) samples were collected on 3/2/2010, and were received at the facility on 3/4/2010, intact at 4° C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4S60 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4S56/ME4S57, and ME4S65/ME4S66 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic soil samples are associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4S51	Mercury
ME4S52	Mercury
ME4S53	Mercury
ME4S54	Mercury
ME4S55	Mercury
ME4S56	Mercury
ME4S57	Mercury
ME4S58	Mercury
ME4S59	Mercury
ME4S60	Mercury
ME4S61	Mercury
ME4S62	Mercury
ME4S63	Mercury
ME4S64	Mercury
ME4S65	Mercury
ME4S66	Mercury

The following inorganic soil samples are associated with an CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4S51	Mercury
ME4S52	Mercury
ME4S53	Mercury
ME4S54	Mercury
ME4S55	Mercury
ME4S56	Mercury
ME4S57	Mercury
ME4S58	Mercury
ME4S59	Mercury
ME4S60	Mercury
ME4S61	Mercury
ME4S62	Mercury
ME4S63	Mercury
ME4S64	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S51	Barium, Potassium
ME4S52	Barium, Potassium
ME4S53	Barium, Potassium
ME4S54	Barium, Potassium
ME4S55	Barium, Potassium
ME4S56	Potassium
ME4S57	Potassium
ME4S58	Barium, Potassium
ME4S59	Barium, Potassium
ME4S60	Barium, Potassium
ME4S61	Barium, Potassium
ME4S62	Barium, Potassium
ME4S63	Potassium
ME4S64	Potassium
ME4S65	Barium, Potassium
ME4S66	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Metal Analytes	ME4S56 (mg/kg)	ME4S57 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1440	1460	Y	1.4	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	ND	0.48	N	-	0.01	≤2xCRQL
Barium	12.2	10.2	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA
Calcium	114000	110000	Y	3.6	-	-
Chromium	3.8	3.6	N	-	0.2	≤2xCRQL
Cobalt	3.1	2.7	NA	NA	NA	NA
Copper	3.8	2.2	N	-	1.6	≤2xCRQL
Iron	4450	4400	Y	1.1	-	-
Lead	3.1	2.8	N	-	0.3	≤2xCRQL
Magnesium	NA	301	Y	11.2	-	-
Manganese	269	ND	NA	NA	NA	NA
Mercury	ND	3.8	NA	NA	NA	NA
Nickel	4.4	ND	NA	NA	NA	NA
Potassium	ND	ND	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA

Metal Analytes	ME4S56 (mg/kg)	ME4S57 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	6.7	N	-	1.6	≤2xCRQL
Vanadium	8.3	17.4	N	-	0.7	≤2xCRQL
Zinc	18.1	301	Y	11.2	-	-

Metal Analytes	ME4S65 (mg/kg)	ME4S66 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3100	2980	Y	3.9	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.6	2	N	-	0.6	≤2xCRQL
Barium	30	29.4	N	-	0.6	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA
Calcium	88100	100000	Y	12.7	-	-
Chromium	7.1	6.2	Y	13.5	-	-
Cobalt	6.7	5.6	N	-	1.1	≤2xCRQL
Copper	11.7	9.7	N	-	2	≤2xCRQL
Iron	8670	8620	Y	0.6	-	-
Lead	7.3	6.9	Y	5.6	-	-
Magnesium	47000	49200	Y	4.6	-	-
Manganese	520	450	Y	14.4	-	-
Mercury	ND	ND	NA	NA	NA	NA
Nickel	12.6	10.7	N	-	1.9	≤2xCRQL
Potassium	600	586	N	-	14	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	12.7	11.7	N	-	1	≤2xCRQL
Zinc	32.1	30.2	N	-	1.9	≤2xCRQL

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4S62 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S51	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S52	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S54	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S55	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S56	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S57	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S58	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S59	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S60	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S61	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S62	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S63	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S64	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S65	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S66	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4S51	Calcium
ME4S52	Calcium
ME4S53	Calcium
ME4S54	Calcium
ME4S55	Calcium
ME4S56	Calcium
ME4S57	Calcium
ME4S58	Calcium
ME4S59	Calcium
ME4S60	Calcium
ME4S61	Calcium
ME4S62	Calcium
ME4S63	Calcium
ME4S64	Calcium
ME4S65	Calcium
ME4S66	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4S51	Cobalt, Potassium
ME4S52	Barium, Potassium
ME4S53	Arsenic, Cobalt, Mercury, Potassium

ME4S54	Cobalt, Mercury, Potassium
ME4S55	Beryllium
ME4S56	Barium, Cobalt, Nickel
ME4S57	Arsenic, Barium, Cobalt, Copper, Nickel
ME4S59	Arsenic, Cadmium, Cobalt, Nickel, Potassium
ME4S60	Cobalt, Mercury, Potassium
ME4S61	Arsenic, Barium, Cobalt, Potassium
ME4S63	Barium, Cobalt, Nickel
ME4S64	Barium, Cadmium, Cobalt
ME4S66	Cobalt

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 5/4/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Andrew Hahn, Environmental Analyst
CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S67

Number and Type of Samples: 13 Sediment Samples (Metals)

Sample Numbers: ME4S67, ME4S68, ME4S69, ME4S70, ME4S71, ME4S72, ME4S73, ME4S74, ME4S75, ME4S76, ME4S77, ME4S78, ME4S79

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Thirteen (13) sediment samples labeled ME4S67-ME4S79 were shipped to A4 Scientific, Inc. All thirteen (13) samples were collected on 3/2/2010 and were received intact at the facility on 3/4/2010, at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4S67 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4S78 and ME4S79 as field duplicates.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. The following samples were qualified "UJ".

ME4S67	Mercury
ME4S68	Mercury
ME4S69	Mercury
ME4S70	Mercury
ME4S71	Mercury
ME4S72	Mercury
ME4S73	Mercury
ME4S74	Mercury
ME4S75	Mercury
ME4S76	Mercury
ME4S77	Mercury
ME4S78	Mercury
ME4S79	Mercury

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. The following samples were qualified "UJ"

ME4S67	Mercury
ME4S68	Mercury
ME4S69	Mercury
ME4S70	Mercury
ME4S71	Mercury
ME4S72	Mercury
ME4S73	Mercury
ME4S74	Mercury
ME4S75	Mercury
ME4S76	Mercury
ME4S77	Mercury
ME4S78	Mercury
ME4S79	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S67 Barium, Sodium

ME4S68 Barium, Potassium

ME4S69 Barium , Potassium

ME4S70 Barium

ME4S71 Barium

ME4S72 Barium, Potassium

ME4S73 Barium, Potassium

ME4S74 Barium

ME4S75 Barium

ME4S76 Barium

ME4S77 Barium

ME4S78 Barium, Potassium

ME4S79 Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

Analyte	ME4S78 Result (mg/kg)	ME4S79 Result (mg/kg)	Both Results> 5x CRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	2730	3170	Y	14.9	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	1.8	2.3	N	-	0.5	≤2xCRQL
Barium	26.2	30.5	N	-	4.3	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	ND	ND	NA	NA	NA	NA
Calcium	99000	90900	Y	8.5	-	-
Chromium	5.9	6.9	Y	15.6	-	-
Cobalt	4.9	5.7	NA	NA	NA	NA
Copper	8.1	10.2	N	-	2.1	≤2xCRQL
Iron	7510	8530	Y	12.7	-	-
Lead	5.2	6.8	N	-	1.6	≤2xCRQL
Magnesium	47400	47200	Y	0.4	-	-
Manganese	405	444	Y	9.2	-	-
Mercury	ND	ND	NA	NA	NA	NA
Nickel	9.5	11.6	N	-	2.1	≤2xCRQL

Analyte	ME4S78 Result (mg/kg)	ME4S79 Result (mg/kg)	Both Results> 5x CRQL	%RPD	Abs Diff	Abs Diff Range
Potassium	523	613	N	-	90	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.3	12.5	N	-	2.2	≤2xCRQL
Zinc	28.5	33.2	N	-	4.7	≤2xCRQL

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4S68 Potassium

The following inorganic samples have one or more interferents present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S67 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S68 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S69 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S70 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S71 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S72 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S73 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S75	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S76	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S77	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S78	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S79	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

The following inorganic samples are associated with an ICP serial dilution percent difference that is greater than 10%, but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4S67	Aluminum
ME4S68	Aluminum
ME4S69	Aluminum
ME4S70	Aluminum
ME4S71	Aluminum
ME4S72	Aluminum
ME4S73	Aluminum
ME4S74	Aluminum
ME4S75	Aluminum
ME4S76	Aluminum
ME4S77	Aluminum
ME4S78	Aluminum
ME4S79	Aluminum

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4S67	Calcium
ME4S68	Calcium
ME4S69	Calcium
ME4S70	Calcium
ME4S71	Calcium
ME4S72	Calcium
ME4S73	Calcium
ME4S74	Calcium
ME4S75	Calcium
ME4S76	Calcium
ME4S77	Calcium
ME4S78	Calcium
ME4S79	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J."

ME4S67	Arsenic, Barium, Cobalt, Sodium
ME4S68	Cobalt
ME4S69	Arsenic, Barium, Cadmium, Nickel, Vanadium
ME4S71	Nickel, Vanadium
ME4S72	Barium, Cobalt, Vanadium
ME4S73	Barium, Vanadium
ME4S74	Barium, Vanadium
ME4S75	Lead, Vanadium
ME4S76	Vanadium
ME4S77	Lead, Vanadium
ME4S78	Arsenic, Barium, Vanadium
ME4S79	Arsenic, Barium, Potassium

Case Number: 39494 SDG Number: ME4S67
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/8/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4S80

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SA0, ME4S80, ME4S81, ME4S83, ME4S84, ME4S85, ME4S86, ME4S87, ME4S88, ME4S89, ME4S90, ME4S91, ME4S92, ME4S93, ME4S94, ME4S95, ME4S96, ME4S97, ME4S98, ME4S99

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4S80-ME4S81, ME4S83-ME4S99, and ME4SA0 were shipped to A4 Scientific, Inc. All twenty (20) samples were collected on 3/3/2010, and were received at the facility on 3/05/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4S95 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4S88/ME4S89 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as "soil" on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed the laboratory to report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No defects were found for the calibration blanks or preparation blank.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4S80	Barium
ME4S81	Barium
ME4S83	Barium, Potassium
ME4S84	Barium, Potassium
ME4S85	Barium, Potassium
ME4S86	Barium, Potassium
ME4S87	Barium, Potassium
ME4S88	Barium, Potassium
ME4S89	Barium, Potassium
ME4S90	Barium, Potassium
ME4S91	Barium, Potassium
ME4S92	Barium, Potassium
ME4S93	Barium, Potassium
ME4S94	Barium, Potassium
ME4S95	Barium, Potassium
ME4S96	Barium, Potassium
ME4S97	Barium, Potassium
ME4S98	Barium, Potassium
ME4S99	Barium, Potassium
ME4SA0	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

The following table contains data for a sample/field duplicate pair in this SDG.

Metal Analytes	ME4S88 (mg/kg)	ME4S89 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	4360	7110	Y	48	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.8	3.2	N	-	0.6	≤2xCRQL
Barium	69.7	86.4	N	-	16.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	1.2	1.5	N	-	0.3	≤2xCRQL
Calcium	85200	95800	Y	11.7	-	-
Chromium	18.4	20.4	Y	10.3	-	-
Cobalt	4.8	5.3	NA	NA	NA	NA
Copper	22.3	28.4	Y	24.1	-	-
Iron	9190	11000	Y	17.9	-	-
Lead	73.1	77.5	Y	5.8	-	-
Magnesium	35700	34700	Y	2.8	-	-
Manganese	359	433	Y	18.7	-	-
Mercury	0.15	0.19	N	-	0.04	≤2xCRQL
Nickel	10.6	12	N	-	1.4	≤2xCRQL
Potassium	554	570	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	13.5	14.7	N	-	1.2	≤2xCRQL
Zinc	119	143	Y	18.3	-	-

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue

ME4S97 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4S81 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S83 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4S84	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S85	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S86	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S90	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S91	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S95	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S96	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4S97	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4S80	Calcium
ME4S81	Calcium
ME4S83	Calcium

ME4S84	Calcium
ME4S85	Calcium
ME4S86	Calcium
ME4S87	Calcium
ME4S88	Calcium
ME4S89	Calcium
ME4S90	Calcium
ME4S91	Calcium
ME4S93	Calcium
ME4S94	Calcium
ME4S95	Calcium
ME4S96	Calcium
ME4S97	Calcium
ME4S99	Calcium
ME4SA0	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL).

All results below the CRQL are qualified "J".

ME4S80	Arsenic, Barium, Copper, Nickel
ME4S81	Barium, Cobalt, Nickel
ME4S83	Arsenic, Cadmium, Cobalt, Potassium
ME4S84	Cadmium, Cobalt, Mercury, Potassium
ME4S85	Cobalt, Potassium
ME4S86	Barium, Cobalt, Potassium
ME4S87	Cobalt, Mercury, Potassium
ME4S88	Cobalt, Mercury, Potassium
ME4S89	Cobalt, Potassium
ME4S90	Cadmium, Cobalt, Mercury, Potassium
ME4S91	Beryllium
ME4S92	Cobalt, Mercury, Potassium
ME4S93	Cobalt, Mercury, Potassium
ME4S94	Beryllium, Cobalt, Mercury, Potassium
ME4S95	Beryllium, Cadmium, Cobalt, Mercury

ME4S96	Cobalt, Potassium
ME4S97	Beryllium
ME4S98	Beryllium, Cobalt, Mercury, Potassium
ME4S99	Cobalt, Potassium
ME4SA0	Beryllium, Cobalt, Potassium, Silver

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/15/2010

SUBJECT: Review of Data
Received for Review on: 3/26/2010

FROM: Andrew Hahn, Environmental Analyst
CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4SA1

Number and Type of Samples: 18 Sediment Samples (Metals)

Sample Numbers: ME4SA1, ME4SA2, ME4SA3, ME4SA4, ME4SA5, ME4SA6, ME4SA7, ME4SA8, ME4SA9, ME4SB0, ME4SB1, ME4SB2, ME4SB3, ME4SB4, ME4SB5, ME4SB6, ME4SB7, ME4SB8

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Eighteen (18) sediment samples labeled ME4SA1-ME4SB8 were shipped to A4 Scientific, Inc. All eighteen (18) samples were collected on 3/3/2010 and were received intact at the facility on 3/5/2010, at 4° C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, Sample ME4SB6 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified samples ME4SA3 and ME4SA6 as field duplicates, and ME4SB2 and ME4SB4 as a field duplicates.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic soil samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is also less than or equal to the CRQL. Hits are qualified "U". Sample result is raised to the CRQL.

ME4SA8	Mercury
ME4SB0	Mercury
ME4SB1	Mercury
ME4SB2	Mercury
ME4SB3	Mercury
ME4SB4	Mercury
ME4SB5	Mercury
ME4SB6	Mercury
ME4SB7	Mercury
ME4SB8	Mercury

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than CRQL. No samples were qualified based on this issue.

ME4SA1	Aluminum, Iron
ME4SA2	Aluminum, Iron
ME4SA3	Aluminum, Iron
ME4SA4	Aluminum, Iron
ME4SA5	Aluminum, Iron
ME4SA6	Aluminum, Iron
ME4SA7	Aluminum, Iron
ME4SA8	Aluminum, Iron
ME4SB6	Aluminum, Iron
ME4SA9	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

The following inorganic samples are associated with a matrix spike recovery which is outside expanded low criteria. However, post-digest spike percent recovery was more than or equal to the low limit. Results greater than the MDL are flagged "J". Results less than the MDL are flagged "UJ".

ME4SA1	Selenium
ME4SA2	Selenium
ME4SA3	Selenium
ME4SA4	Selenium

ME4SA5	Selenium
ME4SA6	Selenium
ME4SA7	Selenium
ME4SA8	Selenium
ME4SA9	Selenium
ME4SB0	Selenium
ME4SB1	Selenium
ME4SB2	Selenium
ME4SB3	Selenium
ME4SB4	Selenium
ME4SB5	Selenium
ME4SB6	Selenium
ME4SB7	Selenium
ME4SB8	Selenium

The following inorganic samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SA1	Barium, Potassium
ME4SA2	Barium, Potassium
ME4SA3	Barium, Potassium
ME4SA4	Barium, Potassium
ME4SA5	Barium, Potassium
ME4SA6	Barium, Potassium
ME4SA8	Barium, Potassium
ME4SA9	Barium, Potassium
ME4SB0	Barium, Potassium
ME4SB1	Barium, Potassium
ME4SB2	Barium, Potassium
ME4SB3	Barium, Potassium
ME4SB4	Barium, Potassium
ME4SB5	Barium, Potassium
ME4SB6	Barium, Potassium
ME4SB7	Barium, Potassium
ME4SB8	Barium, Potassium

ME4SA7	Barium

5. LABORATORY AND FIELD DUPLICATES

ME4SA3 and ME4SA6

Analyte	ME4SA3 (mg/Kg)	ME4SA6 (mg/Kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	2740	2950	Y	7.4	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	1.9	2.1	N	-	0.2	≤2xCRQL
Barium	50.6	41.5	N	-	9.1	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.49	0.57	NA	NA	NA	NA
Calcium	108000	105000	Y	2.8	-	-

Analyte	ME4SA3 (mg/Kg)	ME4SA6 (mg/Kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Chromium	13.5	12.8	Y	5.3	-	-
Cobalt	3.9	3.7	NA	NA	NA	NA
Copper	10.8	12.1	N	-	1.3	≤2xCRQL
Iron	6630	7820	Y	16.5	-	-
Lead	25.1	30.9	Y	20.7	-	-
Magnesium	45400	45000	Y	0.9	-	-
Manganese	397	430	Y	8	-	-
Mercury	0.12	0.1	NA	NA	NA	NA
Nickel	7.7	7.8	N	-	0.1	≤2xCRQL
Potassium	363	384	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.2	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	8.3	10.2	N	-	1.9	≤2xCRQL
Zinc	68.9	80.6	Y	15.7	-	-

ME4SB2 and ME4SB4

Analyte	ME4SB2 (mg/Kg)	ME4SB4 (mg/Kg)	Both Results> 5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	4250	3300	Y	25.2	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	2.3	2.3	N	-	0	≤2xCRQL
Barium	42.5	30.8	N	-	11.7	≤2xCRQL
Beryllium	0.27	ND	N	-	0.01	≤2xCRQL
Cadmium	0.97	0.76	N	-	0.21	≤2xCRQL
Calcium	62800	65400	Y	4.1	-	-
Chromium	13	13.6	Y	4.5	-	-
Cobalt	4.5	4	NA	NA	NA	NA
Copper	20	17.2	N	-	2.8	≤2xCRQL
Iron	7040	6630	Y	6	-	-
Lead	35	27.2	Y	25.1	-	-
Magnesium	27400	29200	Y	6.4	-	-
Manganese	258	240	Y	7.2	-	-
Mercury	0.12	0.11	NA	NA	NA	NA
Nickel	11.1	10	N	-	1.1	≤2xCRQL
Potassium	661	497	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.6	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	12.6	13.1	N	-	0.5	≤2xCRQL
Zinc	87.7	87.8	Y	0.1	-	-

6. ICP ANALYSIS

The following inorganic samples have one or more interferents present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SA1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SA9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SB2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SB8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4SA1	Calcium
ME4SA2	Calcium
ME4SA3	Calcium
ME4SA4	Calcium
ME4SA5	Calcium
ME4SA6	Calcium
ME4SA7	Calcium
ME4SA8	Calcium
ME4SA9	Calcium
ME4SB0	Calcium

ME4SB2	Calcium
ME4SB3	Calcium
ME4SB5	Calcium
ME4SB6	Calcium
ME4SB7	Calcium
ME4SB8	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SA1	Antimony, Cobalt, Mercury, Potassium
ME4SA2	Cadmium, Cobalt, Mercury, Potassium
ME4SA3	Cadmium, Cobalt, Mercury, Potassium
ME4SA6	Cadmium, Cobalt, Mercury, Potassium
ME4SB1	Cadmium, Cobalt, Mercury, Potassium
ME4SB4	Cadmium, Cobalt, Mercury, Potassium
ME4SA4	Beryllium, Cobalt, Potassium
ME4SA5	Antimony, Barium, Mercury, Potassium
ME4SA7	Arsenic, Barium, Mercury, Nickel
ME4SA8	Antimony, Barium, Cadmium, Cobalt, Mercury, Potassium
ME4SA9	Beryllium, Cobalt, Potassium, Silver
ME4SB0	Cobalt, Mercury, Potassium
ME4SB2	Beryllium, Cobalt, Mercury, Potassium
ME4SB3	Arsenic, Barium, Cobalt, Copper, Mercury, Nickel, Potassium
ME4SB5	Arsenic, Barium, Mercury, Nickel, Potassium
ME4SB6	Barium, Mercury, Nickel, Potassium
ME4SB7	Arsenic, Barium, Copper, Lead, Mercury, Nickel, Potassium
ME4SB8	Antimony, Beryllium, Mercury

Case Number: 39494 SDG Number: ME4SA1
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/14/2010

SUBJECT: Review of Data
Received for Review on: 4/06/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 SDG Number: ME4SB9

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SB9, ME4SC0, ME4SC2, ME4SC3, ME4SC4, ME4SC5, ME4SC6, ME4SC7, ME4SC8, ME4SC9, ME4SD0, ME4SD2, ME4SD3, ME4SD4, ME4SD5, ME4SD6, ME4SD7, ME4SD9, ME4SE0, ME4SE1

Laboratory: A4 Scientific

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SB9, ME4SC0, ME4SC2, ME4SC3, ME4SC4, ME4SC5, ME4SC6, ME4SC7, ME4SC8, ME4SC9, ME4SD0, ME4SD2, ME4SD3, ME4SD4, ME4SD5, ME4SD6, ME4SD7, ME4SD9, ME4SE0, and ME4SE1 were shipped to A4 Scientific, Inc. All twenty samples were collected on March 4, 2010, and were received at the facility at 4 °C on March 5, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SD2 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution). The relative percent difference (RPD) for aluminum and manganese exceeded the QC limits. In addition, the percent difference for aluminum exceeded the QC limits in the serial dilution. Interferences are suspected.

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4SC5/ME4SC6 as a field duplicate pair.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

Although the automated NFG reports noted that sample ME4SD6 was associated with ICV and CCV standards that were not analyzed in the required frequency, examination of the hard copy reporting forms and the raw data showed no such discrepancy. No defects were found.

3. BLANKS

Although the automated NFG reports noted that sample ME4SD6 was associated with initial or continuing calibration blanks that were not analyzed in the required frequency, examination of the hard copy reporting forms and the raw data showed no such discrepancy. No defects were found.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

For the matrix spike, the RPD for aluminum and manganese exceeded the QC limits. Interferences are suspected.

Although the automated NFG reports noted that sample ME4SD6 was associated with matrix spikes and other laboratory control samples (LCS) that were not analyzed in the required frequency, examination of the hard copy reporting forms and the raw data showed no such discrepancy. Detects and non-detects are not flagged.

The following inorganic soil samples are associated with a solid LCS with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SB9	Barium, Potassium
ME4SC0	Barium, Potassium
ME4SC2	Barium, Potassium
ME4SC3	Barium, Potassium
ME4SC4	Barium, Potassium
ME4SC5	Barium, Potassium
ME4SC6	Barium, Potassium
ME4SC7	Barium, Potassium
ME4SC8	Barium, Potassium
ME4SC9	Barium, Potassium
ME4SD0	Barium, Potassium
ME4SD2	Barium, Potassium
ME4SD3	Barium, Potassium
ME4SD4	Barium, Potassium
ME4SD5	Barium, Potassium
ME4SD6	Barium, Potassium
ME4SD7	Barium, Potassium
ME4SD9	Barium, Potassium
ME4SE0	Barium, Potassium
ME4SE1	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

For the laboratory duplicate, the RPD for aluminum and manganese exceeded the quality control QC limits. Interferences are suspected.

Metal analytes	ME4SC5 mg/kg	ME4SC6 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Aluminum	8520	8370	Y	1.8	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	5.9	4.9	N	-	1	=2xCRQL
Barium	122	111	N	-	11	=2xCRQL
Beryllium	0.44	0.44	NA	NA	NA	NA
Cadmium	3.6	3.2	N	-	0.4	=2xCRQL
Calcium	90100	94500	Y	4.8	-	-
Chromium	72	54.6	Y	27.5	-	-
Cobalt	7.6	6.7	NA	NA	NA	NA
Copper	55	49.9	Y	9.7	-	-
Iron	17500	15500	Y	12.1	-	-
Lead	163	163	Y	0	-	-
Magnesium	33000	34200	Y	3.6	-	-
Manganese	497	495	Y	0.4	-	-
Mercury	0.31	0.27	N	-	0.04	=2xCRQL
Nickel	33	21.3	N	-	11.7	>2xCRQL
Potassium	1000	993	N	-	7	=2xCRQL
Selenium	2.8	2.5	NA	NA	NA	NA
Silver	0.69	ND	N	-	0.02	=2xCRQL
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	20.2	19.6	N	-	0.6	=2xCRQL
Zinc	265	236	Y	11.6	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

6. ICP ANALYSIS

The percent difference for aluminum exceeded the QC limits in the serial dilution. Interferences are suspected.

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SC3 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SB9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SC7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SD7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following inorganic sample has analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4SB9	Calcium
ME4SC0	Calcium
ME4SC2	Calcium
ME4SC3	Calcium
ME4SC4	Calcium
ME4SC5	Calcium
ME4SC6	Calcium
ME4SC7	Calcium
ME4SC8	Calcium
ME4SC9	Calcium
ME4SD0	Calcium
ME4SD2	Calcium
ME4SD3	Calcium
ME4SD4	Calcium
ME4SD5	Calcium
ME4SD6	Calcium
ME4SD7	Calcium
ME4SD9	Calcium
ME4SE0	Calcium
ME4SE1	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD. The following inorganic samples have analyte concentrations reported below the CRQL and are qualified "J".

ME4SB9	Antimony, Cadmium, Cobalt, Mercury, Potassium,
ME4SC0	Cadmium, Cobalt, Mercury, Potassium
ME4SC2	Cobalt, Mercury, Potassium
ME4SC3	Antimony, Beryllium, Cadmium, Mercury, Selenium
ME4SC4	Cobalt, Mercury, Potassium, Selenium
ME4SC5	Beryllium, Cobalt, Selenium, Silver

ME4SC6	Beryllium, Cobalt, Selenium
ME4SC7	Antimony, Beryllium, Cobalt, Selenium, Silver
ME4SC8	Cobalt, Potassium
ME4SC9	Cobalt, Mercury, Potassium
ME4SD0	Cobalt, Mercury, Potassium
ME4SD2	Antimony, Barium, Cobalt, Mercury, Potassium
ME4SD3	Antimony, Beryllium, Cadmium, Mercury, Selenium
ME4SD4	Barium, Cobalt, Mercury, Nickel, Potassium
ME4SD5	Cadmium, Cobalt, Mercury, Potassium
ME4SD6	Antimony, Barium, Cobalt, Mercury, Potassium
ME4SD7	Antimony, Beryllium, Cadmium, Mercury, Selenium
ME4SD9	Cobalt, Mercury, Potassium, Selenium
ME4SE0	Beryllium, Cobalt, Selenium, Silver
ME4SE1	Beryllium, Cobalt, Selenium, Silver

Case Number: 39494 SDG Number: ME4SB9
Site Name: Lincoln Park Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/09/2010

SUBJECT: Review of Data
Received for Review on: 3/30/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 SDG Number: ME4SC1

Number and Type of Samples: 7 Sediment Samples (Metals)

Sample Numbers: ME4SC1, ME4SG0, ME4SG1, ME4SG2, ME4SG3, ME4SG4, ME4SG7

Laboratory: A4 Scientific

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Seven (7) sediment samples labeled ME4RX7, ME4RX8, ME4RX9 ME4RY0, and ME4RY were shipped to A4 Scientific, Inc. All seven samples were collected on March 5, 2010, and were received at the facility at 4 °C on March 6, 2010.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SC1 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4SG1/ME4SG4 as a field duplicate pair.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually "sediment" samples.

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample and not to perform diluted analyses solely to address calcium.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment samples were reviewed for holding time violations using criteria developed for water samples. No defects were found.

2. CALIBRATION

No defects were found.

3. BLANKS

No defects were found.

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SC1	Barium, Potassium
ME4SG0	Barium, Potassium
ME4SG1	Barium, Potassium
ME4SG2	Barium, Potassium
ME4SG3	Barium, Potassium
ME4SG4	Barium, Potassium
ME4SG7	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found with the laboratory duplicate analysis.

Metal analytes	ME4SG1 mg/kg	ME4SG4 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Aluminum	5050	5920	Y	15.9	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	3.2	7.9	N	-	4.7	>4xCRQL
Barium	73.1	109	N	-	35.9	≤2xCRQL
Beryllium	0.31	0.39	NA	NA	NA	NA
Cadmium	1.1	2.1	N	-	1	≤2xCRQL
Calcium	84700	77100	Y	9.4	-	-
Chromium	26.8	33.8	Y	23.1	-	-
Cobalt	5.3	6.1	NA	NA	NA	NA
Copper	25.3	29	Y	13.6	-	-
Iron	11300	15300	Y	30.1	-	-
Lead	59.9	127	Y	71.8	-	-

Metal analytes	ME4SG1 mg/kg	ME4SG4 mg/kg	Both Results >5xCR	%RPD	Abs. Diff	Abs Diff Range
Magnesium	36200	37400	Y	3.3	-	-
Manganese	363	460	Y	23.6	-	-
Mercury	0.067	0.16	N	-	0.09	≤2xCRQL
Nickel	14.2	15.7	N	-	1.5	≤2xCRQL
Potassium	620	719	N	-	99	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	16.2	21.8	N	-	5.6	≤2xCRQL
Zinc	128	171	Y	28.8	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

The following inorganic sample/field duplicate pair has results > 5×CRQL and RPD ≥ 35% but < 120%. These results are qualified "J."

ME4SG1/ME4SG4 Lead

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SG7 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SC1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SG0 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SG1 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SG2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

No defects were found for the ICP serial dilution.

7. SAMPLE RESULTS

The following inorganic sample has analyte concentrations which exceed the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium. Sample results are qualified "J".

ME4SC1	Calcium
ME4SG0	Calcium
ME4SG1	Calcium
ME4SG2	Calcium
ME4SG3	Calcium
ME4SG4	Calcium
ME4SG7	Calcium

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the CRQL and are qualified "J".

ME4SC1	Beryllium, Cobalt
ME4SG0	Cobalt, Mercury
ME4SG1	Beryllium
ME4SG2	Cadmium, Cobalt

ME4SG3	Cobalt
ME4SG4	Beryllium, Cobalt
ME4SG7	Beryllium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/8/2010

SUBJECT: Review of Data
Received for Review on: 3/30/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4SE2

Number and Type of Samples: 17 Sediment Samples (Metals)

Sample Numbers: ME4SE2, ME4SE3, ME4SE4, ME4SE5, ME4SE6, ME4SE7, ME4SE8, ME4SE9, ME4SF0, ME4SF1, ME4SF2, ME4SF3, ME4SF4, ME4SF5, ME4SF6, ME4SF7, ME4SF8

Laboratory: A4 Scientific, Inc.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Seventeen (17) sediment samples labeled ME4SE2 - ME4SE9 and ME4SF0 - ME4SF8 were shipped to A4 Scientific, Inc. Thirteen of the seventeen samples were collected on 3/4/2010 and the remaining four samples were collected on 3/5/2010. All seventeen (17) samples were received on 3/6/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SE2 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, we have identified ME4SE1/ME4SE2 as a field duplicate pair. Sample ME4SE1, the field duplicate for ME4SE2, was analyzed in SDG ME4SB9 and is qualified based on any QC failures in that SDG (as detailed in the data review report for SDG ME4SB9). Sample ME4SE2 was analyzed in the SDG reported here. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.”

The laboratory noted that all samples included small shell fragments, and that calcium levels were very high (approximately 600 ppm). EPA directed that the laboratory should report the initial analysis of calcium for each sample.

The laboratory noted that the chain-of-custody only specified analysis of “total metals.” EPA directed that the laboratory also perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, ‘J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

No defects were found for the calibration blanks or preparation blank

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic soil samples are associated with a solid laboratory control sample (LCS) with analyte-found amounts above the upper control limit criteria. However, because the true value of the LCS is less than or equal to the MDL, no sample results were qualified based on this issue.

ME4SE2	Barium, Potassium
ME4SE3	Barium, Potassium
ME4SE4	Barium, Potassium
ME4SE5	Barium, Potassium
ME4SE6	Barium, Potassium
ME4SE7	Barium
ME4SE8	Barium
ME4SE9	Barium
ME4SF0	Barium, Potassium
ME4SF1	Barium, Potassium
ME4SF2	Barium, Potassium
ME4SF3	Barium, Potassium
ME4SF4	Barium, Potassium
ME4SF5	Barium, Potassium
ME4SF6	Barium, Potassium
ME4SF7	Barium, Potassium
ME4SF8	Barium, Potassium

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

Sample ME4SE1, field duplicate for ME4SE2, was analyzed in SDG ME4SB9 and is qualified based on any QC failures in that SDG (as detailed in the data review report for SDG ME4SB9).

The following table contains data for a sample/field duplicate pair in this SDG.

Metal Analytes	ME4SE1 (mg/kg)	ME4SE2 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	7300	6090	Y	18.1	-	-
Antimony	ND	ND	NA	NA	NA	NA
Arsenic	6.6	6.5	N	-	0.1	≤2xCRQL
Barium	116	107	N	-	9	≤2xCRQL
Beryllium	0.38	0.38	NA	NA	NA	NA
Cadmium	3.1	2.8	N	-	0.3	≤2xCRQL
Calcium	79400	72900	Y	8.5	-	-
Chromium	81	59.4	Y	30.8	-	-
Cobalt	6.5	6.8	NA	NA	NA	NA
Copper	52.9	45	Y	16.1	-	-
Iron	15300	12600	Y	19.4	-	-
Lead	170	166	Y	2.4	-	-
Magnesium	32800	30200	Y	8.3	-	-
Manganese	519	525	Y	1.1	-	-
Mercury*	NA	NA	NA	NA	NA	NA
Nickel	25.7	22.8	N	-	2.9	≤2xCRQL
Potassium	902	762	N	-	140	≤2xCRQL
Selenium	3.2	ND	N	-	1.2	≤2xCRQL
Silver	1.6	ND	N	-	0.99	≤2xCRQL
Sodium	ND	ND	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	18.2	18.8	N	-	0.6	≤2xCRQL
Zinc	239	215	Y	10.6	-	-

*CSC was unable to locate data for mercury in SDG ME4SB9 for sample **ME4SE1** for this field duplicate comparison.

6. ICP ANALYSIS

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. .

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SE2 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE3 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE7 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE8 Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SE9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SF8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have calcium concentrations which exceeded the linear range. However, due to anticipated high calcium concentrations in samples for Case 39494, and because calcium is not an analyte of interest for this project, the laboratory was instructed to report the initial analyses for calcium.

Sample results are qualified "J".

ME4SE3	Calcium
ME4SE4	Calcium
ME4SE5	Calcium

ME4SE6	Calcium
ME4SE7	Calcium
ME4SE8	Calcium
ME4SE9	Calcium
ME4SF0	Calcium
ME4SF1	Calcium
ME4SF2	Calcium
ME4SF3	Calcium
ME4SF4	Calcium
ME4SF6	Calcium
ME4SF7	Calcium
ME4SF8	Calcium

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL).

All results below the CRQL are qualified "J".

ME4SE2	Beryllium, Cobalt, Potassium
ME4SE3	Mercury, Potassium
ME4SE4	Cobalt, Mercury, Potassium
ME4SE5	Beryllium, Cobalt, Potassium
ME4SE6	Cobalt, Potassium
ME4SE7	Antimony, Arsenic, Barium, Cadmium, Cobalt, Mercury, Nickel
ME4SE8	Arsenic, Barium, Cobalt, Copper, Mercury, Nickel
ME4SE9	Antimony, Arsenic, Barium, Cobalt, Copper, Mercury, Nickel
ME4SF0	Antimony, Arsenic, Barium, Cobalt, Mercury, Nickel, Potassium
ME4SF1	Cadmium, Cobalt, Mercury, Nickel, Potassium
ME4SF2	Cobalt, Potassium
ME4SF3	Cobalt, Potassium
ME4SF4	Cobalt, Mercury, Potassium
ME4SF5	Antimony, Beryllium, Silver
ME4SF6	Barium, Cadmium, Cobalt, Mercury, Potassium
ME4SF7	Barium, Cobalt, Mercury, Potassium
ME4SF8	Beryllium, Cadmium, Mercury

Case Number: 39494
SDG Number: ME4SE2
Site Name: Lincoln Park
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/8/2010

SUBJECT: Review of Data
Received for Review on: 3/30/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39494 MRN: NA SDG Number: ME4SG5

Number and Type of Samples: 2 Water Samples (Metals)

Sample Numbers: ME4SG5, ME4SG6

Laboratory: A4 Scientific, Inc.:

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Two (2) water samples labeled ME4SG5, and ME4SG6 were shipped to A4 Scientific, Inc. Both water samples were collected on 3/5/2010, and were received at the facility on 3/6/2010, intact, and at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As per the scheduling notification lab QC (i.e., matrix spike, duplicate, and serial dilution) was not required for these two water samples. Because these samples are equipment blanks, no samples were designated to be used for laboratory QC.

No field duplicates were collected for this SDG.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-“. In the special case where a result is affected by a “J+” and a “J-“ flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is ≥ MDL, but ≤ CRQL. The detected sample results are also ≥ MDL, but ≤ CRQL and are qualified "U" and the sample results are raised to the CRQL.

ME4SG5 Mercury
ME4SG6 Mercury

The following inorganic samples are associated with an CCB concentration which is ≥ MDL, but ≤ CRQL. The detected sample results are also ≥ MDL, but ≤ CRQL and are qualified "U" and the sample results are raised to the CRQL.

ME4SG5 Mercury
ME4SG6 Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike sample.

The following inorganic samples were found in the SMO NFG report to have aqueous laboratory control sample percent recoveries above the upper limit of the expanded criteria. We were unable to confirm that the recoveries were above the upper limit of the expanded criteria and therefore no sample results are qualified based on this issue.

ME4SG5 Mercury
ME4SG6 Mercury

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

6. ICP ANALYSIS

No defects were found for the ICP analysis.

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".
ME4SG5 Mercury
ME4SG6 Mercury

Case Number: 39494
SDG Number: ME4SG5
Site Name: Lincoln Park
Laboratory: A4

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/10/2010

SUBJECT: Review of Data
Received for Review on: 5/6/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: NA SDG Number: ME4SG8

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SG8, ME4SG9, ME4SH0, ME4SH1, ME4SH2, ME4SH3, ME4SH4, ME4SH5, ME4SH6. ME4SH7, ME4SH8, ME4SH9, ME4SJ0, ME4SJ1, ME4SJ2, ME4SJ3, ME4SJ4, ME4SJ5, ME4SJ6, ME4SJ7

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SG8-ME4SG9, ME4SH0-ME4SH9, and ME4SJ0-ME4SJ7 were shipped to Bonner Analytical Testing Company. All twenty sediment samples were collected on 4/14/2010. Samples ME4SG80-ME4SG9 and ME4SH0-ME4SH3 were received at the facility on 4/15/2010, intact at 4 °C, and samples ME4SH4-ME4SH9 and ME4SJ0-ME4SJ7 were received at the facility on 4/16/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SH9 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SG9/ME4SH0, ME4SH2/ME4SH3, and ME4SJ3/ME4SH4 as a field duplicate pairs. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SG8	Sodium
ME4SG9	Sodium
ME4SH0	Sodium
ME4SH2	Sodium
ME4SJ2	Sodium
ME4SJ5	Sodium

ME4SH1	Potassium, Sodium
ME4SH3	Potassium, Sodium
ME4SH4	Potassium, Sodium
ME4SH5	Potassium, Sodium
ME4SH6	Potassium, Sodium
ME4SH7	Potassium, Sodium
ME4SH8	Potassium, Sodium
ME4SH9	Potassium, Sodium
ME4SJ0	Potassium, Sodium
ME4SJ1	Potassium, Sodium
ME4SJ3	Potassium, Sodium
ME4SJ4	Potassium, Sodium
ME4SJ6	Potassium, Sodium
ME4SJ7	Potassium, Sodium

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SG8	Potassium
ME4SG9	Potassium
ME4SH0	Potassium
ME4SH2	Potassium
ME4SJ2	Potassium
ME4SJ5	Potassium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SG8	Cadmium
ME4SG9	Cadmium
ME4SH0	Cadmium
ME4SH2	Cadmium
ME4SH7	Cadmium
ME4SH8	Cadmium
ME4SH9	Cadmium
ME4SJ5	Cadmium
ME4SJ6	Cadmium
ME4SJ7	Cadmium

ME4SH1	Barium, Cadmium, Nickel, Potassium
ME4SH3	Barium, Cadmium, Nickel, Potassium
ME4SH4	Barium, Cadmium, Nickel, Potassium

ME4SH5	Barium, Cadmium, Potassium

ME4SJ0	Barium, Cadmium
ME4SJ3	Barium, Cadmium
ME4SJ4	Barium, Cadmium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SG8	Barium, Nickel, Potassium, Zinc
ME4SG9	Barium, Nickel, Potassium, Zinc
ME4SH0	Barium, Nickel, Potassium, Zinc
ME4SH2	Barium, Nickel, Potassium, Zinc

ME4SH1	Zinc
ME4SH3	Zinc
ME4SH4	Zinc

ME4SH5	Nickel, Zinc

ME4SH6	Cadmium

ME4SJ1	Barium, Cadmium
ME4SJ2	Barium, Cadmium

ME4SJ5	Barium
ME4SJ6	Barium
ME4SJ7	Barium

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

The following inorganic soil samples are associated with a matrix spike recovery which is outside primary low criteria. Sample results < MDL are flagged “UJ”.

ME4SG8	Antimony

ME4SG9	Antimony
ME4SH0	Antimony
ME4SH1	Antimony
ME4SH2	Antimony
ME4SH3	Antimony
ME4SH4	Antimony
ME4SH5	Antimony
ME4SH6	Antimony
ME4SH7	Antimony
ME4SH8	Antimony
ME4SH9	Antimony
ME4SJ0	Antimony
ME4SJ1	Antimony
ME4SJ2	Antimony
ME4SJ3	Antimony
ME4SJ4	Antimony
ME4SJ5	Antimony
ME4SJ6	Antimony
ME4SJ7	Antimony

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) of ≤ 35%. Associated sample results ≥ CRQL are flagged "J".

ME4SG8	Chromium
ME4SG9	Chromium
ME4SH0	Chromium
ME4SH1	Chromium
ME4SH2	Chromium
ME4SH3	Chromium
ME4SH4	Chromium
ME4SH5	Chromium
ME4SH6	Chromium
ME4SH7	Chromium
ME4SH8	Chromium
ME4SH9	Chromium
ME4SJ0	Chromium
ME4SJ1	Chromium
ME4SJ2	Chromium
ME4SJ3	Chromium
ME4SJ4	Chromium
ME4SJ5	Chromium
ME4SJ6	Chromium
ME4SJ7	Chromium

Samples ME4SG9/ME4SH0, ME4SH2/ME4SH3, and ME4SJ3/ME4SH4 were identified as field duplicates**.** Results are summarized in the following tables.

ME4SG9 and ME4SH0

Metal Analytes	ME4SG9 (mg/kg)	ME4SH0 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	6190	7510	Y	19.3	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	2.6	3.1	N	-	0.5	≤2xCRQL
Barium	41	68.1	N	-	27.1	≤2xCRQL
Beryllium	ND	0.08	N	-	0.03	≤2xCRQL
Cadmium	0.33	0.35	NA	NA	NA	NA
Calcium	76400	81200	Y	6.1	-	-
Chromium	14.7	16.3	Y	10.3	-	-
Cobalt	5.2	5.8	NA	NA	NA	NA
Copper	11.7	18.6	N	-	6.9	>2xCRQL
Iron	9930	10900	Y	9.3	-	-
Lead	8.8	10.1	Y	13.8	-	-
Magnesium	33900	33500	Y	1.2	-	-
Manganese	278	278	Y	0	-	-
Mercury	0.16	0.19	N	-	0.03	≤2xCRQL
Nickel	11.4	13.2	N	-	1.8	≤2xCRQL
Potassium	1500	1900	N	-	400	≤2xCRQL
Selenium	0.96	0.92	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	208	236	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	18.7	21.4	N	-	2.7	≤2xCRQL
Zinc	34.3	38.1	N	-	3.8	≤2xCRQL

ME4SH2 and ME4SH3

Metal Analytes	ME4SH2 (mg/kg)	ME4SH3 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3760	2160	Y	54.1	-	-
Antimony	ND	ND	N	-	0	≤2xCRQL
Arsenic	2.4	1.4	N	-	1	≤2xCRQL
Barium	30.7	15	N	-	15.7	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.31	0.22	NA	NA	NA	NA
Calcium	22.6	6.3	N	-	16.3	>4xCRQL
Chromium	4.1	2.5	NA	NA	NA	NA
Cobalt	6.4	4.9	N	-	1.5	≤2xCRQL
Copper	8550	5550	Y	42.6	-	-
Iron	7.5	6	N	-	1.5	≤2xCRQL
Lead	38900	57500	Y	38.6	-	-
Magnesium	306	368	Y	18.4	-	-
Manganese	0.18	0.18	N	-	0	≤2xCRQL
Mercury	12.9	4.3	N	-	8.6	>2xCRQL
Nickel	755	437	N	-	318	≤2xCRQL
Potassium	0.83	0.83	NA	NA	NA	NA
Selenium	ND	ND	NA	NA	NA	NA
Silver	179	231	NA	NA	NA	NA
Sodium	ND	ND	NA	NA	NA	NA
Thallium	12.6	10.4	N	-	2.2	≤2xCRQL
Vanadium	34.4	26.9	N	-	7.5	≤2xCRQL
Zinc	3760	2160	Y	54.1	-	-

ME4SJ3 and ME4SJ4

Metal Analytes	ME4SJ3 (mg/kg)	ME4SJ4 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1770	2920	Y	49	-	-
Antimony	ND	ND	N	-	0.1	≤2xCRQL
Arsenic	1.3	1.3	N	-	0	≤2xCRQL
Barium	18.3	18.3	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.24	0.25	NA	NA	NA	NA
Calcium	98200	69300	Y	34.5	-	-
Chromium	7	16.9	Y	82.8	-	-
Cobalt	2.8	3.1	NA	NA	NA	NA
Copper	3.5	6.3	N	-	2.8	≤2xCRQL
Iron	5010	6620	Y	27.7	-	-
Lead	12.8	6.2	Y	69.5	-	-
Magnesium	30700	26800	Y	13.6	-	-
Manganese	225	228	Y	1.3	-	-
Mercury	0.21	0.19	N	-	0.02	≤2xCRQL
Nickel	5	6.2	N	-	1.2	≤2xCRQL
Potassium	325	291	NA	NA	NA	NA
Selenium	0.59	0.56	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	183	141	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	12.5	14.5	N	-	2	≤2xCRQL
Zinc	52.7	49	Y	7.3	-	-

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4SH2/ME4SH3 Aluminum, Copper, Lead, Zinc

ME4SJ3/ME4SJ4 Aluminum, Chromium, Lead

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SG8 Potassium
ME4SG9 Potassium
ME4SH0 Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SG8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SG9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SH9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SJ1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The samples in this SDG were analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD.

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SG8	Beryllium, Cadmium, Selenium, Sodium
ME4SG9	Cadmium, Cobalt, Selenium, Sodium
ME4SH0	Beryllium, Cadmium, Cobalt, Selenium, Sodium
ME4SH1	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SH2	Cadmium, Cobalt, Selenium, Sodium
ME4SH3	Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SH4	Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SH5	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SH6	Cobalt, Potassium, Selenium, Sodium
ME4SH7	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SH8	Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium

ME4SH9	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ0	Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Selenium, Sodium
ME4SJ1	Cobalt, Potassium, Selenium, Sodium
ME4SJ2	Beryllium, Cobalt, Selenium, Sodium
ME4SJ3	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ4	Barium, Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ5	Cadmium, Cobalt, Selenium, Sodium
ME4SJ6	Cadmium, Cobalt, Potassium, Selenium, Sodium
ME4SJ7	Cadmium, Cobalt, Potassium, Selenium, Sodium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/24/2010

SUBJECT: Review of Data
Received for Review on: May 6, 2010

FROM: Sarah Bentley
Environmental Analyst

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 SDG Number: ME4SJ8

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SJ8, ME4SJ9, ME4SK0, ME4SK1, ME4SK2, ME4SK3, ME4SK4, ME4SK5, ME4SK6, ME4SK8, ME4SK9, ME4SK9D, ME4SK9S, ME4SL0, ME4SL1, ME4SL2, ME4SL3, ME4SL4, ME4SL5, ME4SL6, ME4SL7, ME4SL8

Laboratory: Bonner Analytical Testing

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SJ8, ME4SJ9, ME4SK0 - ME4SK9, ME4SK9D, ME4SK9S, and ME4SL0 - ME4SL8 were shipped to Bonner Analytical Testing Company. The samples were collected on April 14, 2010 and April 15, 2010, and were received at the facility on April 16, 2010, intact, and at 4 °C

Sample Analysis and Data Review: The sample was analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SK9 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SL2/ME4L3 as a field duplicate pair. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1 and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.”

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SJ8	Potassium
ME4SJ9	Potassium
ME4SK0	Potassium
ME4SK2	Potassium
ME4SK3	Potassium
ME4SK4	Potassium
ME4SK5	Potassium
ME4SK6	Potassium
ME4SK8	Potassium
ME4SK9	Potassium
ME4SL0	Potassium
ME4SL2	Potassium
ME4SL3	Potassium
ME4SL4	Potassium
ME4SL5	Potassium
ME4SL6	Potassium
ME4SL7	Potassium
ME4SL8	Potassium

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SK1	Potassium
ME4SL1	Potassium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SK6	Barium
ME4SK8	Barium
ME4SL2	Barium, Cadmium
ME4SL3	Barium, Cadmium
ME4SL4	Barium, Cadmium
ME4SL5	Barium, Cadmium
ME4SL7	Barium, Cadmium

ME4SL6 Cadmium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SK9 Barium
ME4SL0 Barium, Cadmium
ME4SL1 Barium, Cadmium
ME4SL6 Barium
ME4SL8 Barium, Cadmium

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4SJ8 Mercury
ME4SJ9 Mercury
ME4SK0 Mercury
ME4SK1 Mercury
ME4SK2 Mercury
ME4SK3 Mercury
ME4SK4 Mercury
ME4SK5 Mercury
ME4SK6 Mercury
ME4SK8 Mercury
ME4SK9 Mercury
ME4SL0 Mercury
ME4SL1 Mercury
ME4SL2 Mercury
ME4SL3 Mercury
ME4SL4 Mercury
ME4SL5 Mercury
ME4SL6 Mercury
ME4SL7 Mercury
ME4SL8 Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

The following inorganic samples are associated with a matrix spike recovery which is outside of the expanded low criteria. Sample results > MDL are flagged "J", and sample results ≤ MDL are flagged "UJ".

ME4SJ8 Antimony
ME4SJ9 Antimony
ME4SK0 Antimony
ME4SK1 Antimony
ME4SK2 Antimony
ME4SK3 Antimony
ME4SK4 Antimony
ME4SK5 Antimony

ME4SK6	Antimony
ME4SK8	Antimony
ME4SK9	Antimony
ME4SL0	Antimony
ME4SL1	Antimony
ME4SL2	Antimony
ME4SL3	Antimony
ME4SL4	Antimony
ME4SL5	Antimony
ME4SL6	Antimony
ME4SL7	Antimony
ME4SL8	Antimony

The following inorganic samples are associated with a matrix spike recovery which is outside of the primary low criteria. However, post-digest spike recovery was more than or equal to the low limit. Sample results > MDL are flagged "J".

ME4SJ8	Chromium, Zinc
ME4SJ9	Chromium, Zinc
ME4SK0	Chromium, Zinc
ME4SK1	Chromium, Zinc
ME4SK2	Chromium, Zinc
ME4SK3	Chromium, Zinc
ME4SK4	Chromium, Zinc
ME4SK5	Chromium, Zinc
ME4SK6	Chromium, Zinc
ME4SK8	Chromium, Zinc
ME4SK9	Chromium, Zinc
ME4SL0	Chromium, Zinc
ME4SL1	Chromium, Zinc
ME4SL2	Chromium, Zinc
ME4SL3	Chromium, Zinc
ME4SL4	Chromium, Zinc
ME4SL5	Chromium, Zinc
ME4SL6	Chromium, Zinc
ME4SL7	Chromium, Zinc
ME4SL8	Chromium, Zinc

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) of ≤ 35%. Associated sample results ≥ CRQL are flagged "J".

ME4SJ8	Lead, Zinc
ME4SJ9	Lead, Zinc
ME4SK0	Lead, Zinc
ME4SK1	Lead, Zinc
ME4SK2	Lead, Zinc
ME4SK3	Lead, Zinc

ME4SK4	Lead, Zinc
ME4SK5	Lead, Zinc
ME4SK6	Lead, Zinc
ME4SK8	Lead, Zinc
ME4SK9	Lead, Zinc
ME4SL0	Lead, Zinc
ME4SL1	Lead, Zinc
ME4SL2	Lead, Zinc
ME4SL3	Lead, Zinc
ME4SL4	Lead, Zinc
ME4SL5	Lead, Zinc
ME4SL6	Lead, Zinc
ME4SL7	Lead, Zinc
ME4SL8	Lead, Zinc

Samples ME4SL2/ME4SL3 were identified as a field duplicate pair. Results are summarized in the following table:

ME4SL2 and ME4SL3

Metal	ME4SL2 (mg/kg)	ME4SL3 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1610	1240	Y	26	-	-
Antimony	ND	ND	N	-	0	≤2xCRQL
Arsenic	0.89	1	NA	NA	NA	NA
Barium	23.6	23.8	N	-	0.2	≤2xCRQL
Beryllium	0.057	0.065	NA	NA	NA	NA
Cadmium	0.59	0.59	N	-	0	≤2xCRQL
Calcium	75700	82000	Y	8	-	-
Chromium	8.1	7.6	Y	6.4	-	-
Cobalt	2.4	2.3	NA	NA	NA	NA
Copper	4.8	4.6	N	-	0.2	≤2xCRQL
Iron	4020	3560	Y	12.1	-	-
Lead	10.8	15.9	Y	38.2	-	-
Magnesium	34500	34900	Y	1.2	-	-
Manganese	272	227	Y	18	-	-
Mercury	ND	0.058	N	-	0.01	≤2xCRQL
Nickel	4	3.3	NA	NA	NA	NA
Potassium	590	594	N	-	4	≤2xCRQL
Selenium	ND	ND	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	134	147	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	5.4	5.5	NA	NA	NA	NA
Zinc	30.4	23.3	N	-	7.1	≤2xCRQL

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4SL2/ME4SL3 Lead

6. ICP ANALYSIS

The following inorganic samples are associated with an ICP serial dilution percent difference which is > 10% but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4SJ8	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SJ9	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK0	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK1	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK2	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK3	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK4	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK5	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK6	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK8	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SK9	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL0	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL1	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL2	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL3	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL4	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL5	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL6	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL7	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc
ME4SL8	Arsenic, Calcium, Chromium, Cobalt, Iron, Lead, Magnesium, Manganese, Nickel, Zinc

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SJ8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SJ9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SK9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SL1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SL8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SJ8	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SJ9	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK0	Beryllium, Cobalt, Mercury, Sodium
ME4SK1	Beryllium, Cobalt, Silver, Sodium
ME4SK2	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK3	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK4	Arsenic, Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK5	Beryllium, Cadmium, Cobalt, Mercury, Sodium
ME4SK6	Arsenic, Beryllium, Cadmium, Cobalt, Nickel, Sodium
ME4SK8	Beryllium, Cadmium, Cobalt, Mercury, Sodium, Vanadium
ME4SK9	Beryllium, Cobalt, Mercury, Sodium
ME4SK9D	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SL0	Beryllium, Cobalt, Mercury, Sodium
ME4SL1	Beryllium, Cobalt, Sodium

ME4SL2	Arsenic, Beryllium, Cobalt, Nickel, Sodium, Vanadium
ME4SL3	Arsenic, Beryllium, Cobalt, Mercury, Nickel, Sodium, Vanadium
ME4SL4	Arsenic, Beryllium, Cobalt, Mercury, Nickel, Sodium, Vanadium
ME4SL5	Beryllium, Cobalt, Mercury, Nickel, Sodium, Vanadium
ME4SL6	Beryllium, Cobalt, Mercury, Sodium
ME4SL7	Arsenic, Beryllium, Cobalt, Nickel, Sodium, Vanadium
ME4SL8	Beryllium, Cobalt, Mercury, Sodium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 06/18/2010

SUBJECT: Review of Data
Received for Review on: 05/10/2010

FROM: Joshua Vinson
Environmental Chemist

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: NA SDG Number: ME4SL9

Number and Type of Samples: 20 Sediment Samples (Metals)

Sample Numbers: ME4SL9, ME4SM0, ME4SM1, ME4SM2, ME4SM3, ME4SM4, ME4SM5, ME4SM6, ME4SM7, ME4SM8, ME4SM9, ME4SN0, ME4SN1, ME4SN2, ME4SN3, ME4SN4, ME4SN5, ME4SN6, ME4SN7, ME4SN8

Laboratory: Bonner Analytical Testing Co.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG Summary

Sample Completeness and Receipt: Twenty (20) sediment samples labeled ME4SL, ME4SM0-ME4SM9, and ME4SN0-ME4SN8 were shipped to Bonner Analytical Testing Co. Six (6) samples labeled ME4SL, ME4SM0-ME4SM4 were collected on 04/15/2010 and were received at the facility on 04/16/2010, intact and at 4 °C. Fourteen (14) samples labeled ME4SM5-ME4SM9 and ME4SN0-ME4SN8 were collected on 04/15/2010 and were received at the facility on 04/17/2010, intact and at 4 °C

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

As designated by the samplers, sample ME4SM9 was used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SM0/ME4SM, ME4SM6/ME4SM71 and ME4SN5/ME4SN6 as field duplicate pairs. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1a and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.”

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. Samples > CRQL are qualified "J-". Samples < MDL are qualified "UJ-".

ME4SL9	Mercury
ME4SM0	Mercury
ME4SM1	Mercury
ME4SM2	Mercury
ME4SM3	Mercury
ME4SM4	Mercury
ME4SM5	Mercury
ME4SM6	Mercury
ME4SM7	Mercury
ME4SM8	Mercury
ME4SM9	Mercury
ME4SN0	Mercury
ME4SN1	Mercury
ME4SN2	Mercury
ME4SN3	Mercury
ME4SN4	Mercury
ME4SN5	Mercury
ME4SN6	Mercury
ME4SN7	Mercury
ME4SN8	Mercury

The following inorganic samples are associated with a CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. Samples > CRQL are qualified "J-". Samples < MDL are qualified "UJ-".

ME4SL9	Mercury
ME4SM0	Mercury
ME4SM1	Mercury
ME4SM2	Mercury
ME4SM3	Mercury
ME4SM4	Mercury
ME4SM5	Mercury
ME4SM6	Mercury
ME4SM7	Mercury
ME4SM8	Mercury
ME4SM9	Mercury
ME4SN0	Mercury

ME4SN1	Mercury
ME4SN2	Mercury

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

No defects were found with the lab control sample. The following inorganic samples are associated with a matrix spike recovery outside primary high criteria. Post-digest spike sample was either not required or it was required but not analyzed. Hits are qualified "J+".

ME4SM4	Mercury
ME4SM5	Mercury
ME4SM6	Mercury
ME4SM9	Mercury
ME4SN2	Mercury
ME4SN3	Mercury
ME4SN4	Mercury
ME4SN5	Mercury
ME4SN7	Mercury

The following inorganic samples are associated with a matrix spike recovery which is outside primary low criteria. Non-detects are flagged "UJ".

ME4SL9	Selenium
ME4SM0	Selenium
ME4SM1	Selenium
ME4SM2	Selenium
ME4SM3	Selenium
ME4SM4	Selenium
ME4SM5	Selenium
ME4SM6	Selenium
ME4SM7	Selenium
ME4SM8	Selenium
ME4SM9	Selenium
ME4SN0	Selenium
ME4SN1	Selenium
ME4SN2	Selenium
ME4SN3	Selenium
ME4SN4	Selenium
ME4SN5	Selenium
ME4SN6	Selenium
ME4SN7	Selenium
ME4SN8	Selenium

The following inorganic samples are associated with a matrix spike recovery which is outside primary low criteria. However, post-digest spike percent recovery was more than or equal to the low limit. Detects are flagged "J".

ME4SL9	Cobalt, Nickel
ME4SM0	Cobalt, Nickel
ME4SM1	Cobalt, Nickel
ME4SM2	Cobalt, Nickel

ME4SM3	Cobalt, Nickel
ME4SM4	Cobalt, Nickel
ME4SM5	Cobalt, Nickel
ME4SM6	Cobalt, Nickel
ME4SM7	Cobalt, Nickel
ME4SM8	Cobalt, Nickel
ME4SM9	Cobalt, Nickel
ME4SN0	Cobalt, Nickel
ME4SN1	Cobalt, Nickel
ME4SN2	Cobalt, Nickel
ME4SN3	Cobalt, Nickel
ME4SN4	Cobalt, Nickel
ME4SN5	Cobalt, Nickel
ME4SN6	Cobalt, Nickel
ME4SN7	Cobalt, Nickel
ME4SN8	Cobalt, Nickel

The following inorganic samples are associated with a matrix spike recovery which is outside expanded low criteria. Post-digest spike percent recovery was also less than the low limit. Detects are flagged "J-" and non-detects are flagged "R".

ME4SL9	Antimony
ME4SM0	Antimony
ME4SM1	Antimony
ME4SM2	Antimony
ME4SM3	Antimony
ME4SM4	Antimony
ME4SM5	Antimony
ME4SM6	Antimony
ME4SM7	Antimony
ME4SM8	Antimony
ME4SM9	Antimony
ME4SN0	Antimony
ME4SN1	Antimony
ME4SN2	Antimony
ME4SN3	Antimony
ME4SN4	Antimony
ME4SN5	Antimony
ME4SN6	Antimony
ME4SN7	Antimony
ME4SN8	Antimony

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the lab duplicate sample.

The following tables contain data for a field duplicate pair in this SDG.

ME4SM0 and ME4SM1

Metal	ME4SM0 (mg/kg)	ME4SM1 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	908	933	Y	2.7	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	0.88	1	NA	NA	NA	NA
Barium	11.4	15	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.084	0.11	NA	NA	NA	NA
Chromium	3.4	3.6	N	-	0.2	≤2xCRQL
Cobalt	1.5	1.5	NA	NA	NA	NA
Copper	1.9	2	NA	NA	NA	NA
Iron	2600	2920	Y	11.6	-	-
Lead	6	5.1	N	-	0.9	≤2xCRQL
Magnesium	32600	31200	Y	4.4	-	-
Manganese	197	226	Y	13.7	-	-
Mercury	ND	ND	NA	NA	NA	NA
Nickel	2.3	2.4	NA	NA	NA	NA
Potassium	151	190	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.1	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	108	121	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	3.7	5.4	N	-	1.7	≤2xCRQL
Zinc	18	42.5	N	-	24.5	>4xCRQL

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

ME4SM6 and ME4SM7

Metal	ME4SM6 (mg/kg)	ME4SM7 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	3700	2710	Y	30.9	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	3.1	3.1	N	-	0	≤2xCRQL
Barium	43.7	34.8	N	-	8.9	≤2xCRQL
Beryllium	0.17	0.13	NA	NA	NA	NA
Cadmium	0.31	0.31	NA	NA	NA	NA
Calcium	80200	77000	Y	4.1	-	-
Chromium	15	12.4	Y	19	-	-
Cobalt	3.9	3.5	NA	NA	NA	NA
Copper	11.2	9	N	-	2.2	≤2xCRQL
Iron	6560	6020	Y	8.6	-	-
Lead	18	17	Y	5.7	-	-
Magnesium	31100	31000	Y	0.3	-	-
Manganese	392	334	Y	16	-	-
Mercury	0.068	ND	N	-	0.02	≤2xCRQL
Nickel	9.1	7.7	N	-	1.4	≤2xCRQL

Metal	ME4SM6 (mg/kg)	ME4SM7 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Potassium	523	423	NA	NA	NA	NA
Selenium	ND	ND	N	-	0.1	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	155	136	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	10.4	8.8	N	-	1.6	≤2xCRQL
Zinc	46.1	71.6	Y	43.3	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

ME4SN5 and ME4SN6

Metal	ME4SN5 (mg/kg)	ME4SN6 (mg/kg)	Both Results >5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1590	1510	Y	5.2	-	-
Antimony	ND	ND	N	-	0	≤2xCRQL
Arsenic	1.2	1.2	NA	NA	NA	NA
Barium	32.9	19.5	N	-	13.4	≤2xCRQL
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.41	0.2	NA	NA	NA	NA
Calcium	74100	70700	Y	4.7	-	-
Chromium	9.5	10.4	Y	9	-	-
Cobalt	2.5	2.4	NA	NA	NA	NA
Copper	6.8	17.3	N	-	10.5	>4xCRQL
Iron	4060	3720	Y	8.7	-	-
Lead	27.5	20.2	Y	30.6	-	-
Magnesium	31600	29000	Y	8.6	-	-
Manganese	212	198	Y	6.8	-	-
Mercury	0.078	ND	N	-	0.02	≤2xCRQL
Nickel	5.1	3.8	NA	NA	NA	NA
Potassium	258	252	NA	NA	NA	NA
Selenium	ND	ND	N	-	0	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	133	128	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	7.2	5.3	N	-	1.9	≤2xCRQL
Zinc	47.8	46.5	Y	2.8	-	-

ND = Not detected
NA = Not applicable (both results are below the sample-specific CRQL)

The following inorganic sample/field duplicate pairs have a result > 5xCRQL and an absolute difference ≥ 4xCRQL. These results are qualified “R”.

ME4SM0/ ME4SM1 Zinc

ME4SN5/ ME4SN6 Copper

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results were qualified based on this issue.

ME4SM4	Potassium
ME4SN7	Sodium

The following inorganic samples have one or more interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results. Associated detects ≥MDL for all analytes (except mercury) are qualified "J+". Results <MDL are not qualified.

ME4SL9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SM8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SM9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SN8	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SL9	Barium, Beryllium, Cadmium, Cobalt, Sodium
ME4SM3	Barium, Beryllium, Cadmium, Cobalt, Sodium

ME4SM0	Arsenic, Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Sodium, Vanadium
ME4SM1	Arsenic, Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Sodium
ME4SN5	Arsenic, Cadmium, Cobalt, Mercury, Nickel, Potassium, Sodium
ME4SM2	Beryllium, Cadmium, Cobalt, Sodium
ME4SM4	Beryllium, Cobalt, Mercury, Sodium
ME4SM5	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SM6	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SN2	Beryllium, Cadmium, Cobalt, Mercury, Potassium, Sodium
ME4SM7	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SM8	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SN0	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SN1	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SN8	Beryllium, Cadmium, Cobalt, Potassium, Sodium
ME4SM9	Beryllium, Cobalt, Potassium, Silver, Sodium
ME4SN3	Beryllium, Cobalt, Potassium, Sodium
ME4SN4	Beryllium, Cobalt, Potassium, Sodium
ME4SN6	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium, Vanadium
ME4SN7	Beryllium, Cobalt

8. Serial Dilution

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in criteria. The detected serial dilution result is less than the initial sample result. Hits are qualified "J" and non-detects are qualified "UJ".

ME4SL9	Arsenic
ME4SM0	Arsenic
ME4SM1	Arsenic
ME4SM2	Arsenic
ME4SM3	Arsenic
ME4SM4	Arsenic
ME4SM5	Arsenic
ME4SM6	Arsenic
ME4SM7	Arsenic
ME4SM8	Arsenic
ME4SM9	Arsenic
ME4SN0	Arsenic
ME4SN1	Arsenic
ME4SN2	Arsenic
ME4SN3	Arsenic
ME4SN4	Arsenic

ME4SN5	Arsenic
ME4SN6	Arsenic
ME4SN7	Arsenic
ME4SN8	Arsenic

The following inorganic samples are associated with an ICP serial dilution percent difference which is not in criteria. The serial dilution result is greater than the sample result, indicating a potential negative interference. Hits are qualified "J-" and non-detects are qualified "UJ-".

ME4SL9	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM0	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM1	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM2	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM3	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM4	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM5	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM6	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM7	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM8	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SM9	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN0	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN1	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN2	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN3	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN4	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN5	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN6	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN7	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc
ME4SN8	Aluminum, Barium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Zinc

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/14/2010

SUBJECT: Review of Data
Received for Review on: 5/11/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: NA SDG Number: ME4SN9

Number and Type of Samples: 17 Sediment Samples (Metals)

Sample Numbers: ME4SN9, ME4SP0, ME4SP1, ME4SP2, ME4SP3, ME4SP4, ME4SP5, ME4SP6, ME4SP7. ME4SP8, ME4SP9, ME4SQ0, ME4SQ1, ME4SQ2, ME4SQ3, ME4SQ4, ME4SQ5

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

SDG SUMMARY

Sample Completeness and Receipt: Seventeen (17) sediment samples labeled ME4SN9, ME4SP0-ME4SP9, and ME4SQ0-ME4SQ5 were shipped to Bonner Analytical Testing Company. All seventeen sediment samples were collected on 4/16/2010 and were received at the facility on 4/17/2010, intact at 4 °C.

Sample Analysis and Data Review: All samples were analyzed for metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Sample ME4SP6 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, we have identified ME4SP0/ME4SP1 and ME4SP8/ME4SP9 as a field duplicate pairs. No field blanks were collected for this SDG.

The sample matrix is reported as “soil” on Form 1s and in the EDD for the samples included in this SDG. The samples are actually “sediment” samples.

The laboratory noted that the chain-of-custody only specified analysis of total metals. EPA directed the laboratory to perform analysis for mercury, per the Scheduling Notification Form.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard.

3. BLANKS

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SN9	Potassium, Sodium
ME4SP0	Potassium, Sodium
ME4SP1	Potassium, Sodium
ME4SP2	Potassium, Sodium
ME4SP3	Potassium, Sodium
ME4SP4	Potassium, Sodium
ME4SP5	Potassium, Sodium
ME4SQ2	Potassium, Sodium
ME4SP6	Antimony, Sodium
ME4SQ1	Potassium
ME4SP7	Sodium
ME4SP8	Sodium
ME4SP9	Sodium
ME4SQ0	Sodium
ME4SQ3	Sodium
ME4SQ4	Sodium
ME4SQ5	Sodium

The following inorganic samples are associated with an ICB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SP6	Potassium
ME4SP7	Potassium
ME4SP8	Potassium
ME4SP9	Potassium
ME4SQ0	Potassium
ME4SQ3	Potassium
ME4SQ4	Potassium
ME4SQ5	Potassium
ME4SQ1	Sodium

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Associated detects ≥ MDL and ≤ CRQL are qualified "U". Sample results are raised to the CRQL.

ME4SN9	Barium, Potassium

ME4SP0	Barium, Potassium
ME4SP1	Barium, Potassium
ME4SP3	Barium, Potassium
ME4SP4	Barium, Potassium
ME4SP2	Potassium
ME4SP5	Potassium
ME4SP6	Antimony

The following inorganic samples are associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SN9	Iron
ME4SP0	Iron
ME4SP1	Iron
ME4SP3	Iron
ME4SP4	Iron
ME4SP2	Barium, Iron
ME4SP5	Barium, Iron
ME4SP6	Barium, Iron, Potassium
ME4SP7	Barium
ME4SP8	Barium
ME4SP9	Barium
ME4SQ0	Barium

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE

The following inorganic soil samples are associated with a matrix spike recovery which is outside of the expanded low criteria. Sample results > MDL are flagged "J", and sample results ≤ MDL are flagged "UJ".

ME4SN9	Antimony
ME4SP0	Antimony
ME4SP1	Antimony
ME4SP2	Antimony
ME4SP3	Antimony
ME4SP4	Antimony
ME4SP5	Antimony
ME4SP7	Antimony
ME4SP8	Antimony
ME4SP9	Antimony
ME4SQ0	Antimony
ME4SQ1	Antimony
ME4SQ2	Antimony
ME4SQ3	Antimony
ME4SQ4	Antimony
ME4SQ5	Antimony

The following inorganic sample results are associated with a matrix spike recovery which is below low criteria. However, the sample result is also associated with a blank contamination, for

which it has been qualified "U" and its result raised to the CRQL. Therefore, the result for this sample was not further qualified for the matrix spike recovery.

ME4SP6 Antimony

No defects were found for the laboratory control sample.

5. LABORATORY AND FIELD DUPLICATE

The following inorganic samples are associated with duplicate results that have an absolute difference (AD) of greater than 2X the CRQL between the sample and duplicate values. Associated sample results ≥ MDL and < 5X CRQL are flagged "J" and samples < MDL are flagged "UJ".

ME4SN9 Mercury
ME4SP0 Mercury
ME4SP1 Mercury
ME4SP2 Mercury
ME4SP3 Mercury
ME4SP4 Mercury
ME4SP5 Mercury
ME4SP6 Mercury
ME4SP7 Mercury
ME4SP8 Mercury
ME4SP9 Mercury
ME4SQ0 Mercury
ME4SQ1 Mercury
ME4SQ2 Mercury
ME4SQ3 Mercury
ME4SQ4 Mercury
ME4SQ5 Mercury

Samples ME4SP0/ME4SP1 and ME4SP8/ME4SP9 were identified as field duplicates**.** Results are summarized in the following tables.

ME4SP0/ME4SP1

Metal Analytes	ME4SP0 (mg/kg)	ME4SP1 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	1380	1400	Y	1.4	-	-
Antimony	ND	ND	N	-	0.2	≤2xCRQL
Arsenic	1.2	1.1	NA	NA	NA	NA
Barium	15.8	13	NA	NA	NA	NA
Beryllium	ND	ND	NA	NA	NA	NA
Cadmium	0.18	0.19	NA	NA	NA	NA
Calcium	71600	79000	Y	9.8	-	-
Chromium	8.9	8.3	Y	7	-	-
Cobalt	2.6	3.8	NA	NA	NA	NA
Copper	3.8	4	N	-	0.2	≤2xCRQL
Iron	4090	4190	Y	2.4	-	-
Lead	35.1	138	Y	118.9	-	-

Metal Analytes	ME4SP0 (mg/kg)	ME4SP1 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Manganese	208	241	Y	14.7	-	-
Mercury	ND	0.063	N	-	0.07	≤2xCRQL
Nickel	3.8	3.9	NA	NA	NA	NA
Potassium	228	267	NA	NA	NA	NA
Selenium	0.62	ND	N	-	0.17	≤2xCRQL
Silver	ND	ND	NA	NA	NA	NA
Sodium	139	175	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	6.5	6.3	N	-	0.2	≤2xCRQL
Zinc	32.8	25.2	N	-	7.6	≤2xCRQL

The following inorganic sample/field duplicate pairs have results > 5xCRQL and RPD ≥ 35% but < 120%. These results are qualified "J".

ME4SP0/ME4SP1 Lead

ME4SP8/ME4SP9

Metal Analytes	ME4SP8 (mg/kg)	ME4SP9 (Field DUP) (mg/kg)	Both Results>5xCRQL	%RPD	Abs Diff	Abs Diff Range
Aluminum	8180	8450	Y	3.2	-	-
Antimony	ND	ND	N	-	0.5	≤2xCRQL
Arsenic	4.5	4.8	N	-	0.3	≤2xCRQL
Barium	121	133	N	-	12	≤2xCRQL
Beryllium	0.14	0.14	NA	NA	NA	NA
Cadmium	2.3	2.6	N	-	0.3	≤2xCRQL
Calcium	86900	89700	Y	3.2	-	-
Chromium	51.4	57.6	Y	11.4	-	-
Cobalt	7.3	7.7	NA	NA	NA	NA
Copper	67.4	70.1	Y	3.9	-	-
Iron	15700	16500	Y	5	-	-
Lead	130	154	Y	16.9	-	-
Magnesium	34200	34900	Y	2	-	-
Manganese	475	500	Y	5.1	-	-
Mercury	0.24	0.27	N	-	0.03	≤2xCRQL
Nickel	19.8	22	N	-	2.2	≤2xCRQL
Potassium	1250	1300	N	-	50	≤2xCRQL
Selenium	2	2.2	NA	NA	NA	NA
Silver	ND	ND	NA	NA	NA	NA
Sodium	826	859	NA	NA	NA	NA
Thallium	ND	ND	NA	NA	NA	NA
Vanadium	20.5	20.7	N	-	0.2	≤2xCRQL
Zinc	286	315	Y	9.7	-	-

6. ICP ANALYSIS

The following inorganic samples have elements other than Al, Ca, Fe, and Mg at concentrations higher than 10 mg/L that may cause potential interference. No sample results are qualified based on this issue.

ME4SP6	Potassium
ME4SQ5	Potassium

The following inorganic samples have one or more known interferents (Al, Ca, Fe, or Mg) present at concentrations more than true amounts added in the ICS solution, which may cause a high bias in associated sample results.

Associated detects ≥ MDL for all analytes (except mercury) are qualified "J+". Results < MDL are not qualified.

ME4SN9	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP6	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SP7	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ0	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ1	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ2	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ3	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc
ME4SQ4	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

ME4SQ5	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc

The following inorganic samples are associated with an ICP serial dilution percent difference which is > 10% but less than 100%. Associated detects ≥ MDL are flagged "J".

ME4SN9	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP0	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP1	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP2	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP3	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP4	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP5	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP6	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP7	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP8	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SP9	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ0	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ1	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ2	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ3	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ4	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium
ME4SQ5	Calcium, Cobalt, Iron, Manganese, Potassium, Sodium

7. SAMPLE RESULTS

The following inorganic samples have analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

ME4SN9	Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium, Vanadium
ME4SP0	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Selenium, Sodium
ME4SP1	Arsenic, Barium, Cadmium, Cobalt, Mercury, Nickel, Potassium, Sodium, Vanadium
ME4SP2	Cadmium, Cobalt, Mercury, Potassium, Selenium, Sodium
ME4SP3	Barium, Cadmium, Cobalt, Copper, Nickel, Potassium, Selenium, Sodium
ME4SP4	Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium
ME4SP5	Cobalt, Potassium, Selenium, Sodium
ME4SP6	Antimony, Beryllium, Selenium, Sodium, Thallium
ME4SP7	Beryllium, Mercury, Selenium, Silver, Sodium
ME4SP8	Beryllium, Cobalt, Selenium, Sodium

ME4SP9	Beryllium, Cobalt, Selenium, Sodium
ME4SQ0	Beryllium, Selenium, Sodium
ME4SQ1	Cobalt, Potassium, Selenium
ME4SQ2	Arsenic, Barium, Cadmium, Cobalt, Nickel, Potassium, Sodium, Vanadium
ME4SQ3	Beryllium, Cobalt, Selenium, Silver, Sodium
ME4SQ4	Beryllium, Selenium, Sodium
ME4SQ5	Beryllium, Selenium, Silver, Sodium

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/17/2010

SUBJECT: Review of Data
Received for Review on: 5/17/2010

FROM: Melody Jensen
Senior Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 SDG Number: ME4SQ6

Number and Type of Samples: 1Water Sample (Metals)

Sample Numbers: ME4SQ6

Laboratory: Bonner Analytical Testing

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: ME4SQ6
Site Name: Lincoln Park Laboratory: Bonner

SDG Summary

Sample Completeness and Receipt: One (1) sediment sample labeled ME4SQ6 was shipped to Bonner Analytical Testing Company. The sample was collected on April 16, 2010, and was received at the facility on April 17, 2010, intact, and at 4 °C

Sample Analysis and Data Review: The sample was analyzed for metals according to CLP SOW ILM05.4. Mercury analysis was performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no field duplicate sets were identified.

As per the scheduling notification, laboratory QC (i.e., matrix spike, duplicate, and serial dilution) was not required for the water sample. The laboratory did analyze a laboratory control sample (LCS), per the CLP SOW, and its recoveries were well within the acceptance limits, indicating that laboratory performance was under control. No results were flagged due to the lack of MS or DUP analysis.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, **OR** if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: “R”, “UJ”, “U”, “J”, “J+”, “J-”. In the special case where a result is affected by a “J+” and a “J-” flag, a “J” flag was applied.

1. HOLDING TIME

The inorganic sediment sample was reviewed for holding time violations using criteria developed for water samples. Data on sample pH was not available. No defects were found.

2. CALIBRATION

No defects were found.

3. BLANKS

The sample is associated with an ICB concentration which is less than or equal to the CRQL. The detected sample results was also less than or equal to the CRQL. Detects are qualified "U." Sample results are raised to the CRQL.

ME4SQ6 Sodium

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

Laboratory QC (i.e., matrix spike) was not required for the water sample. No defects were found with the laboratory control sample (LCS).

5. LABORATORY AND FIELD DUPLICATE

Laboratory QC (i.e., duplicate) was not required for the water sample.

6. ICP ANALYSIS

No defects were found.

7. SAMPLE RESULTS

The sample in this SDG was analyzed for metals under CLP SOW ILM05.4. The NFG reports from CADRE employ the solid CRQL values from SOW ILM05.0, which are approximately 2 times higher than the solid CRQLs in the more recent SOW ILM05.4. In response, CSC is not applying the "J" flag to results between the MDL and the CRQL based on the NFG reports, but on the Form 1 information and the lab qualifier flags, results, and CRQLs provided by the laboratory in the EDD. The following inorganic samples have analyte concentrations reported below the CRQL and are qualified "J".

ME4SQ6 Sodium, Zinc

Case Number: 39668 SDG Number: ME4SQ6
Site Name: Lincoln Park Laboratory: Bonner

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/17/2010

SUBJECT: Review of Data
Received for Review on: 6/16/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: MA 1705.0 SDG Number: ME4SQ7

Number and Type of Samples: 1 Sediment Sample (Metals)

Sample Numbers: ME4SQ7

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: ME4SQ7
Site Name: Lincoln Park Laboratory: Bonner

SDG SUMMARY

Sample Completeness and Receipt: One (1) Sediment sample labeled ME4SQ7 was shipped to Bonner Analytical Testing Company. The sediment sample was collected on 4/19/2010, and was received at the facility on 4/20/2010, intact, and at 4.5 °C.

Sample Analysis and Data Review: The sample was prepared using the Toxicity Characteristic Leaching Procedure (TCLP) according to MA1705.0 and analyzed for the 8 "TC" metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure. Because the sample was subjected to TCLP, and the aqueous leachate was analyzed, the results were reported in weight/volume (w/v) units, as required by the TCLP.

Sample ME4SQ7 was designated by the samplers to be used for laboratory QC (i.e., matrix spike, duplicate, and serial dilution).

Using the field duplicate identification scheme provided by CH2M HILL in the field sampling plan, no field duplicate sets were identified.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

Case Number: 39668 SDG Number: ME4SQ7
Site Name: Lincoln Park Laboratory: Bonner

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard

3. BLANKS

The sample is associated with an ICB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4SQ7 Barium

The sample is associated with an CCB analyte with negative concentration whose absolute value is greater than or equal to the method detection limit (MDL) but less than or equal to the CRQL. No sample results were qualified based on this issue.

ME4SQ7 Barium, Mercury

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

No defects were found for the matrix spike.

No defects were found for the lab control sample.

5. LABORATORY AND FIELD DUPLICATE

No defects were found for the duplicate sample.

6. ICP ANALYSIS

No defects were found for the ICP analysis.

7. SAMPLE RESULTS

The sample has analyte concentrations reported below the quantitation limit (CRQL). All results below the CRQL are qualified “J”.

ME4SQ7 Arsenic, Cadmium, Chromium, Lead

Case Number: 39668 SDG Number: ME4SQ7
Site Name: Lincoln Park Laboratory: Bonner

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

COMPUTER SCIENCES CORPORATION
GREAT LAKES NATIONAL PROGRAM OFFICE

DATE: 6/17/2010

SUBJECT: Review of Data
Received for Review on: 6/16/2010

FROM: Ted Derheimer
Environmental Scientist, CSC

TO: Data User: GLNPO

We have reviewed the data for the following case:

SITE Name: Lincoln Park

Case Number: 39668 MRN: MA 1705.0 SDG Number: ME4SQ9

Number and Type of Samples: 1 Water Sample (Metals)

Sample Numbers: ME4SQ9

Laboratory: Bonner Analytical Testing Company.

cc: Sara Goehl, EPA
Brenda Jones, EPA
Louis Blume, EPA
Dan Plomb, CH2M Hill
Heather Hodach, CH2M Hill
Dave Shekoski, CH2M Hill
Huck Raddemann, CH2M Hill
Adrienne Unger, CH2M Hill
Judy Schofield, CSC

Case Number: 39668 SDG Number: ME4SQ9
Site Name: Lincoln Park Laboratory: Bonner

SDG SUMMARY

Sample Completeness and Receipt: One (1) water sample labeled ME4SQ9 was shipped to Bonner Analytical Testing Company. The water sample was collected on 4/23/2010, and was received at the facility on 4/24/2010, intact, and at 6.7 °C.

Sample Analysis and Data Review: The sample was prepared using the Toxicity Characteristic Leaching Procedure (TCLP) according to MA1705.0 and analyzed for the 8 "TC" metals according to CLP SOW ILM05.4. Mercury analyses were performed using the cold vapor atomic absorption (AA) technique. The remaining inorganic analyses were performed using the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) procedure. Because the sample was subjected to TCLP, and the aqueous leachate was analyzed, the results were reported in weight/volume (w/v) units, as required by the TCLP.

Although MA1705.0 specified that a matrix spike sample be prepared and analyzed, the laboratory did not provide matrix spike results, noting in the data package narrative that "As per scheduling no MS and DUP are required." CSC has not located any scheduling information that confirms the laboratory's assertion about the MS and DUP, but we have not flagged the results due to the lack of an MS or DUP analysis. The laboratory did analyze a laboratory control sample (LCS), per the CLP SOW, and its recoveries were within the acceptance limits, indicating that laboratory performance was under control.

Using the field duplicate identification scheme provided by CH2M Hill in the field sampling plan, no field duplicate sets were identified.

In the following sections, QC failures, resulting qualifiers, and associated results are described for each failure. In instances where multiple qualifiers are associated with a given sample result a single final qualifier is applied to that result. If all associated qualifiers described by CADRE NFG reports for a particular result conform exactly to the Region 2 SOP requirements for the associated failure scenarios, then the final qualifier applied by CADRE is left intact. However, if at least one of the associated qualifiers described by CADRE NFG reports is different from that required by the Region 2 SOP for the relevant failure, OR if a reviewer has chosen a different qualifier for a failure because of best professional judgment, then the most severe qualifier will be applied. Qualifiers from most severe to least severe are: "R", "UJ", "U", "J", "J+", "J-". In the special case where a result is affected by a "J+" and a "J-" flag, a "J" flag was applied.

Case Number: 39668 SDG Number: ME4SQ9
Site Name: Lincoln Park Laboratory: Bonner

1. HOLDING TIME

No defects were found.

2. CALIBRATION

No defects were found for the calibration or the CRQL standard

3. BLANKS

The sample is associated with a CCB concentration which is less than or equal to the CRQL. Sample result is greater than the CRQL. No sample results were qualified based on this issue.

ME4SQ9 Barium, Cadmium

4. MATRIX SPIKE AND LAB CONTROL SAMPLE

Matrix spike was not performed for TCLP. No results were qualified.

No defects were found for the lab control sample.

5. LABORATORY AND FIELD DUPLICATE

Laboratory duplicates were not performed for TCLP. No results were qualified.

6. ICP ANALYSIS

No defects were found for the ICP analysis.

7. SAMPLE RESULTS

No defects were found for the sample result verification.

Case Number: 39668 SDG Number: ME4SQ9

Site Name: Lincoln Park Laboratory: Bonner

GLNPO Data Qualifier Sheet

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased high.
J-	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte, but may be biased low.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Appendix B
TOPSC DQE

Data Usability Evaluation
Lincoln Park/Milwaukee River Channel Sediments Site — Phase 2 Remedial Investigation Milwaukee, Wisconsin WA No. 064-RICO-2508 / Contract No. EP-S5-06-01

PREPARED FOR: U.S. Environmental Protection Agency

PREPARED BY: Adrienne Korpela/CH2M HILL

DATE: September 7, 2010

This memorandum presents the data usability evaluation of the sediment samples collected during the field investigation conducted at the Lincoln Park/Milwaukee River Channel Sediments Site in Milwaukee, Wisconsin, from February to April 2010. The sampling was performed by CH2M HILL. The analyses were performed by the USEPA Region 5 Central Regional Laboratory (CRL).

Two-hundred and ninety-four sediment samples were collected and analyzed for one or more of the following methods:

- Total organic carbon by CRL standard operating procedure (SOP) AIG009 Revision 5.1
- Particle size by CRL SOP AIG038A Revision #00 or CRL SOP AIG038 Revision #02

As part of the quality assurance process outlined in the sampling and analysis plan, quality control (QC) samples were collected in the field to complement the assessment of overall data quality and usability.

The data set underwent a forms review by CH2M HILL staff to assess the lab notes and precision of the field duplicate samples. Completeness of the data set was then derived. Data qualifiers were added by CH2M HILL validators when the QC statistics indicated a possible bias to specific compounds or analytes associated with a particular method and sample batch.

Standard data qualifiers were used as a means of classifying the data as to their conformance to QC requirements. The applied data qualifiers are defined as follows:

[U] The sample target was analyzed for, but was not detected above the level of the associated limit of detection or quantitation.

[J] The associated value is an estimated quantity. This qualifier was appended when the data indicated the presence of a specific target analyte but was below the stated reporting (or quantitation) limit, and/or when quality control statistics alluded to an analytical bias.

[UJ] The component was analyzed for, but was not detected at a level equal to or greater than the level of detection or quantification (often the reporting limit). This flag is used when QC measurements indicate a possible low bias in the analytical data.

[R] Rejected. The data were of insufficient quality to be deemed acceptable as reported or otherwise qualified.

Sediment Samples

CH2M HILL conducted a forms review of 100 percent of the sediment samples collected. Table 1 lists the work orders.

TABLE 1
Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Work Order Number	Number of Samples for Total Organic Carbon Analysis	Number of Samples for Particle Size Analysis
1003001	45 samples (41 + 4 FDs)	None
1003003	62 samples (58 + 4 FDs)	13 samples
1003004	28 samples (25 + 3 FDs)	None
1003006	38 samples (35 + 3 FDs)	4 samples
1003008	44 samples (40 + 4 FDs)	5 samples
1004011	46 samples (41 + 5 FDs)	4 samples
1004013	31 samples (27 + 4 FDs)	8 samples

FD = field duplicate

Field Duplicates

Twenty-seven field duplicate (FD) pairs were collected and analyzed for Total Organic Carbon, and precision criteria were met with the following exceptions:

TABLE 2
Field Duplicate Precision
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Sample Location	Unit	Sample Concentration	Field Duplicate Concentration	Relative Percent Difference
LP2-SD21E-J0.5/1.5	%	6.3	3.1	68.1
LP2-SD32N-C1.5/2.5	%	1.0	0.6	50.0
LP2-SD35E-A0.0/0.5	%	ND	1.4	173.3*
LP2-SD35W-A1.5/2.5	%	2.6	0.1	185.2
LP2-SD39W-D0.0/0.5	%	1.3	0.7	60.0
LP2-SD43N-A0.5/1.7	%	1.7	2.9	52.2

*Relative percent difference calculated using the method detection limit (0.1) for the nondetected sample concentration.

When the relative percent difference between the detected sample and FD sample results exceeded 50 percent for sediment, the sample results not previously qualified for any other QC parameter were then qualified for field duplicate precision. Detected concentrations were qualified as estimated and flagged J in the FD pair. If the FD pair had one detected result and one nondetected result, the detect was flagged J and the nondetect was flagged UJ.

Conclusion

The evaluation of the FD data indicates possible bias due to applicable QC statistics. However, the precision was generally acceptable, and the data set completeness was deemed as 100 percent usable and may be used in the project decision making process with qualification.

In addition, 100 percent of the data underwent a comparative review to evaluate the accuracy between the database and the CRL data reports. There were no discrepancies noted.

Data Usability Evaluation
Lincoln Park/Milwaukee River Channel Sediments Site — Phase 2 Remedial Investigation Milwaukee, Wisconsin WA No. 064-RICO-2508 / Contract No. EP-S5-06-01

PREPARED FOR: U.S. Environmental Protection Agency

PREPARED BY: Adrienne Korpela/CH2M HILL

DATE: September 7, 2010

This memorandum presents the data usability evaluation of the sediment samples collected during the field investigation conducted at the Lincoln Park/Milwaukee River Channel Sediments Site in Milwaukee, Wisconsin, from February to April 2010. The sampling was performed by CH2M HILL. The analyses were performed by the USEPA Region 5 Central Regional Laboratory (CRL).

Two-hundred and ninety-four sediment samples were collected and analyzed for one or more of the following methods:

- Total organic carbon by CRL standard operating procedure (SOP) AIG009 Revision 5.1
- Particle size by CRL SOP AIG038A Revision #00 or CRL SOP AIG038 Revision #02

As part of the quality assurance process outlined in the sampling and analysis plan, quality control (QC) samples were collected in the field to complement the assessment of overall data quality and usability.

The data set underwent a forms review by CH2M HILL staff to assess the lab notes and precision of the field duplicate samples. Completeness of the data set was then derived. Data qualifiers were added by CH2M HILL validators when the QC statistics indicated a possible bias to specific compounds or analytes associated with a particular method and sample batch.

Standard data qualifiers were used as a means of classifying the data as to their conformance to QC requirements. The applied data qualifiers are defined as follows:

[U] The sample target was analyzed for, but was not detected above the level of the associated limit of detection or quantitation.

[J] The associated value is an estimated quantity. This qualifier was appended when the data indicated the presence of a specific target analyte but was below the stated reporting (or quantitation) limit, and/or when quality control statistics alluded to an analytical bias.

[UJ] The component was analyzed for, but was not detected at a level equal to or greater than the level of detection or quantification (often the reporting limit). This flag is used when QC measurements indicate a possible low bias in the analytical data.

[R] Rejected. The data were of insufficient quality to be deemed acceptable as reported or otherwise qualified.

Sediment Samples

CH2M HILL conducted a forms review of 100 percent of the sediment samples collected. Table 1 lists the work orders.

TABLE 1
Sample Summary
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Work Order Number	Number of Samples for Total Organic Carbon Analysis	Number of Samples for Particle Size Analysis
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1003004	28 samples (25 + 3 FDs)	None
1003006	38 samples (35 + 3 FDs)	4 samples
1003008	44 samples (40 + 4 FDs)	5 samples
1004011	46 samples (41 + 5 FDs)	4 samples
1004013	31 samples (27 + 4 FDs)	8 samples

FD = field duplicate

Field Duplicates

Twenty-seven field duplicate (FD) pairs were collected and analyzed for Total Organic Carbon, and precision criteria were met with the following exceptions:

TABLE 2
Field Duplicate Precision
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Sample Location	Unit	Sample Concentration	Field Duplicate Concentration	Relative Percent Difference
LP2-SD21E-J0.5/1.5	%	6.3	3.1	68.1
LP2-SD32N-C1.5/2.5	%	1.0	0.6	50.0
LP2-SD35E-A0.0/0.5	%	ND	1.4	173.3*
LP2-SD35W-A1.5/2.5	%	2.6	0.1	185.2
LP2-SD39W-D0.0/0.5	%	1.3	0.7	60.0
LP2-SD43N-A0.5/1.7	%	1.7	2.9	52.2

*Relative percent difference calculated using the method detection limit (0.1) for the nondetected sample concentration.

When the relative percent difference between the detected sample and FD sample results exceeded 50 percent for sediment, the sample results not previously qualified for any other QC parameter were then qualified for field duplicate precision. Detected concentrations were qualified as estimated and flagged J in the FD pair. If the FD pair had one detected result and one nondetected result, the detect was flagged J and the nondetect was flagged UJ.

Conclusion

The evaluation of the FD data indicates possible bias due to applicable QC statistics. However, the precision was generally acceptable, and the data set completeness was deemed as 100 percent usable and may be used in the project decision making process with qualification.

In addition, 100 percent of the data underwent a comparative review to evaluate the accuracy between the database and the CRL data reports. There were no discrepancies noted.

Appendix G
Habitat Survey

Lincoln Park/Milwaukee River Phase 2 Remedial Investigation—Baseline Habitat Survey

PREPARED FOR: USEPA and WDNR

PREPARED BY: CH2M HILL

DATE: September 24, 2010

Introduction

This technical memorandum documents the objectives, approach, and results of the baseline habitat survey associated with the RI activities for the Lincoln Park/Milwaukee River project. The survey was performed on September 16 and 17, 2010, in accordance to the supplemental field sampling plan (FSP) prepared and submitted by CH2M HILL on August 25, 2010.

Objectives

The baseline habitat survey was designed to collect information to document and evaluate stream and riparian habitat conditions within the Lincoln Park Phase 2 project area. The survey collected site-specific information needed to create a baseline of information and assist in decision making during remedial design and remedial action stages of the project. The specific objectives of the baseline habitat survey included the following:

- Identify and record dominant aquatic and riparian vegetation to determine type, diversity, and extent of various habitats, as well as identify invasive species.
- Identify in stream and stream bank characteristics and conditions including the occurrence of bank structures presently providing aquatic wildlife habitat.

Survey Approach

Riparian vegetation inventory surveys were completed while walking the riparian areas (banks, islands, and sediment flats) of the project site. The inventory included listing the dominant vegetation in each stratum (tree, shrub, and herbaceous), percent absolute cover, and indicator status for each species, as well as noting which species are considered invasive. An inventory of aquatic vegetation was conducted within the littoral zones along each shoreline and main river channel to inventory the dominant emergent and submergent species. Riparian and aquatic vegetation survey data was recorded on CH2M HILL vegetation field forms.

Stream characteristics, including bank stability, maximum thalweg depth, stream habitat diversity, substrate, and cover for fish, were qualitatively surveyed from the river using a

canoe to access shallow water areas. Stream characterization data were recorded within WDNR field forms (form 3600-532B) for qualitatively rating fish habitat for streams greater than 10 meters wide.

If a general change in stream characteristics or vegetation occurred, a new respective field form was completed. Riparian and aquatic vegetation survey results and stream characteristics corresponding to individual field forms were recorded on an aerial map of the project site.

Photographic documentation was collected at various locations along the river. Photograph locations were chosen based on characteristics of the river adequately reflecting vegetation and stream habitat features.

Survey Results

The results of the baseline habitat survey are summarized below. Habitat assessment field forms used to record riparian and aquatic vegetation are included in Attachment 1. WDNR field data forms for qualitatively ranking fish habitat ratings are included in Attachment 2. Photographs depicting habitat features and site conditions encountered during the survey are included in Attachment 3. Figure G1 depicts locations and direction of photographs, type and location of stream structures and unique riparian vegetation (Black Walnut and White Paper Birch), and data collection locations of the habitat assessment field forms (denoted by numbers 1 through 16) and qualitative fish habitat field forms (denoted by letters A through H).

Vegetation Survey

Dominant vegetation in the project area is recorded in Table G1. Dominant species are listed by their general location and are classified between riparian or sediment flat areas. Sixteen individual vegetation field forms were composed to depict dominant species and represent the project site (Figure G1 and Attachment 1). Additional non-dominant species identified as well as each species absolute cover, wetland indicator status, and invasive status are recorded in the vegetation field data forms. Locations represented by each vegetation field data form are identified within Figure G1.

Unique vegetation features include a small stand of mature paper birch (*Betula papyrifera)* located along the western bank of the east oxbow and approximately five mature black walnut *(Juglans nigra)* trees located along the western bank of the Milwaukee River across from the east oxbow (Figure G1). Aquatic species were limited to approximately 6 to 10 individual specimens of coontail scattered within the southern half of the east oxbow where water current was very minimal to non-existent. Overall, vegetative cover along the riverbanks is heavily wooded with mature wetland tree species dominated by Black willow, Slippery elm, Green ash, and Box elder, with and understory dominated by Common buckthorn. Sediment flats experiencing temporary inundation due to varying water levels of the Milwaukee River are dominated by opportunistic species capable of seasonal establishment such as (i.e., Nodding smartweed, Purple loosestrife, etc.). However due to the extended relatively low water levels due to Estabrook Dam remaining open since 2009, succession species (i.e., Eastern cottonwood and Black willow seedlings) have begun establishment within the sediment flats.

TABLE G1
Dominant Vegetation Along the Lincoln Park/Milwaukee River Channel Phase 2 Remedial Investigation Area

Location	Stratum	Common Name	Scientific Name
Riparian Areas	Tree	Black willow	*Salix nigra*
		Slippery Elm	*Ulmus rubra*
		Green Ash	*Fraxinus pennsylvanica*
		Box elder	*Acer negundo*
	Shrub	Common buckthorn	*Rhamnus cathartica*
	Herbaceous	Nodding smartweed	*Polygonum lapathifolium*
		Purple loosestrife	*Lythrum salicaria*
		Eastern cottonwood	*Populus deltoides*
		Aster sp.	*Aster sp.*
		Common sneezeweed	*Helenium autumnale*
		Riverbank grape	*Vitis riparia*
		Jewelweed	*Imaptiens capensis*
		Stinging nettle	*Urtica dioica*
Sediment Flats	Tree	N/A	N/A
	Shrub	Black willow	*Salix nigra*
	Herbaceous	Nodding smartweed	*Polygonum lapathifolium*
		Narrow-leaved cattail	*Typha angustifolia*
		Rice cutgrass	*Leersia oryzoides*
		Purple loosestrife	*Lythrum salicaria*
		Eastern cottonwood	*Populus deltoides*
		Aster sp.	*Aster sp.*
		Common sneezeweed	*Helenium autumnale*

Stream Survey

A summary of fish habitat rating results using WDNR qualitative fish habitat field forms is located below in Table G2. A total of eight qualitative fish habitat field forms (A through H) were completed to characterize in stream characteristics of the project area. A stream survey field form was not completed for the northern half of the east oxbow as no visible stream flow was present.

Structures suitable for fish habitat consisted mainly of toppled mature black willow trees and woody debris piles located along the banks of the Milwaukee River with minimal structure located within the center of the active stream channel. Areas exhibiting

boulder/cobble revetment structure were primarily located along each shoreline north of the east and west oxbows (sheets A and B), southern half of the east oxbow (sheet E), and along the northern bank south of the I-43 bridge (sheet H) as shown on Figure G1.

The average fish habitat rating for the project area is 36.5, with the highest rating (70) located north of the west and east oxbows confluences (Sheet A). This area received the highest rating largely due to the excellent ratings for thalweg depth and rocky substrate. In general the habitat feature which impeded scores in areas B through H was the absence of rocky substrate.

TABLE G2

Qualitative Fish Habitat Rating Result Summary

		Rating Item & Score					
Location	Represented Transects	Bank Stability	Max Thalweg Depth	Riffle:Riffle or Bend:Bend Ratio	Rocky Substrate	Cover for Fish	Total Score
A	2-4	8	25	4	25	8	70
B	9-11	8	25	4	0	0	37
C	5-7 & 11-14	8	25	4	0	8	45
D	15-21 & 34-39	8	16	4	0	0	28
E	28-34	8	8	4	0	8	28
F	40-43	4	16	4	0	0	24
G	43-50	8	8	4	8	0	28
H	50-56	12	8	4	8	0	32

Score Definitions:

Bank Stability and Riffle:Riffle or Bend:Bend Ratio: Excellent = 12, Good = 8, Fair = 4, Poor = 0

Maximum Thalweg Depth, Rocky Substrate, Cover for Fish: Excellent = 25, Good = 16, Fair = 8, Poor = 0

Figure

Lincoln Creek

Milwaukee River

Zone 7

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

W. Villard Avenue

N. Green Bay Avenue

Milwaukee River Parkway

N. Port Washington Rd.

W. Hampton Avenue

W. Hampton Avenue

Blatz Pavilion

Estabrook Park Dam

I-43

Michigan

Wisconsin

Lincoln Park Site
Glendale, WI.

Madison

Milwaukee

Iowa

Illinois

Legend

Photo Location

Black Walnut Tree

Paper Birch

Boulder/Cobble Revetment

Retaining Structure

Fish Habitat Structures

Boulder\Cobble Pile

Large Overhanging Tree

Tree Structure in water

Woody Debris Pile

Fish Habitat Stream Form ID

A

B

C

D

E

F

G

H

Vegetation Form ID

1

2

3

4

5

6

7

8

9

10

11

13

14

15

16

N

0 600 1,200

Feet

DRAFT

Figure I G1

Habitat Assessment Summary

Lincoln Park Phase 2 Remedial Investigation

Glendale, WI

CH2MHILL

\\LAKEFRONT\PROJ\EPA\382079_RAC2_LINCOLNPARK_WP\MAPFILES\2010\FOREST MANAGEMENT REPORT\FIGURE XX - HABITAT ASSESSMENT SUMMARY.MXD JHANSEN1 9/30/2010 14:03:14

Attachment 1
Vegetation Field Forms

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 1

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
	Tree Stratum			
1	Fraxinus pennsylvatica	20	FACW	N
2	Acer negundo	20	FACW-	N
3	Salix nigra	40	OBL	N
4	Carpinus caroliniana	5	FAC	N
5				
	Sapling / Shrub Stratum			
1	Rhamnus cathartica	60	FACU	Y
2	Celtis occidentalis	10	FAC-	N
3				
4				
5				
	Herbaceous Stratum			
1	Vitis riparia	20	FACW-	N
2	Lythrum salicaria	10	OBL	Y
3	Helenium autumnale	10	FACW+	N
4	Polygonum lapathifolium	60	FACW+	N
5				
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
	Emergent		
1			
2			
3			
4			
5			
6			
7			
8			
	Submergent		
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:
Along east bank no herbaceous due to steep bank

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 2

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1	Fraxinus pennsylvatica	20	FACW	N
2	Ulmus rubra	35	FAC	N
3	Juglans nigra	10	FACU	N
4				
5				
Sapling / Shrub Stratum				
1	Rhamnus cathartica	50	FACU	Y
2	Salix nigra	20	OBL	N
3	Acer saccharum	10	FACU	N
4				
5				
Herbaceous Stratum				
1	Populus deltoides	20	FAC+	N
2	Lythrum salicaria	20	OBL	Y
3	Aster sp.	15		N
4	Polygonum lapathifolium	30	FACW+	N
5	Acer saccharinum	5	FACW	N
6				
7				
8				
9				
10				

Aquatic Vegetation

	Absolute % Cover	Invasive (Y/N)
Emergent		
1		
2		
3		
4		
5		
6		
7		
8		
Submergent		
1		
2		
3		
4		
5		
6		
7		
8		

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 3

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
	Tree Stratum			
1	Acer negundo	30	FACW-	N
2	Salix nigra	50	OBL	N
3				
4				
5				
	Sapling / Shrub Stratum			
1	Rhamnus cathartica	60	FACU	Y
2				
3				
4				
5				
	Herbaceous Stratum			
1	Populus deltoides	10	FAC+	N
2	Lythrum salicaria	15	OBL	Y
3	Aster sp.	10		N
4	Solidago gigantea	10	FACW	N
5	Phalaris arundinacea	15	FACW+	Y
6	Helenium autumnale	10	FACW+	N
7	Verbena hastata	5	FACW+	N
8	Urtica dioica	15	FAC+	N
9	Impatiens capensis	10	FACW	N
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
	Emergent		
1			
2			
3			
4			
5			
6			
7			
8			
	Submergent		
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):

Appoximate area of Submergent Vegetation (sf):

Total Aquatic Vegetation Area (sf):

Notes:

Some paper birch on east side of island

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 4

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1	Acer negundo	30	FACW-	N
2	Salix nigra	50	OBL	N
3				
4				
5				
Sapling / Shrub Stratum				
1				
2				
3				
4				
5				
Herbaceous Stratum				
1	Asclepias syriaca	10	UPL	N
2	Solidago canadensis	15	FACU	N
3	Cirsium sp.	10		N
4	Leersia oryzoides	15	OBL	N
5	Bromus inermis	50	UPL	N
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 5

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1				
2				
3				
4				
5				
Sapling / Shrub Stratum				
1				
2				
3				
4				
5				
Herbaceous Stratum				
1	Typha angustifolia	15	OBL	Y
2	Polygonum lapathifolium	10	FACW+	N
3	Sagittaria latifolia	10	OBL	N
4	Leersia oryzoides	10	OBL	N
5	Populus deltoides	10	FAC+	N
6	Lythrum salicaria	10	OBL	Y
7	Urtica dioica	10	FAC+	N
8	Aster sp.	10		N
9	Helenium autumnale	5	FACW+	N
10	Xanthium strumarium	10	FAC	N

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):

Appoximate area of Submergent Vegetation (sf):

Total Aquatic Vegetation Area (sf):

Notes:

CH2MHILL

HABITAT ASSESSMENT FIELD FORM

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 6

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1	Salix nigra	40	OBL	N
2	Juglans nigra	10	FACU	N
3	Acer negundo	25	FACW-	N
4	Fraxinus pennsylvanica	20	FACW	N
5				
Sapling / Shrub Stratum				
1	Cornus sericea	15	FACW	N
2	Rhamnus cathartica	50	FACU	Y
3	Crataegus sp.	15		N
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	50	FACW+	N
2	Populus deltoides	40	FAC+	N
3				
4				
5				
6				
7				
8				
9				
10				

Aquatic Vegetation

	Absolute % Cover	Invasive (Y/N)
Emergent		
1		
2		
3		
4		
5		
6		
7		
8		
Submergent		
1		
2		
3		
4		
5		
6		
7		
8		

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 7

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
	Tree Stratum			
1	Salix nigra	40	OBL	N
2	Ulmus rubra	25	FAC	N
3	Acer negundo	20	FACW-	N
4	Acer saccharinum	10	FACW	N
5				
	Sapling / Shrub Stratum			
1	Fraxinus pennsylvanica	20	FACW	N
2	Rhamnus cathartica	50	FACU	Y
3				
4				
5				
	Herbaceous Stratum			
1	Polygonum lapathifolium	30	FACW+	N
2	Populus deltoides	10	FAC+	N
3	Solidago gigantea	10	FACW	N
4	Lythrum salicaria	10	OBL	Y
5	Aster sp.	10		N
6	Impatiens capensis	10	FACW	N
7	Urtica dioica	10	FAC+	N
8	Helenium autumnale	10	FACW+	N
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
	Emergent		
1			
2			
3			
4			
5			
6			
7			
8			
	Submergent		
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 8

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1				
2				
3				
4				
5				
Sapling / Shrub Stratum				
1	Sambucus nigra	10	FACW-	N
2				
3				
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	40	FACW+	N
2	Populus deltoides	10	FAC+	N
3	Solidago canadensis	5	FACU	N
4	Phalaris arundinacea	10	FACW+	N
5	Sonchus sp.	10		N
6	Impatiens capensis	10	FACW	N
7	Urtica dioica	10	FAC+	N
8	Oenothera biennis	5	FACU	N
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):

Appoximate area of Submergent Vegetation (sf):

Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 9

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1				
2				
3				
4				
5				
Sapling / Shrub Stratum				
1				
2				
3				
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	50	FACW+	N
2	Vitis riparia	10	FACW-	N
3	Poplulus deltoides	20	FAC+	N
4	Acer saccharinum	10	FACW	N
5				
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 10

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1	Populus deltoides	10	FAC+	N
2	Salix nigra	40	OBL	N
3	Acer negundo	20	FACW-	N
4	Acer saccharinum	10	FACW-	N
5				
Sapling / Shrub Stratum				
1	Rhamnus catharica	70	FACU	Y
2	Ulmus rubra	20	FAC	N
3				
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	40	FACW+	N
2	Urtica dioica	10	FAC+	N
3	Impatiens capensis	20	FACW	N
4	Populus deltoides	10	FAC+	N
5	Aster sp.	10		N
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/17/10
Station ID: 11

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1	Populus deltoides	5	FAC+	N
2	Salix nigra	45	OBL	N
3	Fraxinus pennsylvanica	35	FACW	N
4	Acer saccharinum	10	FACW	N
5				
Sapling / Shrub Stratum				
1	Rhamnus catharica	70	FACU	Y
2				
3				
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	40	FACW+	N
2	Vitis riparia	15	FACW-	N
3	Helenium autumnale	10	FACW+	N
4	Populus deltoides	10	FAC+	N
5	Aster sp.	15		N
6				
7				
8				
9				
10				

Aquatic Vegetation

	Absolute % Cover	Invasive (Y/N)
Emergent		
1		
2		
3		
4		
5		
6		
7		
8		
Submergent		
1		
2		
3		
4		
5		
6		
7		
8		

Area 11

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/17/10
Station ID: 12

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
	Tree Stratum			
1	Fraxinus pennsylvanica	40	FACW	N
2	Salix nigra	30	OBL	N
3				
4				
5				
	Sapling / Shrub Stratum			
1	Rhamnus catharica	60	FACU	Y
2				
3				
4				
5				
	Herbaceous Stratum			
1	Polygonum lapathifolium	40	FACW+	N
2	Vitis riparia	15	FACW-	N
3	Helenium autumnale	5	FACW+	N
4	Populus deltoides	10	FAC+	N
5	Aster sp.	10		
6	Impatiens capensis	5	FACW	N
7	Urtica dioica	5	FAC+	N
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
	Emergent		
1			
2			
3			
4			
5			
6			
7			
8			
	Submergent		
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/17/10
Station ID: 13

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: partly cloudy, calm, 50-65 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1				
2				
3				
4				
5				
Sapling / Shrub Stratum				
1				
2				
3				
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	50	FACW+	N
2	Populus deltoides	30	FAC+	N
3				
4				
5				
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/17/10
Station ID: 14

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: partly cloudy, calm, 50-65 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1				
2				
3				
4				
5				
Sapling / Shrub Stratum				
1				
2				
3				
4				
5				
Herbaceous Stratum				
1	Polygonum lapathifolium	60	FACW+	N
2	Populus deltoides	15	FAC+	N
3	Aster sp.	10		N
4	Salix nigra	5	OBL	N
5	Lythrum salicaria	5	OBL	Y
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/16/10
Station ID: 15

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
Tree Stratum				
1	Acer saccharinum	20	FACW	N
2	Fraxinus pennsylvanica	40	FACW	N
3	Celtic occidentalis	20	FAC-	N
4				
5				
Sapling / Shrub Stratum				
1	Rhamnus catharica	50	FACU	Y
2	Cornus sericea	10	FACW	N
3	Celtic occidentalis	20	FAC-	N
4				
5				
Herbaceous Stratum				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
Emergent			
1			
2			
3			
4			
5			
6			
7			
8			
Submergent			
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

HABITAT ASSESSMENT FIELD FORM

CH2MHILL

Logger: HRJ/MDN
Date: 9/17/10
Station ID: 16

Project: Lincoln Park/Milwaukee River Channel Sediments Site
Phase 2 Remedial Investigation

Weather: light rain, overcast, 50-60 degrees F

Project #: 400423

24 hr rainfall (in): 0 Rain in last 7 days (Y/N): 0.72

Riparian Vegetation

		Absolute % Cover	Indicator Status	Invasive (Y/N)
	Tree Stratum			
1	Sailix nigra	40	OBL	N
2	Fraxinus pennsylvanica	40	FACW	N
3				
4				
5				
	Sapling / Shrub Stratum			
1	Rhamnus catharica	60	FACU	Y
2	Salix nigra	20	OBL	N
3				
4				
5				
	Herbaceous Stratum			
1	Polygonum lapathifolium	50	FACW+	N
2	Populus deltoides	10	FAC+	N
3	Solidago gigantea	10	FACW	N
4	Vitis riparia	10	FACW-	N
5	Lythrum salicaria	5	OBL	Y
6	Urtica dioica	5	FAC+	N
7	Impatiens capensis	5	FACW	N
8				
9				
10				

Aquatic Vegetation

		Absolute % Cover	Invasive (Y/N)
	Emergent		
1			
2			
3			
4			
5			
6			
7			
8			
	Submergent		
1			
2			
3			
4			
5			
6			
7			
8			

Appoximate area of Emergent Vegetation (sf):
Appoximate area of Submergent Vegetation (sf):
Total Aquatic Vegetation Area (sf):

Notes:

Attachment 2
Stream Field Forms

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet A Transect 2-4

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil (8)	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	8
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m (25)	Stream relatively deep; 1 - 1.5 m 16	Stream moderately deep; 0.6 - 0.9 m 8	Stream relatively shallow; < 0.6 m 0	25
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed (25)	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed 8	Rocky substrate uncommon; < 15% of stream bed 0	25
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream (8)	Cover rare or absent; limited to < 2% of stream 0	8
				Total Score	70

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet B Transect 9-11

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil (8)	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	8
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m (25)	Stream relatively deep; 1 - 1.5 m 16	Stream moderately deep; 0.6 - 0.9 m 8	Stream relatively shallow; < 0.6 m 0	25
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed 8	Rocky substrate uncommon; < 15% of stream bed (0)	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream 8	Cover rare or absent; limited to < 2% of stream (0)	0
				Total Score	37

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet C Transect 5-7, 11-14

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil (8)	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	8
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m (25)	Stream relatively deep; 1 - 1.5 m 16	Stream moderately deep; 0.6 - 0.9 m 8	Stream relatively shallow; < 0.6 m 0	25
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed 8	Rocky substrate uncommon; < 15% of stream bed (0)	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream (8)	Cover rare or absent; limited to < 2% of stream 0	8
				Total Score	45

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet D Transect 15-21, 34-39

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil (8)	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	8
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m 25	Stream relatively deep; 1 - 1.5 m (16)	Stream moderately deep; 0.6 - 0.9 m 8	Stream relatively shallow; < 0.6 m 0	16
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed 8	Rocky substrate uncommon; < 15% of stream bed (0)	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream 8	Cover rare or absent; limited to < 2% of stream (0)	0
				Total Score	28

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet E Transect 28-34

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil (8)	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	8
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m 25	Stream relatively deep; 1 - 1.5 m 16	Stream moderately deep; 0.6 - 0.9 m (8)	Stream relatively shallow; < 0.6 m 0	8
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed 8	Rocky substrate uncommon; < 15% of stream bed (0)	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream (8)	Cover rare or absent; limited to < 2% of stream 0	8
				Total Score	28

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet F Transect 40-43

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil 8	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil (4)	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	4
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m 25	Stream relatively deep; 1 - 1.5 m (16)	Stream moderately deep; 0.6 - 0.9 m 8	Stream relatively shallow; < 0.6 m 0	16
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed 8	Rocky substrate uncommon; < 15% of stream bed (0)	0
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream 8	Cover rare or absent; limited to < 2% of stream (0)	0
				Total Score	24

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet G Transect 43-50

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil 12	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil (8)	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	8
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m 25	Stream relatively deep; 1 - 1.5 m 16	Stream moderately deep; 0.6 - 0.9 m (8)	Stream relatively shallow; < 0.6 m 0	8
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed (8)	Rocky substrate uncommon; < 15% of stream bed 0	8
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream 8	Cover rare or absent; limited to < 2% of stream (0)	0
				Total Score	28

Wadable Stream Qualitative Fish Habitat Rating for Streams > 10 m wide

Form 3600-532B (R 6/07)

Sheet H Transect 50-56

Rating Item	Excellent	Good	Fair	Poor	Score
Bank Stability % of bank protected by rock or vegetation	No significant bank erosion; ≥ 90% of bank protected; < 10% bare soil (12)	Limited erosion; 70 to 90% of bank protected; 10 - 30% bare soil 8	Moderate erosion; 50 to 69% of bank protected; 31 - 50% bare soil 4	Extensive erosion; < 50% of bank protected; > 50% bare soil 0	12
Maximum Thalweg Depth Average of the four deepest depths recorded	Stream very deep; ≥ 1.5 m 25	Stream relatively deep; 1 - 1.5 m 16	Stream moderately deep; 0.6 - 0.9 m (8)	Stream relatively shallow; < 0.6 m 0	8
Riffle:Riffle or Bend:Bend Ratio Average distance between riffles or bends divided by average stream width	Diverse habitats; meandering stream with deep bends and riffles common; ratio < 10 12	Diverse habitats; bends and riffles present, but not abundant; ratio 10 to 14 8	Habitat diversity low; occasional riffles or bends, ratio 15 to 25 (4)	Habitat monotonous; riffles or bends rare; generally continuous run habitat; ratio > 25 0	4
Rocky Substrate % of substrate, by area, that is bedrock, boulder, rubble/ cobble, or gravel	Extensive rocky substrate; ≥ 65% of the stream bed 25	Moderate rocky substrate; 45 - 65% of stream bed 16	Limited rocky substrate; 15 - 44% of stream bed (8)	Rocky substrate uncommon; < 15% of stream bed 0	8
Cover for Fish % of the stream area with cover	Cover/shelter for fish abundant; ≥ 12% of stream 25	Cover common, but not extensive; 7 - 12% of stream 16	Occasional cover, limited to one or two areas; 2 - 6% of stream 8	Cover rare or absent; limited to < 2% of stream (0)	0
				Total Score	32

Attachment 3
Photograph Log

1. Milwaukee River: Looking upstream (north) from Transect 4.

2. Milwaukee River: Looking downstream (southwest) from Transect 9.

3. Milwaukee River: Looking downstream (southeast) from Transect 12.

4. Milwaukee River: Looking downstream (south) from Transect 16.

5. Milwaukee River east oxbow: Looking upstream (north) from Transect 29.

6. Milwaukee River east oxbow: Looking downstream (south) from Transect 29.

7. Milwaukee River east oxbow: Looking upstream (east) from Transect 34.

8. Milwaukee River: Looking across (east) from Transect 41.

9. Milwaukee River: Looking across (west) at Blatz Pavilion from Transect 41.

10. Milwaukee River: Looking upstream (northwest) from Transect 55.

11. Milwaukee River: Looking downstream (southeast) from Transect 55.

Appendix H
COC Screening

APPENDIX H

Summary of Sediment Screening Results

Introduction

The following technical memorandum summarizes the methods and assumptions used during the evaluation of the Lincoln Park sediment chemistry data to determine potential contaminants of concern (COCs) and support the selection of remedial action levels (RALs), if necessary. The final data for pesticides, metals, and total PAHs were used to generate summary statistics for the reference and site locations, determine average background concentrations, and were compared to the Wisconsin Department of Natural Resources (WDNR) Consensus-Based Sediment Quality Guidelines (SQGs).

Methods

Treatment of Non-Detected and Rejected Data Points

For the purposes of this evaluation, only detected values were included in the DDx sums. The PAHs were summed using the method described in Section 4.3.2 of the RI report. Rejected data points were treated as non-detects and were not included in the sums; these data points were included in the summary statistics as non-detected values.

Non-detected values were not screened against any SQGs.

Summary Statistics

The data were grouped using two separate classification schemes to facilitate data comparison among the different sampling areas and sampling depths. In the first grouping, the samples were categorized with no differentiation for sample depths. The second classification scheme grouped the reference and site samples by the general sampling depths (i.e., surface, 0.5 to 1.5 feet, 1.5 to 2.5 feet, etc.). There were some instances where the actual sample depth did not correspond to exactly to the assigned range—in these cases the samples were assigned to the group with the best fit in order to keep the number of subgroups manageable.

The summary statistics were generated using the freeware ProUCL 4.00.02, which has been developed for, and provided by, the United States Environmental Protection Agency (USEPA).

Preliminary Sediment Screening

WDNR SQGs were selected to be used for preliminary data evaluation purposes for metals, pesticides, and PAHs. If WDNR SQGs were not available, USEPA Region III Biological Technical Advisory Group Freshwater Sediment Screening values were used. These values are not to be considered as RALs for the site and were chosen as an initial step to conduct a preliminary evaluation of concentration levels. Further evaluation of metals, pesticides, and PAH data is needed prior to determining appropriate RAL's specific to protecting human

health and ecological risk at the site. The WI SQGs guidance specifies the following three screening values for selected parameters:

- Threshold Effect Concentration (TEC) is defined as the concentration at which, if below, toxicity effects to benthic dwelling organisms are predicted to be unlikely.
- Midpoint Effect Concentration (MEC) is the midpoint concentration between the TEC and PEC concentrations.
- Probable Effect Concentration (PEC) is the concentration at which, if above, toxicity effects to benthic organisms are probable.

There were several pesticides for which values were not specifically listed by the WDNR guidance: alpha chlordane, beta chlordane, alpha endosulfan, beta endosulfan, beta BHC, endrin aldehyde, endrin ketone, methoxychlor, and heptachlor. The USEPA Region III Biological Technical Advisory Group (BTAG) Freshwater Sediment Screening values were used in instances where the WDNR SQGs were not available. A comparison of the USEPA screening values to the WDNR SQGs indicated that the TEC values cited by the WDNR were generally similar, or identical, to the USEPA screening values.

Screening values for endrin aldehyde, endrin ketone, and alpha and beta chlordane were not specifically listed in either guidance. The WDNR SQG values for endrin and chlordane were during the preliminary screening.

The WI SQGs for PAHs and pesticides are based on normalization to 1% total organic carbon (TOC). Normalized PAH and pesticide concentrations were utilized in the screening process. In instances where TOC was not detected in a sample, a value of 1% was retained and the original reported pesticide and PAH concentrations were included in screening evaluation.

Results and Observations

Summary statistics are presented in Tables G-1, G-3, and G-5 for metals, pesticides and total PAHs, respectively. The results of the screening against the SQGs are presented in Tables G-2 (metals), G-4 (pesticides), and G-6 (total PAHs). Three sediment core locations (SD-01E-A, SD-02E-C, and SD-03E-A) located at the northern most upstream extent of the project area were used for comparative purposes to represent background conditions at the site and referred to as the reference area.

Metals

Metals in the reference area samples were either not detected or the average value was lower than either the TEC or EPA screening value; therefore the screening exercise focused on evaluating the detected concentrations against the SQGs. All twelve metals evaluated had detected concentrations in site samples that were between the TEC and MEC. Six metals (cadmium, chromium, lead, nickel, silver, and zinc) had a small number of detected concentrations above the PEC (Table G-2).

Pesticides

The only pesticide detected in the reference area samples was total DDx. Pesticide detections in the site sediment samples were generally low, with total DDx, dieldrin, and alpha- and beta-chlordane being detected most frequently.

Results of the comparison of the TOC normalized pesticide data to the SQGs are presented in Table G-4. Total DDx exceeded the TEC in 26 of the 261 site samples and did not exceed the MEC or PEC at any locations. Normalized dieldrin concentrations in 5 of the 261 samples were greater than the TEC value. Aldrin, endrin, and gamma-BHC concentrations each exceeded the TEC in two samples and alpha- and beta-chlordane, endrin aldehyde, and endrin ketone each exceeded the TEC in one sample; none of these parameters exceeded the MEC.

Total PAHs

The total PAH screening of non-normalized data indicated that of the 261 site samples, 124 had total PAH concentrations between the TEC and MEC; 18 had concentrations between the MEC and PEC; and 13 had concentrations above the PEC. Once normalized to TOC, the PAH screening yielded the following results: 67 samples were between the TEC and MEC, 2 were between the MEC and PEC, and 4 were above the PEC.

Results and Observations

The screening results presented above indicate that the pesticide concentrations present in the sediments are not likely to pose potential risk to benthic organisms since there were no parameters that exceeded the MEC or PEC; therefore, the pesticide data will not be further evaluated during the RI/FS process.

The metals screening did indicate exceedances of the TEC values for all the parameters and PEC exceedances for cadmium (4), chromium (7), lead (14), nickel (2), silver (5), and zinc (2). The most common exceedances were for lead and were generally co-located with locations where the 1 milligram per kilogram RAL for PCBs was exceeded.

TABLE H-1

Summary Statistics—Metals

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Grouped by Site and Reference Only							
Antimony (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Antimony (site)	15	246	94.25%	2.4	5.2	2.987	2.7
Arsenic (reference)	6	0	0.00%	1.1	3.2	2.2	2.25
Arsenic (site)	249	12	4.60%	0.47	14.2	2.794	2.5
Cadmium (reference)	2	4	66.67%	0.19	0.24	0.215	0.215
Cadmium (site)	165	96	36.78%	0.055	7.9	1.134	0.92
Chromium (reference)	6	0	0.00%	4.9	22.6	12.22	10.8
Chromium (site)	261	0	0.00%	2.2	261	20.78	12.8
Copper (reference)	6	0	0.00%	2.6	14.3	6.95	5
Copper (site)	260	1	0.38%	1.2	147	19.93	14.8
Iron (reference)	6	0	0.00%	4790	12200	7765	7140
Iron (site)	261	0	0.00%	2180	30000	8865	8580
Lead (reference)	6	0	0.00%	5.4	132	27.97	7.9
Lead (site)	261	0	0.00%	0.64	454	41.49	18.2
Manganese (reference)	6	0	0.00%	278	377	318.7	308.5
Manganese (site)	261	0	0.00%	158	806	396.2	402
Mercury (reference)	4	2	33.33%	0.15	0.18	0.168	0.17
Mercury (site)	169	92	35.25%	0.04	0.66	0.139	0.11
Nickel (reference)	5	1	16.67%	2.9	15.4	9.16	11.4
Nickel (site)	260	1	0.38%	1.8	55.8	11.71	11
Silver (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Silver (site)	27	234	89.66%	0.59	4.6	1.481	1.2
Zinc (reference)	6	0	0.00%	22.5	34.4	28.78	29.45
Zinc (site)	260	1	0.38%	6.6	550	88.89	56.75
Grouped by Site, Reference, and Sample Depth							
Antimony (reference 0.0-0.5)	0	5	100.00%	N/A	N/A	N/A	N/A
Antimony (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Antimony (site 0.0-0.5)	3	80	96.39%	2.4	5.2	3.633	3.3
Antimony (site 0.5-1.5)	2	61	96.83%	2.5	2.6	2.55	2.55

TABLE H-1

Summary Statistics—Metals

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Antimony (site 1.5-2.5)	3	44	93.62%	2.4	3.7	3.167	3.4
Antimony (site 2.5-3.5)	5	31	86.11%	2.5	3.1	2.78	2.6
Antimony (site 3.5-4.5)	2	14	87.50%	2.7	2.7	2.7	2.7
Antimony (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Antimony (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Antimony (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Antimony (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Arsenic (reference 0.0-0.5)	5	0	0.00%	1.1	3.2	2.28	2.4
Arsenic (reference 0.5-1.5)	1	0	0.00%	1.8	1.8	1.8	1.8
Arsenic (site 0.0-0.5)	79	4	4.82%	0.53	14.2	2.406	1.9
Arsenic (site 0.5-1.5)	63	0	0.00%	0.57	9.9	2.86	2.4
Arsenic (site 1.5-2.5)	46	1	2.13%	0.87	9.7	3.261	2.6
Arsenic (site 2.5-3.5)	33	3	8.33%	1	5.7	3.061	2.8
Arsenic (site 3.5-4.5)	15	1	6.25%	0.47	3.8	2.54	2.6
Arsenic (site 4.5-5.5)	7	1	12.50%	1.8	5.5	3.114	2.7
Arsenic (site 5.5-6.5)	3	1	25.00%	2	2.6	2.367	2.5
Arsenic (site 6.5-7.5)	2	1	33.33%	2.1	3.2	2.65	2.65
Arsenic (site 7.5-8.5)	1	0	0.00%	2.1	2.1	2.1	2.1
Cadmium (reference 0.0-0.5)	1	4	80.00%	0.19	0.19	0.19	0.19
Cadmium (reference 0.5-1.5)	1	0	0.00%	0.24	0.24	0.24	0.24
Cadmium (site 0.0-0.5)	61	22	26.51%	0.055	5.2	1.034	0.79
Cadmium (site 0.5-1.5)	51	12	19.05%	0.055	7.9	1.37	1.1
Cadmium (site 1.5-2.5)	33	14	29.79%	0.059	3.8	1.241	1.2
Cadmium (site 2.5-3.5)	14	22	61.11%	0.19	2.7	0.652	0.365
Cadmium (site 3.5-4.5)	4	12	75.00%	0.2	1.2	0.77	0.84
Cadmium (site 4.5-5.5)	2	6	75.00%	0.29	0.76	0.525	0.525
Cadmium (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Cadmium (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Cadmium (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Chromium (reference 0.0-0.5)	5	0	0.00%	4.9	22.6	13.28	14.7

TABLE H-1

Summary Statistics—Metals

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Chromium (reference 0.5-1.5)	1	0	0.00%	6.9	6.9	6.9	6.9
Chromium (site 0.0-0.5)	83	0	0.00%	2.7	256	21.78	13.1
Chromium (site 0.5-1.5)	63	0	0.00%	3.6	261	27.73	18.4
Chromium (site 1.5-2.5)	47	0	0.00%	3.1	142	24.27	12.8
Chromium (site 2.5-3.5)	36	0	0.00%	2.7	84	11.86	9.25
Chromium (site 3.5-4.5)	16	0	0.00%	2.6	20.8	9.938	8.7
Chromium (site 4.5-5.5)	8	0	0.00%	3.9	14.6	9.888	10.65
Chromium (site 5.5-6.5)	4	0	0.00%	2.4	15.6	9.25	9.5
Chromium (site 6.5-7.5)	3	0	0.00%	2.2	13.7	6.833	4.6
Chromium (site 7.5-8.5)	1	0	0.00%	5.3	5.3	5.3	5.3
Copper (reference 0.0-0.5)	5	0	0.00%	2.6	14.3	7.72	6.4
Copper (reference 0.5-1.5)	1	0	0.00%	3.1	3.1	3.1	3.1
Copper (site 0.0-0.5)	82	1	1.20%	1.9	139	21.98	15.15
Copper (site 0.5-1.5)	63	0	0.00%	2.5	147	22.89	19.9
Copper (site 1.5-2.5)	47	0	0.00%	1.5	78.3	21.25	14.9
Copper (site 2.5-3.5)	36	0	0.00%	1.6	55.8	14.08	12.55
Copper (site 3.5-4.5)	16	0	0.00%	1.4	23.6	13.08	12.85
Copper (site 4.5-5.5)	8	0	0.00%	2.4	23.9	14.28	13.3
Copper (site 5.5-6.5)	4	0	0.00%	1.3	25.1	14.43	15.65
Copper (site 6.5-7.5)	3	0	0.00%	1.2	29.6	13.4	9.4
Copper (site 7.5-8.5)	1	0	0.00%	10	10	10	10
Iron (reference 0.0-0.5)	5	0	0.00%	5390	12200	8360	8550
Iron (reference 0.5-1.5)	1	0	0.00%	4790	4790	4790	4790
Iron (site 0.0-0.5)	83	0	0.00%	2600	30000	8583	7220
Iron (site 0.5-1.5)	63	0	0.00%	3510	18200	8938	8370
Iron (site 1.5-2.5)	47	0	0.00%	3490	19200	9156	8850
Iron (site 2.5-3.5)	36	0	0.00%	3110	14400	8940	8735
Iron (site 3.5-4.5)	16	0	0.00%	3070	15300	8696	8330
Iron (site 4.5-5.5)	8	0	0.00%	3710	15000	9843	8455
Iron (site 5.5-6.5)	4	0	0.00%	2310	15200	9738	10720

TABLE H-1

Summary Statistics—Metals

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Iron (site 6.5-7.5)	3	0	0.00%	2180	14100	7583	6470
Iron (site 7.5-8.5)	1	0	0.00%	6610	6610	6610	6610
Lead (reference 0.0-0.5)	5	0	0.00%	5.8	132	32.48	8.3
Lead (reference 0.5-1.5)	1	0	0.00%	5.4	5.4	5.4	5.4
Lead (site 0.0-0.5)	83	0	0.00%	3.1	454	43.3	27.6
Lead (site 0.5-1.5)	63	0	0.00%	2.9	350	59.39	42.7
Lead (site 1.5-2.5)	47	0	0.00%	0.71	194	52.21	21.3
Lead (site 2.5-3.5)	36	0	0.00%	0.64	182	18.1	8.3
Lead (site 3.5-4.5)	16	0	0.00%	1.4	71.6	15.34	8.65
Lead (site 4.5-5.5)	8	0	0.00%	2.1	36	11.56	10.3
Lead (site 5.5-6.5)	4	0	0.00%	1.2	10.4	6.8	7.8
Lead (site 6.5-7.5)	3	0	0.00%	1.2	10.7	5.833	5.6
Lead (site 7.5-8.5)	1	0	0.00%	5.1	5.1	5.1	5.1
Manganese (reference 0.0-0.5)	5	0	0.00%	278	362	307	306
Manganese (reference 0.5-1.5)	1	0	0.00%	377	377	377	377
Manganese (site 0.0-0.5)	83	0	0.00%	191	806	380	380
Manganese (site 0.5-1.5)	63	0	0.00%	188	632	380.5	381
Manganese (site 1.5-2.5)	47	0	0.00%	186	742	419.7	428
Manganese (site 2.5-3.5)	36	0	0.00%	192	590	435.6	452.5
Manganese (site 3.5-4.5)	16	0	0.00%	197	540	396.4	422
Manganese (site 4.5-5.5)	8	0	0.00%	308	606	411.5	401
Manganese (site 5.5-6.5)	4	0	0.00%	219	491	360	365
Manganese (site 6.5-7.5)	3	0	0.00%	158	472	333	369
Manganese (site 7.5-8.5)	1	0	0.00%	403	403	403	403
Mercury (reference 0.0-0.5)	4	1	20.00%	0.15	0.18	0.168	0.17
Mercury (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Mercury (site 0.0-0.5)	55	28	33.73%	0.048	0.66	0.15	0.12
Mercury (site 0.5-1.5)	51	12	19.05%	0.057	0.36	0.152	0.12
Mercury (site 1.5-2.5)	33	14	29.79%	0.04	0.39	0.154	0.13
Mercury (site 2.5-3.5)	17	19	52.78%	0.042	0.31	0.0846	0.054

TABLE H-1

Summary Statistics—Metals

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Mercury (site 3.5-4.5)	6	10	62.50%	0.043	0.19	0.097	0.075
Mercury (site 4.5-5.5)	4	4	50.00%	0.042	0.094	0.063	0.058
Mercury (site 5.5-6.5)	2	2	50.00%	0.056	0.06	0.058	0.058
Mercury (site 6.5-7.5)	1	2	66.67%	0.06	0.06	0.06	0.06
Mercury (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Nickel (reference 0.0-0.5)	4	1	20.00%	2.9	15.4	10.65	12.15
Nickel (reference 0.5-1.5)	1	0	0.00%	3.2	3.2	3.2	3.2
Nickel (site 0.0-0.5)	82	1	1.20%	2.3	54.2	9.778	8.35
Nickel (site 0.5-1.5)	63	0	0.00%	3	55.8	12.02	10
Nickel (site 1.5-2.5)	47	0	0.00%	2.8	32.4	12.72	12
Nickel (site 2.5-3.5)	36	0	0.00%	1.8	23.8	12.85	12.7
Nickel (site 3.5-4.5)	16	0	0.00%	3	25.4	12.36	11.8
Nickel (site 4.5-5.5)	8	0	0.00%	3.2	25.4	14.8	11.7
Nickel (site 5.5-6.5)	4	0	0.00%	2.2	27.1	15.98	17.3
Nickel (site 6.5-7.5)	3	0	0.00%	1.9	23.2	11.97	10.8
Nickel (site 7.5-8.5)	1	0	0.00%	9.6	9.6	9.6	9.6
Silver (reference 0.0-0.5)	0	5	100.00%	N/A	N/A	N/A	N/A
Silver (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Silver (site 0.0-0.5)	6	77	92.77%	1.5	4.6	2.5	2.2
Silver (site 0.5-1.5)	11	52	82.54%	0.62	3.2	1.369	0.91
Silver (site 1.5-2.5)	9	38	80.85%	0.59	1.6	0.959	0.86
Silver (site 2.5-3.5)	1	35	97.22%	1.3	1.3	1.3	1.3
Silver (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Silver (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Silver (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Silver (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Silver (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Zinc (reference 0.0-0.5)	5	0	0.00%	22.5	34.4	29.6	34.2
Zinc (reference 0.5-1.5)	1	0	0.00%	24.7	24.7	24.7	24.7
Zinc (site 0.0-0.5)	82	1	1.20%	19.6	550	104.4	79.85

TABLE H-1

Summary Statistics—Metals

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Zinc (site 0.5-1.5)	63	0	0.00%	18.9	421	108.4	97.5
Zinc (site 1.5-2.5)	47	0	0.00%	17.6	295	97.53	63.8
Zinc (site 2.5-3.5)	36	0	0.00%	6.6	253	50.5	38.85
Zinc (site 3.5-4.5)	16	0	0.00%	14.4	106	46.07	38.75
Zinc (site 4.5-5.5)	8	0	0.00%	16	65.6	41.4	46.45
Zinc (site 5.5-6.5)	4	0	0.00%	12.4	54.3	36.15	38.95
Zinc (site 6.5-7.5)	3	0	0.00%	9	44.7	26.77	26.6
Zinc (site 7.5-8.5)	1	0	0.00%	27.6	27.6	27.6	27.6

TABLE H-2

Summary of Metal Screening Results; Site Data Only

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

	Total Samples	Total Detects	Total Non-Detects	Detects Below TEC	Detects between TEC and MEC	Detects between MEC and PEC	Detects >PEC
Antimony	261	15	246	0	15	0	0
Arsenic	261	249	12	247	2	0	0
Cadmium	261	165	96	90	63	8	4
Chromium	261	261	0	242	8	4	7
Copper	261	260	1	218	39	3	0
Iron	261	261	0	259	1	1	0
Lead	261	261	0	170	58	19	14
Manganese	261	261	0	173	87	1	0
Mercury	261	169	92	128	40	1	0
Nickel	261	260	1	236	20	2	2
Silver	261	27	234	19	2	1	5
Zinc	261	260	1	188	66	4	2

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Grouped by Site and Reference Only							
Aldrin (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Aldrin (site)	5	256	98.08%	0.13	15	3.96	1.4
Alpha BHC (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (site)	10	251	96.17%	0.013	3	0.418	0.0745
Alpha Endosulfan (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (site)	17	244	93.49%	0.018	4.3	0.93	0.46
Alpha-Chlordane (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (site)	49	212	81.23%	0.0049	30	1.237	0.5
Beta BHC (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Beta BHC (site)	15	246	94.25%	0.05	0.15	0.0971	0.11
Beta Endosulfan (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site)	2	259	99.23%	0.24	0.57	0.405	0.405
Beta-Chlordane (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Beta-Chlordane (site)	49	212	81.23%	0.059	7.2	1.419	1.2
Delta BHC (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site)	5	256	98.08%	0.03	0.74	0.325	0.065
Dieldrin (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Dieldrin (site)	67	194	74.33%	0.028	20	1.83	0.79
Endosulfan Sulfate (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site)	0	261	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (site)	27	234	89.66%	0.2	40	2.703	0.67
Endrin Ketone (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site)	5	256	98.08%	0.025	4.5	1.163	0.42
Endrin (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Endrin (site)	33	228	87.36%	0.27	10	1.334	0.74
Gamma BHC (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site)	13	248	95.02%	0.047	21	3.425	1.3
Heptachlor Epoxide (reference)	0	6	100.00%	N/A	N/A	N/A	N/A

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Heptachlor Epoxide (site)	39	222	85.06%	0.022	3.8	0.58	0.26
Heptachlor (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Heptachlor (site)	23	238	91.19%	0.033	47	2.624	0.18
Methoxychlor (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (site)	18	243	93.10%	0.18	13	3.098	2.25
p,p'-DDD (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
p,p'-DDD (site)	99	162	62.07%	0.029	62	4.503	1.3
p,p'-DDE (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
p,p'-DDE (site)	140	120	46.15%	0.0086	45	3.995	2
p,p'-DDT (reference)	1	5	83.33%	1.7	1.7	1.7	1.7
p,p'-DDT (site)	110	151	57.85%	0.05	290	8.333	2.15
Total DDx (reference)	1	5	83.33%	1.7	1.7	1.7	1.7
Total DDx (site)	197	64	24.52%	0.0086	290	9.755	3.3
Toxaphene (reference)	0	6	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site)	0	261	100.00%	N/A	N/A	N/A	N/A
Grouped by Site, Reference, and Sample Depth							
Aldrin (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Aldrin (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Aldrin (site surface)	1	82	98.80%	3	3	3	3
Aldrin (site 0.5-1.5)	0	63	100.00%	N/A	N/A	N/A	N/A
Aldrin (site 1.5-2.5)	2	45	95.74%	0.27	15	7.635	7.635
Aldrin (site 2.5-3.5)	2	34	94.44%	0.13	1.4	0.765	0.765
Aldrin (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Aldrin (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Aldrin (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Aldrin (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Aldrin (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Alpha BHC (site surface)	0	83	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (site 0.5-1.5)	2	61	96.83%	0.099	0.43	0.265	0.265
Alpha BHC (site 1.5-2.5)	3	44	93.62%	0.013	3	1.134	0.39
Alpha BHC (site 2.5-3.5)	4	32	88.89%	0.016	0.15	0.0593	0.0355
Alpha BHC (site 3.5-4.5)	1	15	93.75%	0.014	0.014	0.014	0.014
Alpha BHC (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Alpha BHC (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (site surface)	1	82	98.80%	0.44	0.44	0.44	0.44
Alpha Endosulfan (site 0.5-1.5)	8	55	87.30%	0.018	4.3	1.082	0.57
Alpha Endosulfan (site 1.5-2.5)	7	40	85.11%	0.2	2	0.673	0.46
Alpha Endosulfan (site 2.5-3.5)	1	35	97.22%	2	2	2	2
Alpha Endosulfan (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Alpha Endosulfan (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (site surface)	15	68	81.93%	0.16	30	2.743	0.51
Alpha-Chlordane (site 0.5-1.5)	21	42	66.67%	0.0049	1.4	0.588	0.51
Alpha-Chlordane (site 1.5-2.5)	7	40	85.11%	0.17	1.3	0.677	0.61
Alpha-Chlordane (site 2.5-3.5)	5	31	86.11%	0.024	1.5	0.421	0.17
Alpha-Chlordane (site 3.5-4.5)	1	15	93.75%	0.25	0.25	0.25	0.25

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Alpha-Chlordane (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Alpha-Chlordane (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Beta BHC (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Beta BHC (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Beta BHC (site surface)	0	83	100.00%	N/A	N/A	N/A	N/A
Beta BHC (site 0.5-1.5)	2	61	96.83%	0.079	0.11	0.0945	0.0945
Beta BHC (site 1.5-2.5)	4	43	91.49%	0.069	0.14	0.112	0.12
Beta BHC (site 2.5-3.5)	4	32	88.89%	0.05	0.15	0.102	0.105
Beta BHC (site 3.5-4.5)	2	14	87.50%	0.055	0.13	0.0925	0.0925
Beta BHC (site 4.5-5.5)	2	6	75.00%	0.055	0.12	0.0875	0.0875
Beta BHC (site 5.5-6.5)	1	3	75.00%	0.05	0.05	0.05	0.05
Beta BHC (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Beta BHC (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site surface)	1	82	98.80%	0.57	0.57	0.57	0.57
Beta Endosulfan (site 0.5-1.5)	0	63	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site 1.5-2.5)	1	46	97.87%	0.24	0.24	0.24	0.24
Beta Endosulfan (site 2.5-3.5)	0	36	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Beta Endosulfan (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Beta-Chlordane (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Beta-Chlordane (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Beta-Chlordane (site surface)	18	65	78.31%	0.32	2.9	1.45	1.2
Beta-Chlordane (site 0.5-1.5)	11	52	82.54%	0.21	6.2	1.775	1.6
Beta-Chlordane (site 1.5-2.5)	9	38	80.85%	0.13	7.2	1.773	1.1
Beta-Chlordane (site 2.5-3.5)	9	27	75.00%	0.059	1.4	0.629	0.42
Beta-Chlordane (site 3.5-4.5)	2	14	87.50%	1	1.3	1.15	1.15
Beta-Chlordane (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Beta-Chlordane (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Beta-Chlordane (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Beta-Chlordane (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Delta BHC (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Delta BHC (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site surface)	2	81	97.59%	0.74	0.74	0.74	0.74
Delta BHC (site 0.5-1.5)	0	63	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site 1.5-2.5)	1	46	97.87%	0.048	0.048	0.048	0.048
Delta BHC (site 2.5-3.5)	2	34	94.44%	0.03	0.065	0.0475	0.0475
Delta BHC (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Delta BHC (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Dieldrin (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Dieldrin (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Dieldrin (site surface)	13	70	84.34%	0.26	20	2.442	0.56
Dieldrin (site 0.5-1.5)	27	36	57.14%	0.1	9.9	1.54	1.1
Dieldrin (site 1.5-2.5)	14	33	70.21%	0.19	14	2.464	1.12
Dieldrin (site 2.5-3.5)	6	30	83.33%	0.05	5.1	1.523	0.98
Dieldrin (site 3.5-4.5)	6	10	62.50%	0.028	2.8	0.933	0.545
Dieldrin (site 4.5-5.5)	1	7	87.50%	0.054	0.054	0.054	0.054
Dieldrin (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Dieldrin (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Dieldrin (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site surface)	0	83	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 0.5-1.5)	0	63	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 1.5-2.5)	0	47	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 2.5-3.5)	0	36	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Endosulfan Sulfate (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (site surface)	7	76	91.57%	0.43	40	6.776	0.72
Endrin Aldehyde (site 0.5-1.5)	9	54	85.71%	0.25	5.3	1.658	0.96
Endrin Aldehyde (site 1.5-2.5)	6	41	87.23%	0.2	4.3	1.217	0.57
Endrin Aldehyde (site 2.5-3.5)	3	33	91.67%	0.53	0.67	0.583	0.55
Endrin Aldehyde (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (site 4.5-5.5)	2	6	75.00%	0.28	1.3	0.79	0.79
Endrin Aldehyde (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Endrin Aldehyde (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site surface)	1	82	98.80%	4.5	4.5	4.5	4.5
Endrin Ketone (site 0.5-1.5)	2	61	96.83%	0.28	0.59	0.435	0.435
Endrin Ketone (site 1.5-2.5)	2	45	95.74%	0.025	0.42	0.223	0.223

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Endrin Ketone (site 2.5-3.5)	0	36	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Endrin Ketone (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endrin (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Endrin (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Endrin (site surface)	7	76	91.57%	0.27	0.74	0.476	0.42
Endrin (site 0.5-1.5)	13	50	79.37%	0.39	10	1.649	0.98
Endrin (site 1.5-2.5)	8	39	82.98%	0.32	6.4	1.864	1.205
Endrin (site 2.5-3.5)	3	33	91.67%	0.31	0.71	0.483	0.43
Endrin (site 3.5-4.5)	1	15	93.75%	1.4	1.4	1.4	1.4
Endrin (site 4.5-5.5)	1	7	87.50%	1.5	1.5	1.5	1.5
Endrin (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Endrin (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Endrin (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site surface)	0	83	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site 0.5-1.5)	8	55	87.30%	0.084	5.5	1.659	0.805
Gamma BHC (site 1.5-2.5)	4	43	91.49%	1.3	21	7.8	4.45
Gamma BHC (site 2.5-3.5)	1	35	97.22%	0.047	0.047	0.047	0.047
Gamma BHC (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Gamma BHC (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Heptachlor Epoxide (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Heptachlor Epoxide (reference	0	1	100.00%	N/A	N/A	N/A	N/A

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
0.5-1.5)							
Heptachlor Epoxide (site surface)	12	71	85.54%	0.11	2.3	0.81	0.575
Heptachlor Epoxide (site 0.5-1.5)	6	57	90.48%	0.094	3.8	1.126	0.655
Heptachlor Epoxide (site 1.5-2.5)	8	39	82.98%	0.039	0.97	0.431	0.27
Heptachlor Epoxide (site 2.5-3.5)	6	30	83.33%	0.022	0.35	0.15	0.121
Heptachlor Epoxide (site 3.5-4.5)	2	14	87.50%	0.26	0.56	0.41	0.41
Heptachlor Epoxide (site 4.5-5.5)	3	5	62.50%	0.17	0.22	0.197	0.2
Heptachlor Epoxide (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Heptachlor Epoxide (site 6.5-7.5)	2	1	33.33%	0.16	0.22	0.19	0.19
Heptachlor Epoxide (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Heptachlor (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Heptachlor (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Heptachlor (site surface)	4	79	95.18%	0.033	5.8	1.519	0.122
Heptachlor (site 0.5-1.5)	6	57	90.48%	0.13	47	8.287	0.405
Heptachlor (site 1.5-2.5)	9	38	80.85%	0.049	1.9	0.48	0.28
Heptachlor (site 2.5-3.5)	3	33	91.67%	0.035	0.07	0.0467	0.035
Heptachlor (site 3.5-4.5)	1	15	93.75%	0.082	0.082	0.082	0.082
Heptachlor (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Heptachlor (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Heptachlor (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Heptachlor (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (site surface)	3	80	96.39%	1.6	13	5.633	2.3
Methoxychlor (site 0.5-1.5)	6	57	90.48%	1.7	5.3	2.8	2.05
Methoxychlor (site 1.5-2.5)	7	40	85.11%	0.18	5	2.266	2.1
Methoxychlor (site 2.5-3.5)	2	34	94.44%	2.2	4	3.1	3.1
Methoxychlor (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
Methoxychlor (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Methoxychlor (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
p,p'-DDD (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
p,p'-DDD (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
p,p'-DDD (site surface)	20	63	75.90%	0.23	28	2.345	0.79
p,p'-DDD (site 0.5-1.5)	26	37	58.73%	0.32	28	5.785	2.8
p,p'-DDD (site 1.5-2.5)	23	24	51.06%	0.029	62	6.687	2.9
p,p'-DDD (site 2.5-3.5)	16	20	55.56%	0.033	39	3.827	0.375
p,p'-DDD (site 3.5-4.5)	8	8	50.00%	0.14	4.8	1.89	1.35
p,p'-DDD (site 4.5-5.5)	4	4	50.00%	0.062	17	4.468	0.405
p,p'-DDD (site 5.5-6.5)	2	2	50.00%	0.075	0.4	0.238	0.238
p,p'-DDD (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
p,p'-DDD (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
p,p'-DDE (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
p,p'-DDE (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
p,p'-DDE (site surface)	42	41	49.40%	0.31	45	4.065	1.35
p,p'-DDE (site 0.5-1.5)	44	19	30.16%	0.24	27	4.098	2.6
p,p'-DDE (site 1.5-2.5)	26	20	43.48%	0.12	25	5.135	3.65
p,p'-DDE (site 2.5-3.5)	15	21	58.33%	0.037	16	2.234	0.58
p,p'-DDE (site 3.5-4.5)	6	10	62.50%	0.36	4.7	2.012	1.85
p,p'-DDE (site 4.5-5.5)	3	5	62.50%	0.046	28	9.575	0.68
p,p'-DDE (site 5.5-6.5)	2	2	50.00%	0.062	0.28	0.171	0.171
p,p'-DDE (site 6.5-7.5)	2	1	33.33%	0.0086	0.079	0.0438	0.0438
p,p'-DDE (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
p,p'-DDT (reference surface)	1	4	80.00%	1.7	1.7	1.7	1.7
p,p'-DDT (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
p,p'-DDT (site surface)	46	37	44.58%	0.26	290	11.34	1.5
p,p'-DDT (site 0.5-1.5)	33	30	47.62%	0.5	53	8.091	3.9
p,p'-DDT (site 1.5-2.5)	20	27	57.45%	0.065	26	4.801	2.95
p,p'-DDT (site 2.5-3.5)	6	30	83.33%	0.23	27	4.932	0.48

TABLE H-3
Summary Statistics—Pesticides
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min µg/kg	Max µg/kg	Mean µg/kg	Median µg/kg
p,p'-DDT (site 3.5-4.5)	4	12	75.00%	0.05	0.82	0.573	0.71
p,p'-DDT (site 4.5-5.5)	1	7	87.50%	0.29	0.29	0.29	0.29
p,p'-DDT (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
p,p'-DDT (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
p,p'-DDT (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Total DDx (reference surface)	1	4	80.00%	1.7	1.7	1.7	1.7
Total DDx (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Total DDx (site surface)	63	20	24.10%	0.29	290	11.73	2.5
Total DDx (site 0.5-1.5)	56	7	11.11%	0.24	57.8	10.67	4.75
Total DDx (site 1.5-2.5)	38	9	19.15%	0.029	100	10.09	5.12
Total DDx (site 2.5-3.5)	21	15	41.67%	0.033	43	5.921	0.97
Total DDx (site 3.5-4.5)	9	7	43.75%	0.05	7.9	3.276	2.71
Total DDx (site 4.5-5.5)	5	3	37.50%	0.046	45	9.378	0.15
Total DDx (site 5.5-6.5)	3	1	25.00%	0.062	0.68	0.272	0.075
Total DDx (site 6.5-7.5)	2	1	33.33%	0.0086	0.079	0.0438	0.0438
Total DDx (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Toxaphene (reference surface)	0	5	100.00%	N/A	N/A	N/A	N/A
Toxaphene (reference 0.5-1.5)	0	1	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site surface)	0	83	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 0.5-1.5)	0	63	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 1.5-2.5)	0	47	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 2.5-3.5)	0	36	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 3.5-4.5)	0	16	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 4.5-5.5)	0	8	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 5.5-6.5)	0	4	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 6.5-7.5)	0	3	100.00%	N/A	N/A	N/A	N/A
Toxaphene (site 7.5-8.5)	0	1	100.00%	N/A	N/A	N/A	N/A

TABLE H-4

Summary of Pesticide Screening Results

Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

				Normalized to TOC				
	Total Samples	Total Detects	Total Non-Detects	Detects Below TEC or EPA SV	Detects above EPA Reg III BTAG value	Detects between TEC and MEC	Detects between MEC and PEC	Detects >PEC
Aldrin	261	5	256	3	NA	2	0	0
Alpha BHC	261	10	251	10	NA	0	0	0
Alpha Endosulfan	261	17	244	17	0	NA	NA	NA
Alpha Chlordane	261	49	212	48	NA	1	0	0
Beta BHC	261	15	246	15	NA	0	0	0
Beta Endosulfan	260	2	259	2	0	NA	NA	NA
Beta Chlordane	261	49	212	48	NA	1	0	0
Delta BHC	261	5	256	5	0	NA	NA	NA
Dieldrin	261	67	194	62	NA	5	0	0
Endosulfan Sulfate	261	0	261	0	0	NA	NA	NA
Endrin Aldehyde	261	27	234	26	NA	1	0	0
Endrin Ketone	261	5	256	4	NA	1	0	0
Endrin	261	33	228	31	NA	2	0	0
Gamma BHC (Lindane)	261	13	248	11	NA	2	0	0
Heptachlor Epoxide	261	39	222	39	NA	0	0	0
Heptachlor	261	23	238	23	0	NA	NA	NA
Methoxychlor	261	18	243	18	0	NA	NA	NA
Total DDx	261	197	64	171	NA	26	0	0
Toxaphene	261	0	261	0	NA	0	0	0

TABLE H-5
Summary Statistics—Total PAHs
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

Parameter (group ID)	Number Detects	Number Non-Detects	% Non-Detect	Min mg/kg	Max mg/kg	Mean mg/kg	Median mg/kg
Grouped by Site and Reference Only							
TPAH (reference)	6	0	0.00%	0.413	2.13	1.405	1.603
TPAH (site)	259	2	0.77%	0.0179	138.6	6.264	2.391
Grouped by Site, Reference, and Sample Depth							
TPAH (reference surface)	5	0	0.00%	0.413	2.13	1.42	1.875
TPAH (reference 0.5-1.5)	1	0	0.00%	1.331	1.331	1.331	1.331
TPAH (site surface)	82	1	1.20%	0.137	117.1	7.807	3.667
TPAH (site 0.5-1.5)	62	1	1.59%	0.0782	37.18	7.817	4.829
TPAH (site 1.5-2.5)	47	0	0.00%	0.0215	138.6	9.173	1.948
TPAH (site 2.5-3.5)	36	0	0.00%	0.0228	11.07	1.349	0.149
TPAH (site 3.5-4.5)	16	0	0.00%	0.0218	2.959	0.711	0.0802
TPAH (site 4.5-5.5)	8	0	0.00%	0.0184	5.245	0.783	0.0551
TPAH (site 5.5-6.5)	4	0	0.00%	0.0179	0.0711	0.045	0.0455
TPAH (site 6.5-7.5)	3	0	0.00%	0.0215	0.0426	0.0295	0.0243
TPAH (site 7.5-8.5)	1	0	0.00%	0.0233	0.0233	0.0233	0.0233

TABLE H-6
Summary of PAH Screening Results
Lincoln Park/Milwaukee River Remedial Investigation Phase 2 Project

	Total PAH	Total PAH, Normalized to TOC
Total Samples between TEC and MEC	124	67
Total Samples between MEC and PEC	18	2
Total Samples >PEC	13	4