



TETRA TECH

September 22, 2016

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**Subject: Phase II Targeted Brownfields Assessment
Elkem Carbide, Keokuk, Iowa
EPA Region 7, START 4, Contract No. EP-S7-13-06, Task Order No. 0002.019.017
Task Monitor: Todd Davis, Site Assessment Manager**

Dear Mr. Davis:

Tetra Tech, Inc. is submitting the attached Phase II Targeted Brownfields Assessment (TBA) report regarding the Elkem Carbide site in Keokuk, Iowa. The TBA included investigations to determine whether hazardous substances are associated with recognized environmental conditions identified during the Phase I TBA.

If you have any questions or comments regarding this submittal, please contact the Project Manager at (816) 412-1775.

Sincerely,

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START Project Manager

Ted Faile, PG, CHMM
START Program Manager

Enclosures

cc: Debra Dorsey, START Project Officer (cover letter only)

PHASE II TARGETED BROWNFIELDS ASSESSMENT REPORT

**ELKEM CARBIDE
KEOKUK, IOWA**

Superfund Technical Assessment and Response Team (START) 4

Contract No. EP-S7-13-06, Task Order No. 0002.019.017

Prepared For:

U.S. Environmental Protection Agency
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September 22, 2016

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EXECUTIVE SUMMARY

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to conduct a Phase II Targeted Brownfields Assessment (TBA) of the Elkem Carbide site, an approximately 79-acre property (subject property) at 365 Carbide Lane in the City of Keokuk (City), Lee County, Iowa (see Appendix B, Figure 1). The subject property was historically used for zinc refining, production of hardened lead alloy (Frary metal), and manufacture of various carbide products. The subject property is currently not in use and is owned by 365 Carbide Lane, LLC (365 Carbide Lane). START conducted this Phase II TBA in accordance with the *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM International (ASTM) designation E1903-97-11, and otherwise in compliance with EPA's "All Appropriate Inquiries" Rule (AAI Rule) (40 *Code of Federal Regulations* [CFR] Part 312) (ASTM 2011).

A Phase I TBA of the subject property in February 2016 identified numerous recognized environmental conditions (REC), and previous investigations identified multiple contaminants on site. Purposes of this Phase II TBA were to determine if historical activities at the subject property had contaminated soils, sediment, and groundwater, and to identify the nature of contamination and risks posed by the contamination. Samples of soil, sediment, and groundwater were collected during this Phase II investigation at the subject property. Analytical results were compared to Iowa Department of Natural Resources (IDNR) Statewide Standards for contaminants in soil and groundwater. Results exceeding these standards were further evaluated via preliminary evaluations of the site resident, site worker, and construction worker exposure scenarios to estimate cumulative cancer and non-cancer risk values that could be compared to IDNR Land Recycling Program (LRP) criteria. Chemical-specific criteria for this evaluation were obtained through use of the IDNR Cumulative Risk Calculator. Overall, this evaluation identified soil concentrations exceeding IDNR criteria for each of the pathways evaluated (site resident, site worker, and construction). The primary risk drivers were lead and polycyclic aromatic hydrocarbons (PAH) (and especially the PAH benzo[a]pyrene). The following summarizes sampling results from the particular areas investigated.

Decision Unit Sampling

Twelve decision units (DU) were defined, and multi-aliquot samples were collected by application of Incremental Sampling Methodology (ISM) to characterize mean concentrations of PAHs and lead within each DU. Each DU sample contained PAH concentrations exceeding respective statewide standards, indicating apparent widespread PAH contamination of soil within the former manufacturing area of the

subject property—likely related to former use, storage, and handling of coal, coke, or coal-tar pitch at the subject property. Lead concentrations exceeding the statewide soil standard of 400 milligrams per kilogram (mg/kg) were also detected in samples from five of the DUs. A preliminary screening of the site resident, site worker, and construction worker exposure pathways identified PAH and lead concentrations among the DU samples that exceed IDNR criteria for each of these pathways.

Elevated Lead Investigation

Soil samples were collected from the central portion of the former manufacturing area to investigate a lead concentration of 20,000 mg/kg that had been previously detected. One of the 20 samples of this sample group contained lead at 520 mg/kg—above the statewide standard of 400 mg/kg. An additional analyte, arsenic, was detected at concentrations above the statewide standard. A preliminary screening of the site resident, site worker, and construction worker exposure pathways yielded risk values exceeding the IDNR criteria for the site resident pathway, but not the site work or construction worker pathways (however, the previously detected lead concentration is of potential concern for the site worker and construction worker scenarios).

Elevated PAH Investigation

Soil samples were collected from the southeast portion of the former manufacturing area where maximum PAH soil concentrations had been previously detected. Several soil samples contained PAHs at concentrations above statewide standards. A preliminary screening of the site resident, site worker, and construction worker exposure pathways did not identify concentrations corresponding to risk values exceeding IDNR criteria (however, the previously detected PAH concentrations would be of potential concern for the site resident, site worker, and construction worker scenarios).

Underground Storage Tanks (UST)/Hydraulic Lift Investigation

Soil and groundwater samples were collected to investigate five areas of concern related to USTs and a former hydraulic lift. Soil samples from each of the investigated five areas of concern contained detectable concentrations of petroleum hydrocarbons (as diesel-range organics or gasoline-range organics); however none of these concentrations exceeded a statewide standard for soil. Among the samples from this group, one lead concentration (5,600 mg/kg) exceeded the statewide standard for soil (400 mg/kg). A groundwater sample was collected from one of the five areas (near a closed UST at the east end of the Carbide Container Storage building). Comparisons of results from this groundwater sample to statewide standards did not indicate a contaminant exceedance of a statewide standard for a

non-protected groundwater source; however, the sample did contain lead and cadmium at concentrations exceeding standards for a protected groundwater source.

Polychlorinated Biphenyls (PCB) Release Investigation

To assess for PCB contamination related to an approximately 400-gallon oil release from a transformer on December 20, 2000, a sample was collected from the reported area of release, and a multi-aliquot sediment sample was collected from Soap Creek immediately downstream of the outfall. These samples did not contain detectable concentrations of PCBs.

Waste Characterization Sampling

Eight samples were collected where bulk amounts of coal-tar pitch, coke, or coal were observed during sampling activities. Analytical results from these samples were compared to toxicity characteristic leaching procedure (TCLP) regulatory limits. None of these samples exhibited TCLP extract concentrations exceeding the regulatory limits—indicating that, if these materials would be removed, they would likely not be considered characteristic of a hazardous waste. Solid material from an oil-stained trench drain within the maintenance building was also sampled and analyzed for total petroleum hydrocarbons (TPH) and metals. This sample exhibited a TPH oil-range organics concentration exceeding the statewide soil standard, indicating that the material in the trench drain would likely be classified as a special waste if removed.

1.0 INTRODUCTION

The Tetra Tech, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to conduct a Phase II Targeted Brownfields Assessment (TBA) of the Elkem Carbide site, an approximately 79-acre property (subject property) at 365 Carbide Lane in the City of Keokuk (City), Lee County, Iowa (see Appendix B, Figure 1). The subject property was historically used for zinc refining, production of hardened lead alloy (Frary metal), and manufacture of various carbide products. The subject property is currently not in use and is owned by 365 Carbide Lane, LLC (365 Carbide Lane). Tetra Tech conducted a Phase I TBA of the subject property in February 2016, documenting multiple recognized environmental conditions (REC) related to previous site operations. The Phase I TBA also identified, from historical sampling, presence of numerous contaminants exceeding statewide standards for soil. The purpose of the Phase II TBA was to assess potential impacts on the subject property of hazardous substances that may have been released into soil and groundwater.

START conducted this Phase II TBA in accordance with the *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process*, ASTM International (ASTM) designation E1903-97-11, and otherwise in compliance with EPA's "All Appropriate Inquiries" Rule (AAI Rule) (40 *Code of Federal Regulations* [CFR] Part 312) (ASTM 2011).

1.1 PURPOSE

The purpose of this Phase II TBA was to evaluate the RECs and contaminants identified during the Phase I TBA with intent to acquire information regarding the nature of contamination that would support informed decisions about the property, and where applicable, satisfy the innocent purchaser defense under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (ASTM 2011). The RECs specified in the Phase I TBA report are related to historical site use. Samples of soil, sediment, and groundwater were collected during the Phase II TBA to confirm or eliminate RECs and to identify the nature of contamination and risks posed by contamination, if present.

1.2 SPECIAL TERMS AND CONDITIONS

No special terms or conditions were identified during the Phase II TBA.

2.0 BACKGROUND AND SITE HISTORY

This section briefly describes the site and physical setting, recounts site history, discusses land use at the site and at adjacent properties, and summarizes previous completed environmental investigations of the site.

2.1 SITE DESCRIPTION

The subject property is a 78.83-acre parcel (number 21-22-200-031) owned by 365 Carbide Lane, at the southeast corner of Carbide Lane and U.S. Highway 61 in Keokuk, Lee County, Iowa. The subject property is included on the Keokuk, IA, U.S. Geological Survey (USGS) 7.5-minute topographic series map (USGS 1977) (see Appendix A, Figure 1). The subject property is in the north ½ of the northeast ¼ of Section 22, and in the northwest ¼ of Section 23, all in Township 65 North, Range 5 West. Coordinates at the approximate center of the subject property are 40.41956 degrees north latitude and 91.42108 degrees west longitude.

On the central portion of the subject property are buildings, roads, rail lines, and other improvements that from 1915 to 2007 supported manufacturing operations of previous owners, including River Smelting and Refining Company, United Lead Company, Midwest Carbide Corporation, and Elkem Metals. A capped and closed landfill that received calcium carbide and other wastes generated from manufacturing processes covers the east portion of the subject property. Unimproved grass and forest-covered areas are on the western portion of the subject property.

The subject property is in a mixed use area of the City, including industrial, commercial, agricultural, and residential properties. The subject property is bounded north by Carbide Lane; east by industrial properties; south by residential, industrial, and commercial properties; and west by U.S. Highway 61. Industrial properties are beyond to the north, northeast, east, southeast, south, and southwest. Agricultural and forested land are beyond to the west and northwest.

2.2 PHYSICAL SETTING

The following sections describe the geologic setting, hydrogeology, and hydrology of the subject property.

2.2.1 Geologic Setting

Soils in the area consist primarily of loamy Orthents and Weller silt loam. Orthents are on recent erosional surfaces where former soil has been completely removed or heavily manipulated (U.S. Department of Agriculture [USDA] Natural Resources Conservation Service [NRCS] 1999). The Weller series consists of deep, moderately well-drained, slowly permeable soils formed in loess. These soils are on convex ridgecrests, side-valley slopes, and benches. Slope ranges from 0 to 14 percent (USDA 2014).

Subsurface geologic units in the area consist of Phanerozoic-, Paleozoic-, and Carboniferous Mississippian-Early-aged, Osage series. The Osage series has an approximate total thickness of 275 feet. The primary rock type within the Osage series is dolostone, a carbonate sedimentary rock composed of more than 50% of the mineral dolomite. The secondary rock type is limestone, a sedimentary rock consisting mainly of calcium carbonate in the form of the mineral calcite. Other rock types include shale, chert, and sandstone (USGS 2014).

2.2.2 Hydrogeology

Keokuk is within the Flint-Henderson watershed (USGS 2016). The subject property is underlain by three aquifers: (1) the Mississippian aquifer, which consists primarily of dolomite in the subject property area (southeastern Iowa); (2) the Silurian-Devonian aquifer beneath which are dolomite and limestone approximately 200-400 feet thick; and (3) the Cambrian-Ordovician aquifer beneath which are multiple bedrock formations ranging from 300 to 2,000 feet thick (USGS 2009).

Environmental Data Resources, Inc. (EDR), a START subcontractor, identified 23 records of wells within 1 mile of the subject property by searching federal, state, and USGS database listings. Of these, one federal USGS well was identified (total depth of 815 feet below ground surface [bgs]). EDR extracted no data on groundwater flow and velocity (EDR 2016a). Groundwater flow is inferred to the east in the direction of the topographic gradient and surface water flow (generally east and southeast toward Soap Creek, which flows south).

2.2.3 Hydrology

The subject property straddles a ridge, with the eastern portion of the subject property sloping to the east toward Soap Creek and the western portion of the subject property sloping west toward drainages that empty into Hog Thief Creek. Surface water on the subject property follows surface topography, generally flowing into either Soap Creek to the east or into drainages to the west that flow into Hog Thief Creek.

Soap Creek flows south to the Mississippi River, and Hog Thief creek flows west and then south into the Des Moines River, which flows south and east into the Mississippi River.

2.3 SITE HISTORY AND LAND USE

Historical documentation indicates that the subject property was converted from farm use to industrial manufacturing in 1915, when a secondary zinc smelter plant was constructed on the property by River Smelting and Refining Company, a subsidiary of National Lead Company. The smelter operated on the property until around 1919. Before the smelter closed, an additional plant was constructed on the subject property in 1916 by United Lead (another subsidiary of National Lead Company), and produced Frary metal, a lead alloy hardened by calcium and barium. In 1929, the United Lead Company merged with Shawinigan Products to form Midwest Carbide Corporation (Midwest Carbide), and the subject property was used to produce calcium carbide (Terracon Consultants, Inc. [Terracon] 2009). In 1952, Midwest Carbide reportedly began production of Soderberg electrode paste by combining calcinated anthracite coal with coal tar pitch (Terracon 2009). In the late 1980s, the carbide plant was shut down, and in 2007, production of all other products ceased (Terracon 2009). Carbide Lane Properties, LLC purchased the subject property from Elkem Metals Company in 2008. The property was then sold to 365 Carbide Lane in 2015. The subject property is currently inactive.

2.4 ADJACENT PROPERTY USE

Adjacent to the subject property are the following: to the north, Carbide Lane, followed by Amsted Rail Company Griffin Wheel Division, which produces diesel wheels for the railroad industry; to the northeast, the Keokuk Sewer Maintenance Department and Keokuk Animal Services; to the east, Burlington Railroad; to the southeast, Newberry Towing Recovery & Auto Salvage; to the south, a residential property and Archer Daniels Midland Milling Company, an agricultural processor; and to the west, U.S. Highway 61 with agricultural and forested land beyond.

2.5 SUMMARY OF PREVIOUS ASSESSMENTS

EPA Region 7 provided previous reports related to past investigations and management of the subject property as a Resource Conservation and Recovery Act (RCRA) facility; reports documenting Phase I and Phase II ESAs of the subject property by Terracon in 2009 and 2010, respectively, as part of an EPA Brownfields Assessment Grant Project; and a report documenting a site investigation of the subject property by USGS for EPA. The following are summaries of findings from the reports organized by particular subject property features:

Landfill and Underlying Groundwater

Landfilling of manufacturing wastes on the eastern portion of the subject property began as early as 1914 (CDM Federal Programs Corporation [CDM] 1987). According to an EPA questionnaire completed by Midwest Carbide Corporation (MCC) in 1985, the eastern portion of the subject property was used as a landfill for disposal of “dusts from the furnace dust collector, carbide magnetic separator, packing room, coke drying, raw material dust collector, and flue gas dust collector, as well as wastes from gas testing residues, scrap pastes, spilled bond material, construction rubbles, and other miscellaneous solid wastes” (MCC 1985). The bulk of the landfilled material is reportedly waste calcium carbide that the facility first stabilized by allowing the waste to react with water. This reaction of calcium carbide with water yielded hydrated calcium hydroxide (lime) (which was landfilled) and acetylene gas (which was allowed to escape to the atmosphere).

EPA required MCC to assess groundwater underlying the landfill to determine if the landfill had caused any adverse effects. Groundwater investigation appeared to have begun as early as 1980 and included installation of groundwater monitoring wells between the landfill and Soap Creek to the east. In 1985, Shive-Hattery Engineers (Shive-Hattery) installed additional groundwater monitoring wells (monitoring wells 5S, 5D, 6S, 6D, 7S, 7D, 8, and 9) (Shive-Hattery 1986). Assessment of groundwater sampling data appeared to largely concern whether the groundwater monitoring well network could adequately characterize upgradient/background groundwater quality (U.S. Army Corps of Engineers [USACE] 1987), but some previous reports did convey groundwater monitoring results of potential environmental concern. A 1987 report indicated elevated radiological parameters in groundwater (gross beta average of 182 picoCuries per liter [pCi/L] and a gross alpha average of 122 pCi/L in well 9) (USACE 1987), and a 1988 report indicated “elevated” levels of sulfates, total organic carbon (TOC), total organic halides (TOX), cadmium, chromium, and gross alpha, but concluded that information was insufficient to determine whether the elevated measurements were related to the landfill or traced to naturally occurring groundwater conditions (Jacobs Engineering Group, Inc. 1988).

Landfill closure activities began in January 1989 when the landfill was graded to create stable slopes, and a soil cover over the landfill was installed; these activities were completed in May 1989 (Hunter/ESE, Inc. 1989). In 1988, in anticipation of the landfill closure, samples from the landfill were collected via soil borings and submitted for laboratory analysis to characterize the landfill material. Sampling of the landfill material established presence of coal tar pitch constituents—primarily polycyclic aromatic hydrocarbons (PAH)—and elevated metals concentrations. Comparing results from a leaching analysis of the landfill samples to EPA Maximum Contaminant Levels (MCL) (drinking water standards), the facility

concluded that coal tar pitch constituents (including PAHs and metals) in the landfill material did not raise concerns regarding possible groundwater impact (Hunter/ESE, Inc. 1989).

Based on information in a June 1989 clean closure report, an EPA geologist presented this conclusion in an EPA memorandum (EPA 1989a):

“Midwest Carbide has adequately demonstrated that hazardous waste or hazardous waste constituents have not impacted the groundwater underlying their Keokuk facility. This conclusion is based on the following criteria:

1. The groundwater monitoring system is placed in such a way as to have been impacted by a release of hazardous waste if one had occurred.
2. The rate of groundwater movement across the site from the most upgradient well to the furthest downgradient well has been estimated to be on the order of 14 years. Since the plant has been in operation since 1914, groundwater in the vicinity of the downgradient wells should be within any plumes of contamination if they exist.
3. Statistical increases in indicator parameters during past monitoring is thought to be as a result of the non-hazardous portions of the waste management unit. Large quantities of lime disposed of at the site would impact specific conductivity as well as pH. Detection of hazardous waste or hazardous waste constituents have not been verified by groundwater monitoring to date even though all possible suspected compounds have been tested for.”

In November 1989, EPA notified MCC that the agency had accepted the facility’s closure certification and that the facility was no longer required to conduct groundwater monitoring under 40 CFR Part 265 Subpart F (EPA 1989b). During a 1990 inspection by EPA, MCC told the EPA inspector that the facility was in the process of plugging all monitoring wells associated with the closed landfill (EPA 1990).

The 2010 Phase II ESA and 2012 sampling by USGS for EPA included sampling groundwater underlying/downgradient of the landfill. Results from these groundwater samples did not appear to indicate adverse effects on groundwater from the closed landfill (Terracon 2009, USGS 2013).

Considering that the closed landfill appears to have been addressed to the satisfaction of the EPA Region 7 RCRA program without subjecting the landfill to any required controls, presence of the closed landfill poses an historical recognized environmental condition (HREC) to the subject property.

Container Storage Yard/DT-167 Solvent Storage Area

In August 1987, Environmental Science and Engineering, Inc. (ESE) conducted soil sampling for MCC to determine if storage of used DT-167 solvent (which contains 63 percent dichlorobenzene) had affected soils around the container storage yard. The sampling identified dichlorobenzene in soil at concentrations requiring excavation and removal of soil from the subject property (ESE 1987). In January 1988, a

contractor for MCC conducted a removal action at the DT-167 solvent storage area, excavating contaminated soil and transporting it off site to a disposal facility. Following excavation, soil samples were collected to confirm effectiveness of remediation (ESE 1988a). A closure report prepared by ESE presented a basis for a proposed “clean closure” status of the DT-167 solvent storage area following the January 1988 removal action. The report indicated that concentrations of o-dichlorobenzene in the closure soil samples ranged from less than detection levels to 0.60 milligrams per kilogram (mg/kg), and chlorobenzene concentrations ranged from less than detection levels to 0.07 mg/kg. These concentrations were below the allowable soil limits established during the removal action (2,550 mg/kg for o-dichlorobenzene and 500 mg/kg for chlorobenzene) (ESE 1988b).

Storm Sewer System/Soap Creek Area of Concern/Acid Treatment Shed

A 1987 interim RCRA Facility Assessment report prepared by CDM for EPA Region 7 identified Soap Creek as an “area of concern.” The report describes a permit application dated June 25, 1971, for an outfall of a storm sewer system that discharged into Soap Creek. Sources of wastewater reportedly included sanitary sewage, laboratory wastes, contact cooling water from the paste block production area, lime sludge, and general drainage from the manufacturing area and storage piles at the facility. In September 1974, the facility reportedly connected with the city sewer system for disposal of its sanitary wastes, and, in October 1975, the facility installed an American Petroleum Institute (API) oil separator that allowed the City to direct the facility’s contact cooling water from the Soap Creek outfall to the City’s sanitary sewer system. The assessment report also included analytical data reports from previous sediment sampling of Soap Creek; although the analytical results are difficult to discern due to poor reproduction quality, some sediment samples apparently contained elevated PAH concentrations (CDM 1987).

A 1988 RCRA Facility Assessment Report, also prepared by CDM for EPA Region 7, notes detections of elevated pH (between 12 and 13 standard units), phenol constituents, metals, and PAHs in leachate and sediments affected by the landfill. In addition, elevated concentrations of lead and zinc were detected in a sediment sample collected below a storm sewer outfall to a drainage of Soap Creek. A downstream water sample from Soap Creek had an elevated lead concentration (0.25 parts per million [ppm]); lead was not detected in an upstream Soap Creek water sample. High concentrations of PAHs and lead were reported in a downstream sediment sample of Soap Creek (CDM 1988).

The 2009 Phase I ESA identified the Soap Creek area of concern as a REC (Terracon 2009), and sediment sampling at the creek and outfalls leading to the creek occurred during the 2010 Phase II ESA and 2012 USGS sampling event. Sediment samples collected during the 2010 Phase II ESA did not exhibit

contaminant concentrations exceeding Iowa statewide soil standards (Terracon 2010); however, sediment samples collected by USGS in 2012 did exhibit PAH concentrations exceeding residential and industrial EPA Regional Screening Levels (RSL) (USGS 2013). The 2009 Phase I ESA also had noted an “Acid Treatment Shed” situated on drainage of Soap Creek between the eastern slope of the closed landfill and Soap Creek. The shed apparently housed a treatment system that would dispense hydrochloric acid, presumably to adjust the pH of drainage flowing into Soap Creek.

Overall, the Soap Creek area of concern, with associated storm sewer outfalls and the former Acid Treatment Shed, poses a REC to the subject property.

Storage, Handling, and Use of Coke, Coal, and Coal Tar Pitch

The 1987 interim RCRA Facility Assessment recognized MCC’s storage, handling, and use of coke, coal, and coal tar pitch as an environmental concern, and identified the coal tar pitch pumping area, a working coke pile, a coal stock pile, and a coke stockpile as Solid Waste Management Units (SWMU). The inspector noted a release of coal tar pitch on the ground beneath five coal tar pitch aboveground storage tanks (AST). In addition, the inspector reported entry of surface water runoff from the coke and coal piles into the stormwater sewer system that discharges to Soap Creek (CDM 1987). The 1988 RCRA Facility Assessment report noted that a sludge sample collected from beneath a coal tar pitch bond tank had exhibited elevated PAH and metals concentrations.

The 2009 Phase I ESA identified the coal tar pitch tank area and former coal stockpiles as RECs (Terracon 2009), and shallow soil samples were collected in these areas during the 2010 Phase II ESA and 2012 USGS sampling event. Numerous soil samples collected at the subject property within the manufacturing areas, including within the footprint of the former coal and coke piles and coal tar pitch tanks, exhibited PAH concentrations exceeding Iowa statewide soil standards, as well as EPA residential and industrial RSLs. Based on the sampling results, PAH contamination of soil appeared to be widespread across the former manufacturing area of the subject property. In addition, lead and arsenic concentrations in some samples exceeded soil screening values.

Overall, past storage, handling, and use of coke, coal, and coal tar pitch appear to be associated with elevated PAH concentrations in shallow soil of the manufacturing area, and pose a REC to the subject property.

Groundwater Underlying Manufacturing Area

During the 2012 sampling event, USGS collected a groundwater sample from a temporary well constructed at the approximate center of the former manufacturing area of the subject property (location 005). This sample contained *cis*-1,2-dichloroethene at concentration of 210 micrograms per liter (µg/L), exceeding the EPA MCL of 70 µg/L. Trichloroethene (TCE), 1,2-dichloroethane, and vinyl chloride were also detected in the groundwater sample. These detections of chlorinated volatile organic compounds (VOC) in groundwater beneath the former manufacturing area pose a REC to the subject property.

Elevated Lead Concentrations in Soil

Several soil samples collected within the manufacturing areas during the 2010 Phase II ESA and 2012 USGS investigation exhibited lead concentrations exceeding the Iowa statewide soil standard, as well as EPA residential and industrial RSLs. The highest lead concentration detected was 20,000 mg/kg in sample B-8, collected in the area of the former coal tar pitch tanks within the depth interval of 0-2 feet bgs. These elevated lead soil concentrations pose a REC to the subject property.

Other Previously Identified RECs

The 2009 Phase I ESA identified the following features as also posing RECs to the subject property:

- API oil-water separator system
- Release from non-polychlorinated biphenyl (PCB) transformer near calcine furnace
- Former USTs at north side of carbon block plant, near oil-water separator, and at east side of container storage building
- Presence of foundry sand landfill on adjacent Griffin Wheel Foundry property
- Former waste water pit
- Former 560-gallon AST
- Former diesel and gasoline ASTs
- Staining near 55-gallon petroleum barrels.

Sampling to confirm or eliminate these RECs occurred during the 2010 Phase II ESA and 2012 USGS investigation. Soil samples exhibited elevated PAH concentrations. Although the elevated PAH concentrations could be related to the above-listed features, sample results appear more likely to indicate

widespread PAH contamination of soil within the former manufacturing area, possibly related to former use, storage, and handling of coal, coke, or coal tar pitch.

The 2009 Phase I ESA also identified a former hydraulic lift adjacent to the Maintenance Shop as a REC and, during the 2010 Phase II ESA, a shallow soil sample collected to assess this area did not exhibit metals, PAH, or total extractable hydrocarbons (TEH) concentrations exceeding Iowa state standards. Deeper soil samples were not collected, and an attempt was made to sample groundwater at this location; however, groundwater was not encountered. Because only a shallow soil sample was collected, sampling information was insufficient to confirm this REC.

One REC identified during the 2009 Phase I ESA was not subsequently confirmed or eliminated via sampling—oil staining observed near two air compressors at the northwest corner of the Paste Block structure accompanied by a heavy oil sheen observed on standing water in a nearby trench drain. Sampling of the trench water was planned for the 2010 Phase II ESA; however, the water was frozen during the Phase II sampling, and no sample could be collected. Therefore, no sampling data were obtained to confirm or eliminate this REC.

Phase I ESA (February 2016)

In February 2016, as part of the TBA of the Elkem Carbide site, START conducted a Phase I TBA to identify RECs (Tetra Tech 2016a). Findings from the Phase I TBA included the following:

- Former uses of the subject property as a secondary zinc smelter and Frary metal (hardened lead alloy) production plant pose a REC to the subject property.
- Several containers of motor oil were observed in building #6. Heavy staining was observed surrounding the oil containers. Presence of the leaking/staining in building #6 poses a REC to the subject property.
- Two piles of solid waste were observed on the subject property—one approximately 150 feet north of building #3 and one on the northwest portion of the subject property in the wooded area. The waste appeared to be primarily building materials, possibly from previous building demolition. Because of the age of the buildings on the property, asbestos-containing materials (ACM) or lead-based paint (LBP) likely had been present in the buildings prior to demolition. No records of inspection or abatement were provided. Possible presence of ACM and LBP in the pile of solid waste poses a REC to the subject property.
- Standing water was observed in the basement of building #6. A sheen and floating debris were observed on the water. No odor was detected; however, possible leaking petroleum products in the basement of building #6 pose a REC to the subject property.

- Staining was observed on the concrete south of building #2. The source of the staining was not apparent, but could be related to the former coal and coke stockpiles. Presence of the staining poses a REC to the subject property.
- Staining was observed surrounding a trench drain in building #6. The staining appeared to be motor oil, but the source was not apparent. The stained concrete in the maintenance building poses a REC to the subject property based on amount of staining, length of time the staining has been present based on previous reports, and potential for contamination to have reached the soil given the age and porosity of the concrete.
- The subject property was listed in the Integrated Compliance Information System (ICIS) database, which provides information on enforcement and compliance across most of EPA's programs. The subject property was cited for various RCRA violations in 1987, and underwent various RCRA enforcements. Based on the regulatory status and number of RCRA violations, these listings pose a REC to the subject property.
- The subject property is listed in the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) No Further Remedial Action Planned (NFRAP) database, which lists sites for which no further action to place these sites on the National Priorities List (NPL) is planned. The subject property was assessed during 1979-1981, did not qualify for the NPL, and was given a low priority status for further assessment. The subject property is also listed in the Corrective Action Report (CORRACTS) database, which lists sites with RCRA corrective action activity, and according to this listing, has been assigned a low corrective action priority. Based on the regulatory status and number of RCRA violations, these listings pose a REC to the subject property.
- The subject property was listed on the RCRA Non Generators / No Longer Regulated (NonGen/NLR) database. This database lists facilities that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. The subject property was assigned a medium corrective action priority on January 28, 1992, and classified as a conditionally exempt small quantity generator on July 18, 2005. The subject property was also listed in the RCRA Administrative Action Tracking System (RAATS). This database contains records based on enforcement actions issued under RCRA pertaining to major violators, and includes administrative and civil actions brought by EPA. Multiple violations were listed for the subject property between 1984 and 1989. Although each violation appears to have been addressed to gain compliance, the number of RCRA violations identified is evidence of poor waste management practices, and thus these listings pose a REC to the subject property.
- The subject property is listed in the Iowa (IA) SPILLS and Missouri (MO) SPILLS databases. A report dated December 20, 2000, stated that at least 400 gallons of mineral oil not containing PCBs was spilled into a storm drain leading to Soap Creek. Because of ice cover on the creek, none of the product could be recovered. Based on the amount of product spilled and the cleanup status, these SPILLS listings pose a REC to the subject property.
- The subject property is also listed in the Emergency Response Notification System (ERNS) database due to the spill reported on December 20, 2000. According to the ERNS report, the spill was from a transformer near the calcine furnace. Oil dry was applied and other absorbents were reportedly applied. Based on the amount of product spilled and the cleanup status, this ERNS listing poses a REC to the subject property.

- The subject property is listed in the IA ALLSITES database, a listing of all sites included in the contaminated sites tracking database. The site was in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Preremedial program, and the status is listed as closed. According to the Iowa Department of Natural Resources (IDNR) contaminated sites database, very high concentrations of PAHs were detected in surface soil samples near the former coal tar pitch tank farm and petroleum storage area. Contamination was not identified in surface water or groundwater. Additional investigation and/or remediation of the area was recommended (IDNR 2016a). Based on the known surface soil contamination on site, this listing poses a REC to the subject property.
- The subject property is listed in the Iowa UST database. Three USTs are listed as no longer in use. No further information was available in the EDR report (EDR 2016a). According to the IDNR storage tanks database, the following USTs were installed at the subject property: a 1,000-gallon diesel UST on December 1, 1974; a 14,000-gallon used oil UST on September 1, 1976; a 560-gallon gasoline UST on June 1, 1977; and a 12,000-gallon heating oil UST on December 1, 1977. Each of these USTs was removed on June 1, 1987 (EDR 2016a). Based on lack of information regarding presence of contamination during removal, these former USTs pose a REC to the subject property.
- The Amsted Rail Company, Inc. site at 416 Carbide Lane is approximately 45 feet north of the subject property. This site is listed in the Iowa Solid Waste Facilities / Landfill Sites (SWF/LS) database, an inventory of permitted facilities, and in the RCRA – Large Quantity Generator (LQG) database. The facility contains a foundry sand landfill approximately 1,000 feet north-northwest of the subject property. The facility uses the following chemicals: graphite, calcium oxide (lime), magnesium oxide, iron, resin (phenol), carbon, manganese, silicon, rice hulls, silica, propane, oxygen, aluminum oxide, and aluminum silicate. The facility is listed in the RCRA-LQG database for the following chemicals: cadmium, lead, mercury, used oil, cadmium, lead, tetrachloroethylene, mercury, m-cresol, chromium, p-cresol, and silver. The facility has been cited for various violations regarding its management of hazardous and universal wastes. Based on close proximity of a landfill to the subject property, chemicals used at the Amsted Rail Company, Inc. site, and violations that have occurred at that facility indicating poor waste management practices, this listing poses a REC to the subject property.
- The Keokuk Ferro-Sil, Inc. Industrial Waste Landfill site is approximately 174 feet west of the subject property. The site is listed in the IA SWF/LS database as an industrial landfill. The site is currently closed. Based on close proximity of an industrial landfill to the subject property, this site poses a REC to the subject property.
- Tetra Tech completed a Tier 1 non-invasive vapor encroachment screen of the subject property. Based on results of the initial vapor encroachment screen, the following facilities (all discussed in Section 6.1.1) with chemicals of concern were identified in the EDR report within the minimum search distances (EDR 2016b):
 - 365 Carbide Lane (subject property)
 - Amsted Rail Company, Inc. (~45 feet north of the subject property).

Presence of these facilities within the minimum search distance poses a REC to the subject property because of the possibility of a vapor encroachment condition (VEC).

- Given ages of the buildings on the subject property, LBP and ACM could be present within the structures, posing an environmental concern to the subject property.

- The subject property includes an active railroad line. Railroads are associated with various contaminants including creosote, lead, and arsenic, and leaking or spilled oils and fuels from locomotives. Presence of the active railroad line poses a REC to the subject property.
- Review of previous reports and an interview with Mr. Jerry Hamilton, former maintenance manager of Elkem Metals, revealed previous storage, handling, and use of coal, coke, and coal tar pitch on the subject property. Coke and coal were previously stored on the subject property in outdoor stockpiles, and releases of coal tar pitch onto the ground have been documented. During the site reconnaissance, black coal-like granular material—likely related to the former coal and coke stockpiles—was observed over large areas of the subject property. Soil sampling during the 2010 Phase II ESA and 2012 site investigation revealed elevated PAH concentrations in shallow soil likely attributable to past storage, handling, and use of coal, coke, and/or coal tar pitch. These elevated PAH soil concentrations pose a REC to the subject property.
- Review of previous reports and the interview with Mr. Hamilton revealed presence of the closed landfill on the eastern portion of the subject property. Because the closed landfill appears to have been addressed to the satisfaction of the EPA Region 7 RCRA program without subjecting the landfill to any required controls, presence of the closed landfill poses an HREC to the subject property.
- During the 2012 sampling event, USGS collected a groundwater sample from a temporary well constructed at the approximate center of the former manufacturing area of the subject property (location 005); the sample was found to contain chlorinated VOCs, including *cis*-1,2-dichloroethene at a concentration exceeding the EPA MCL. These detections of chlorinated VOCs in groundwater beneath the former manufacturing area pose a REC to the subject property.
- Detections of elevated lead concentrations in soil samples collected during the 2010 Phase II ESA and 2012 USGS investigation at the subject property pose a REC to the subject property.

Based on these findings of the Phase I TBA, START recommended a Phase II TBA of the subject property.

3.0 PHASE II TARGETED BROWNFIELDS ASSESSMENT ACTIVITIES

The following sections describe the scope, field exploration, and methods implemented during the Phase II TBA. START members Kaitlyn Bahr, Joann Jeplawy, and Tommy Rebecchi conducted soil, sediment, and groundwater sampling on June 27-29, 2016. Photographs taken to document the Phase II TBA field activities are in Appendix B. Phase II TBA activities were recorded in a site logbook included in Appendix C.

3.1 SCOPE OF THE ASSESSMENT

START conducted environmental sampling to determine if soil, sediment, and groundwater had been contaminated by historical activities at the subject property. Unless noted below in Section 3.1.3, the sampling accorded with an approved Quality Assurance Project Plan (QAPP) (Tetra Tech 2016b).

3.1.1 Sampling Plan

The sampling scheme for surface soil sampling to quantify PAH and metals contamination included application of an Incremental Sampling Methodology (ISM) in accordance with the *Incremental Sampling Methodology, Technical and Regulatory Guidance* (Interstate Technology Regulatory Council [ITRC] 2012). All other sampling was judgmental, in accordance with the *Guidance for Performing Site Inspections Under CERCLA*, Office of Solid Waste and Emergency Response (OSWER) Directive #9345.1-05, September 1992, and *Removal Program Representative Sampling Guidance, Volume 1: Soil*, OSWER Directive 9360.4-10, November 1991. Table 1 summarizes samples collected during the Phase II TBA. Figures 2, 3, and 4 in Appendix A depict the sampling locations at the subject property.

TABLE 1
SUMMARY OF SAMPLES COLLECTED
ELKEM CARBIDE SITE, KEOKUK, IOWA

Purpose of Sampling	Media	Samples	Analyses
DU Sampling – Investigate shallow soil within DUs to assess PAH and metals (including lead) contamination	Soil	DU-01 through DU-12	RCRA Metals, and SVOCs (including PAHs)
Elevated Lead Investigation – Investigate an area in the central portion of the former manufacturing area where a lead concentration of 20,000 mg/kg was previously detected (Terracon boring B-8)	Soil	B-51 through B-55	RCRA Metals
Elevated PAH Investigation – Investigate an area in the southeast portion of the former manufacturing area where maximum PAH soil concentrations had been detected (Terracon boring B-48)	Soil	B-56 through B-60	SVOCs (including PAHs)
USTs/Hydraulic Lift Investigation – Investigate five areas of concern related to USTs and a former hydraulic lift	Soil	B-61 through B-65	VOCs, TPH, RCRA Metals
	Groundwater	B-61 GW	VOCs, TPH, RCRA Metals (dissolved)
PCB Release Investigation – Investigate the area of a transformer oil release, including collection of one soil sample at the point of release and a sediment sample from Soap Creek	Soil/sediment	SS-65 and SED-67	PCBs
Waste Characterization Sampling – Characterize outdoor bulk spills of coal-tar pitch, coke, or coal (“TCLP”-series) and material within an oil-stained trench drain within the maintenance building (“Trench Drain”).	Waste (solids)	TCLP-1, -2, -3, -4, -5, -6, -7, -9, and Trench Drain	TCLP SVOCs and RCRA Metals for the “TCLP”-sample series; TPH and RCRA Metals for “Trench Drain” sample

Notes:

DU	Decision unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
SVOC	Semivolatile organic compound
TCLP	Toxicity characteristic leaching procedure
TPH	Total petroleum hydrocarbons
UST	Underground storage tank
VOC	Volatile organic compound

3.1.2 Chemical Testing Plan

All samples were submitted for analysis to ALS Environmental in Holland, Michigan (ALS). Laboratory analyses for chemical parameters were selected based on potential contaminants associated with historical uses of the subject property (see Table 1). Analyses were as follows: VOCs via EPA SW-846 Method 8260B, semivolatile organic compounds (SVOC) via EPA SW-846 Method 8270D, RCRA metals via EPA SW-846 Methods 6010C/7470A/7471B, and PCBs via EPA SW-846 Method 8082. Soil samples

were collected for VOC analysis via sample collection Method 5035, with test kits provided by the subcontracted laboratory (ALS).

3.1.3 Deviations from the QAPP

The following deviations from the QAPP occurred during Phase II TBA activities.

- START attempted to collect groundwater samples at the five proposed locations collocated with the five deep soil boring locations. However, groundwater was encountered only at one location (B-61).
- ISM aliquot locations were predetermined by use of the “Create Random Points” tool in ArcMap. However, some of the dots were located over buildings or on concrete surfaces. These sample locations were randomly relocated in the field.
- START attempted to collect ISM aliquots by use of a 0.75-inch-diameter soil probe; however, the ground was too hard and the soil probe could not be used; hand trowels were used to collect the aliquots.

3.2 FIELD EXPLORATION AND METHODS

The sections below summarize soil, groundwater, sediment, and waste characterization sample collections. Sampling locations are depicted on Figures 2, 3, and 4, in Appendix A.

3.2.1 Surface Soil Decision Unit Sampling

Thirty-six surface soil samples were collected within 12 decision units (DU) (3 replicates per DU) applying ISM to determine surface contamination in the former manufacturing portion of the subject property where elevated lead levels and PAH concentrations previously had been identified. DU boundaries had been determined during preparation of the QAPP based on historical site features and previous sampling results (see Appendix A, Figure 2).

Each ISM sample consisted of 30 aliquots of soil collected within 0 to 6 inches bgs. START attempted to collect aliquots using a 0.75-inch-diameter soil probe; however, the ground was too hard and the soil probe could not be used. Hand trowels were instead used to collect the aliquots. ISM aliquot locations had been predetermined by use of the “Create Random Points” tool in ArcMap. However, some of the aliquot locations were located over buildings or on concrete surfaces. In these cases, sample locations were randomly relocated by field personnel. Samples were collected into 1-gallon bags for laboratory processing. All post-collection processing, including drying, sieving, and subsampling, was completed by the laboratory. The ISM samples were analyzed for SVOCs (including PAHs) and RCRA metals.

3.2.2 Targeted Surface Soil Sampling

One composite surface soil sample (0 to 6 inches bgs) was collected to assess PCB contamination related to an approximately 400-gallon oil release from a transformer on December 20, 2000. The 9-aliquot sample was collected within the probable area of release (see sample location SS-66 depicted on Figure 3 in Appendix A). The soil sample aliquots were collected into a 1-gallon bag per EPA SOP 4231.2012 for analysis for PCBs. The bag was labeled and placed into an iced cooler.

3.2.3 Subsurface Soil Sampling

Twenty soil samples were collected from Geoprobe borings B-51 through B-55, each advanced to 8 feet bgs. These borings were near the center of the former manufacturing area where a lead concentration of 20,000 mg/kg previously had been detected within the 0- to 2-foot bgs interval.

Geoprobe borings B-56 through B-60 were advanced in the southeast portion of the former manufacturing area where a relatively high PAH soil concentration previously had been detected within the 0- to 2-foot bgs interval. Four soil samples were collected from each boring—within 1-2, 3-4, 5-6, and 7-8 feet bgs.

Ten soil samples were collected from Geoprobe borings B-61 through B-65, each advanced to 30 feet bgs. These borings were advanced in areas of concern regarding USTs and a former hydraulic lift. Two soil samples were collected from each boring within the intervals inducing highest photoionization (PID) readings.

A Geoprobe Macro-Core soil sampler fitted with disposable polyvinyl chloride (PVC) sleeves was advanced at each location. Excess soil was returned to the boreholes, and any remaining empty space was filled with bentonite. Geoprobe rods and samplers were decontaminated with a tap water wash and rinse after sampling at each location.

Soil samples collected from borings B-51 through -55 were analyzed for RCRA metals. Soil samples collected from borings B-56 through -60 were analyzed for SVOCs (including PAHs). Soil samples collected from borings B-61 through -65 were analyzed for VOCs, TPH, and RCRA metals. Sample containers were labeled and placed into iced coolers. Soil samples were delivered to ALS in Holland, Michigan.

3.2.4 Temporary Geoprobe Well Groundwater Sampling

One groundwater sample (B-61 GW) was collected from a temporary Geoprobe well installed at the site (see Appendix A, Figure 3). START attempted to collect groundwater samples at each of the five deep soil boring locations (B-61 through -65). However, groundwater was encountered only at the location co-located with B-61 (B-61 GW). The groundwater sampler at location B-61 was advanced to 30 feet bgs. The sampler sheath was then withdrawn 4 feet (exposing a 4-foot-long stainless steel screen), allowing collection of a sample by use of a check valve through disposable polyethylene tubing. New tubing was used to collect the sample. Geoprobe rods and samplers were decontaminated with a tap water wash and rinsed after sampling at each location. Boreholes were backfilled with bentonite. The groundwater sample was analyzed for VOCs, TPH, and dissolved RCRA Metals.

3.2.5 Sediment and Soil Sampling

One grab sediment sample (SED-67) was collected from Soap Creek immediately downstream of the outfall to assess PCB contamination related to an approximately 400-gallon oil release from a transformer on December 20, 2000. The sediment sample was collected into a 1-gallon bag per EPA SOP 4231.2012 for analysis for PCBs. The bag was labeled and placed into an iced cooler.

3.2.6 Waste Characterization Sampling

Eight samples were collected within areas where a bulk amount of coal-tar pitch, coke, or coal was observed during sampling activities (see Appendix A, Figure 4). A hand trowel was used to collect a 9-point composite sample within the spill area. The samples were collected into 1-gallon bags for laboratory processing, and were analyzed for TCLP SVOCs and TCLP RCRA metals. Locations of all spills sampled were recorded, and photographs of the spills are in Appendix C. Solid material from an oil-stained trench drain within the maintenance building (see Appendix A, Figure 4) was also sampled and analyzed for TPH and RCRA metals. This sample was initially named “TCLP-8,” but is referred to in this report as “Trench Drain” because this sample was not analyzed via TCLP.

3.2.7 Quality Control Sampling

Field quality control (QC) sampling for this investigation included:

- Aqueous and solid laboratory-supplied trip blanks (“Trip Blank – Water” and “Trip Blank – Soil”) were analyzed by ALS for VOCs. These data were referenced to determine whether contamination had been introduced during transportation of the containers and samples.

- One rinsate sample (“Rinsate”) was collected by pouring distilled water through the decontaminated Geoprobe screen and sampler assembly. This sample was submitted to determine effectiveness of procedures for decontaminating the Geoprobe direct-push technology (DPT) sampling equipment.
- Field replicate samples, including duplicate and triplicate samples, were collected within each DU to assess reliability of the ISM sampling approach to estimate mean contaminant concentrations within DUs.

4.0 SAMPLING RESULTS

The following sections present analytical data from soil, sediment, groundwater, and waste characterization samples collected during the Phase II TBA. The data were screened against IDNR Statewide Standards for contaminants in soil and groundwater (IDNR 2016b). IDNR states that each of these standards represents “a concentration of a contaminant in a specific medium of an affected area at which normal, unrestricted exposure through a specific exposure pathway is considered unlikely to pose a threat to human health.” Analytical data packages and a Level II data validation report are in Appendix D.

4.1 SCREENING OF SOIL AND SEDIMENT SAMPLING RESULTS

Soil and sediment analytical results are compared to IDNR Statewide Standards for Soil in Appendix E, Tables E-1 through E-5. Table 2 summarizes screening results, and following is a discussion of the results with respect to the various sampling objectives.

TABLE 2
COMPARISON TO STATEWIDE SOIL STANDARDS
ELKEM CARBIDE SITE, KEOKUK, IOWA

Purpose of Sampling	Analyses	Sample Locations	Analytes Exceeding Statewide Soil Standards
Investigate shallow soil within DUs to assess PAH and metals (including lead) contamination	RCRA Metals (including lead), and SVOCs (including PAHs)	DU-01	Lead, PAHs
		DU-02	PAHs
		DU-03	Lead, PAHs
		DU-04	Lead, PAHs
		DU-05	PAHs
		DU-06	PAHs
		DU-07	PAHs
		DU-08	Lead, PAHs
		DU-09	PAHs
		DU-10	PAHs
		DU-11	Lead, PAHs
		DU-12	PAHs
Investigate an area in the central portion of the former manufacturing area where a lead concentration of 20,000 mg/kg was previously detected (Terracon boring B-8)	RCRA Metals (including lead)	B-51 through B-55	Arsenic, lead
Investigate an area in the southeast portion of the former manufacturing area where maximum PAH soil concentrations had been detected (Terracon boring B-48)	SVOCs (including PAHs)	B-56 through B-60	Lead, PAHs

TABLE 2 (Continued)

**COMPARISON TO STATEWIDE SOIL STANDARDS
ELKEM CARBIDE SITE, KEOKUK, IOWA**

Purpose of Sampling	Analyses	Sample Locations	Analytes Exceeding Statewide Soil Standards
Investigate five areas of concern related to USTs and a former hydraulic lift	VOCs, TPH, RCRA metals (including lead)	B-61	<i>None</i>
		B-62	<i>None</i>
		B-63	Lead
		B-64	<i>None</i>
		B-65	<i>None</i>
Investigate the area of a transformer oil release, including one soil sample at the point of release and a sediment sample from Soap Creek	PCBs	SS-65 and SED-67	<i>None</i>

Notes:

Shading indices samples or groups of related samples that exhibited analyte concentrations exceeding Statewide Standards for Soil.

DU	Decision unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
SVOC	Semivolatile organic compound
TCLP	Toxicity characteristic leaching procedure
TPH	Total petroleum hydrocarbons
UST	Underground storage tank
VOC	Volatile organic compound

Decision Unit Samples

Twelve DUs were defined and sampled to characterize mean concentrations of PAHs and lead within each DU (see Appendix A, Figure 2). Comparison of DU sampling data to statewide standards, shown in Appendix E, Table E-1, identified the following contaminants exceeding statewide standards for soil:

- Benzo(a)anthracene
- Benzo(a)pyrene
- Benzo(b)fluoranthene
- Benzo(k)fluoranthene
- Dibenzo(a,h)anthracene
- Indeno(1,2,3-cd)pyrene
- Lead.

Except for lead, the contaminants listed above are in a category of SVOCs referred to as PAHs. Each DU sample contained PAH concentrations exceeding respective statewide standards, indicating apparent widespread contamination. PAHs occur naturally in coal and are associated with production of coal-tar pitch and coke from coal, and are also ubiquitous in the environment due to their production from burning of fossil fuels, wood, and other carbon-containing materials (ATSDR 2009). DU sampling results appear to indicate widespread PAH contamination of soil within the former manufacturing area of the subject

property, likely related to former use, storage, and handling of coal, coke, or coal-tar pitch at the subject property.

Lead concentrations exceeding the statewide soil standard of 400 mg/kg were also detected in samples from five of the DUs: DU-01, DU-03, DU-04, DU-08, and DU-11. The elevated lead detections are relatively consistent among the replicate samples from DU-01, DU-03, DU-04, and DU-08, ranging from 390 to 940 mg/kg within these DUs. Lead concentrations among the DU-11 replicate samples were less consistent, with one replicate sample containing lead at 8,100 mg/kg and the remaining four replicate samples containing lead at levels ranging from 56 to 74 mg/kg. These results suggest a possible hotspot or other type of heterogeneous distribution of lead contamination within DU-11.

To evaluate non-residential exposure scenarios, the elevated PAH and lead results from the DU samples are further assessed in Section 5.0.

Subsurface Samples to Investigate Elevated Lead Concentration

Borings B-51 through B-55 were advanced in the central portion of the former manufacturing area to investigate a lead concentration of 20,000 mg/kg that had been previously detected in Terracon boring B-8 within the 0- to 2-foot bgs interval (see Appendix A, Figure 3). Four samples from each of the five borings were collected to vertically profile lead concentrations to 8 feet bgs. Comparisons of lead levels in B-51 through B-55 samples to the statewide standard, shown in Appendix E, Table E-2, identified one of the 20 samples collected (sample B-55 within 1-2 feet bgs) with lead concentration (520 mg/kg) above the statewide standard of 400 mg/kg. Two other samples contained lead near the standard: 390 mg/kg in B-55 (3-4 feet bgs) and 350 mg/kg in B-51 (1-2 feet bgs). The remaining samples contained lead at concentrations ranging from 10 to 57 mg/kg. Overall, the lead results suggest that lead contamination in this area is heterogeneously distributed in near-surface soils.

An additional analyte—arsenic—was detected at concentrations above the statewide standard. Samples B-52 (3-4 feet bgs), B-54 (1-2 feet bgs), and B-55 (5-6 feet bgs) contained arsenic at 27, 20, and 21 mg/kg, exceeding the statewide standard of 17 mg/kg.

To evaluate non-residential exposure scenarios, the elevated lead and arsenic results are further assessed in Section 5.0.

Subsurface Samples to Investigate Extent of PAH Contamination

Borings B-56 through B-60 were advanced in the southeast portion of the former manufacturing area where maximum PAH soil concentrations have been detected, including a benzo(a)pyrene detection of 550 mg/kg (Terracon boring B-48 within the 0- to 2-foot bgs interval) (see Appendix A, Figure 3). Four samples from each of five borings advanced in the area of the former Terracon boring B-48 were collected to vertically profile PAH concentrations to 8 feet bgs. Comparison of the B-56 through B-60 samples to the statewide standards, shown in Appendix E, Table E-3, identified 9 of the 20 samples as containing benzo(a)pyrene and other PAHs at concentrations exceeding statewide standards. The exceedances were variably detected within the 0- to 8-foot bgs intervals sampled, but were much less than the PAH concentrations from Terracon boring B-48 (maximum benzo(a)pyrene concentration detected in Borings B-56 through B-60 was 2.6 mg/kg). Overall, PAH results from borings B-56 through B-60 indicate that the relatively high PAH concentrations from Terracon boring B-48 (0-2 feet bgs) are not likely distributed across a wide area.

To evaluate non-residential exposure scenarios, the elevated PAHs results are further assessed in Section 5.0.

Subsurface Sampling to Investigate Former USTs and Hydraulic Lift

Borings B-61 through B-65 were advanced to investigate five areas of concern related to USTs and a former hydraulic lift (see Appendix A, Figure 3). Two depth intervals from each of these soil borings were selected for sampling based on elevated PID readings, staining, or other indicators of possible contamination (if detected). Comparisons of the B-61 through B-65 samples to the statewide standards, shown in Appendix E, Table E-3, identified one detection exceeding the statewide standards: a lead concentration of 5,600 mg/kg was detected in sample B-63(6-8 ft), exceeding the statewide standard of 400 mg/kg. Based on the concentration, this lead detection is presumably attributable to former manufacturing operations at the facility. Although not exceeding statewide soil standards, samples from each of the borings contained detectable concentrations of petroleum hydrocarbons (as diesel range organics [DRO] or gasoline-range organics [GRO])—detections potentially related to the closed USTs and former hydraulic lift.

To evaluate non-residential exposure scenarios, the elevated lead result is further assessed in Section 5.0.

Surface Soil and Sediment Sampling to Investigate Former Transformer Oil Release

To assess for PCB contamination related to an approximately 400-gallon oil release from a transformer on December 20, 2000, a sample was collected from the reported area of release, and a multi-aliquot sediment sample was collected from Soap Creek immediately downstream of the outfall (see SS-66 and SED-67 on Figure 3, Appendix A). These samples did not contain detectable concentrations of PCBs (see Appendix E, Table E-5).

4.2 SCREENING OF GROUNDWATER SAMPLING RESULTS

One groundwater sample (B-61 GW) was collected during the Phase II TBA—from boring B-61 near a reportedly closed UST at the east end of the Carbide Container Storage building (see Appendix A, Figure 3). IDNR specifies statewide standards for groundwater of two classes: protected groundwater and non-protected groundwater. The two classes differ in likelihood that an aquifer would be used for a drinking-water supply, based on its hydraulic conductivity and presence of total dissolved solids. Based on the previously reported low hydraulic conductivity of the shallow aquifer at the subject property (Terracon 2010), the non-protected groundwater standards are likely the relevant standards. Comparisons of results from the groundwater sample to statewide standards (see Appendix E, Table E-6) did not identify contaminants at concentrations exceeding statewide standards for a non-protected groundwater source; however, the sample did contain lead and cadmium at concentrations exceeding standards for a protected groundwater source.

4.3 SCREENING OF WASTE CHARACTERIZATION RESULTS

The eight samples collected from areas where a bulk amount of coal-tar pitch, coke, or coal was observed during sampling activities (the “TCLP”-series of samples) were compared to TCLP regulatory limits (see Appendix E, Table E-7); none of the samples exhibited TCLP extract concentrations exceeding the regulatory limits, indicating that the materials, if removed, would likely not be considered characteristic of a hazardous waste. The “Trench Drain” sample was compared the Iowa Statewide Standards for soil; this sample exhibited a TPH ORO concentration exceeding the standard (see Appendix E, Table E-8), indicating that the material in the trench drain would likely be handled as a special waste if removed.

4.4 QUALITY CONTROL SAMPLES

Aqueous and a solid laboratory-supplied trip blanks (“Trip Blank – Water” and “Trip Blank – Soil”) were analyzed by ALS for VOCs. The data were referenced to determine whether contamination had been introduced during transportation of containers and samples.

The two aqueous QC samples (“Trip Blank –Water” and “Rinsate”) exhibited detectable concentrations of several analytes (see Appendix E, Table E-6); however, the concentrations did not exceed the non-protected groundwater standards (the standard likely relevant to the site). In the solid trip blank sample (“Trip Blank – Soil”), acetone and toluene were detected at concentrations near the laboratory detection limits; however, these analytes were not detected in the field samples at levels of concern. Overall, the detections in the QC samples did not impair Tetra Tech’s ability to assess findings and offer recommendations presented herein.

5.0 PRELIMINARY EVALUATION OF EXPOSURE SCENARIOS

This section provides a preliminary evaluation of site resident, site worker, and construction worker exposure scenarios with respect to the contaminants of concern for soil identified in Section 4.0: arsenic, lead, and PAHs. Cumulative cancer and non-cancer risk values were determined so that sample results could be compared to IDNR Land Recycling Program (LRP) criteria for site resident, site worker, and construction worker scenarios. Chemical-specific criteria for this evaluation were obtained through use of the IDNR Cumulative Risk Calculator (IDNR 2016c). For the DU samples, the contaminant concentration used in the calculation of risk values was the 95 percent upper confidence limit (95% UCL) of the mean of contaminant concentrations detected among the replicate samples collected from the DU (if less than three detected concentrations were associated with the DU, the maximum detected concentration was used). For all other samples, risk values were calculated for each of the individual samples.

5.1 CARCINOGENIC RISK

Cancer risks could be calculated for the arsenic and PAH concentrations (no cancer slope factor is available for lead). Cumulative cancer risk values corresponding to arsenic and PAH soil concentrations detected in individual soil samples were determined so that sample results could be compared to the IDNR LRP cumulative cancer risk criterion of 1 in 10,000 (or 1E-04) for site resident, site worker, and construction worker scenarios. A cumulative cancer risk value for each of the three scenarios was calculated by use of information obtained from the IDNR Cumulative Risk Calculator (IDNR 2016c) and sample-specific concentrations (or the 95% UCL of the mean for DU samples). All PAHs (including those PAHs detected at concentrations not exceeding Statewide Soil Standards) were included in the calculation of cancer risk because each PAH could contribute to overall cumulative cancer risk. The risk calculations are presented in Appendix F and summarized in Table 3 below.

Based on this screening, each of the 12 DUs exceeds the cumulative cancer risk criterion for site resident scenarios, 7 of the 12 DUs exceed the criterion for the site worker scenario, and 1 DU exceeds the criterion for the construction worker scenario. None of the non-DU samples yielded a cumulative cancer risk exceeding the 1E-04 criterion. The predominant driver for cancer risk was the PAH benzo(a)pyrene.

TABLE 3

**SCREENING OF CUMULATIVE CANCER RISK
ELKEM CARBIDE SITE, KEOKUK, IOWA**

Purpose of Sampling	COCs Analyzed	Sample Location(s)	Sample Depth	Cumulative Cancer Risk		
				Site Resident	Site Worker	Construction Worker
Soil Depth Considered for Screening of Exposure Scenario				All	0-2 ft bgs	All
DU Sampling – Investigate shallow soil within DUs to assess PAH and metals (including lead) contamination	Arsenic, lead, PAHs	DU-01	Surface	2.6E-04	6.8E-05	6.0E-06
		DU-02	Surface	2.0E-04	5.3E-05	4.7E-06
		DU-03	Surface	2.1E-03	5.6E-04	4.9E-05
		DU-04	Surface	2.8E-04	7.3E-05	6.4E-06
		DU-05	Surface	7.8E-04	2.1E-04	1.8E-05
		DU-06	Surface	1.5E-04	3.9E-05	3.5E-06
		DU-07	Surface	7.3E-04	1.9E-04	1.7E-05
		DU-08	Surface	6.1E-03	1.6E-03	1.4E-04
		DU-09	Surface	8.5E-04	2.3E-04	2.0E-05
		DU-10	Surface	1.6E-03	4.3E-04	3.8E-05
		DU-11	Surface	4.0E-03	1.0E-03	9.2E-05
		DU-12	Surface	1.6E-04	4.1E-05	3.6E-06
Elevated Lead Investigation – Investigate a previously detected maximum lead soil concentration	Arsenic, lead	B-51 through B-55	0-2 ft bgs	7.7E-06 [†]	1.7E-06 [†]	1.8E-07 [†]
			> 2 feet	2.6E-05 [†]	[5.7E-06 [†]]	6.0E-07 [†]
Elevated PAH Investigation – Investigate a previously detected maximum PAH soil concentration	PAHs	B-56 through B-60	0-2 ft bgs	9.1E-06 [†]	2.4E-06 [†]	2.1E-07 [†]
			> 2 feet	6.4E-05 [†]	[1.7E-05 [†]]	1.5E-06 [†]
USTs/Hydraulic Lift Investigation – Investigate areas of concern related to USTs and a former hydraulic lift	Arsenic, lead, PAHs	B-63	0-2 ft bgs	NS	NS	NS
			> 2 feet	< Bkgd	[< Bkgd]	< Bkgd

Notes:

Shading indicates a cumulative cancer risk value exceeding the 1E-04 criterion at a soil depth considered under the exposure scenario.

Brackets [] indicate the cumulative risk value is associated with a soil depth not considered under the exposure scenario, and the value is shown for informational purposes.

“< Bkgd” indicates that arsenic, if detected, was below the IDNR universal arsenic background concentration of 17 milligrams per kilogram (mg/kg), that no other analyte in the sample posed a cancer risk, and thus the calculated cancer risk is 0.

[†] Maximum risk value among the sample group is shown.

COC Contaminant of concern
DU Decision unit
ft bgs Feet below ground surface

NS Soil depth not sampled
PAH Polycyclic aromatic hydrocarbon
UST Underground storage tank

5.2 NON-CANCER RISK

Non-cancer risks from arsenic, lead, and several PAHs could be calculated. Cumulative non-cancer risk values corresponding to arsenic, lead, and PAH soil concentrations detected in individual soil samples were determined so that sample results could be compared to the IDNR LRP cumulative non-cancer risk criterion of 1.0 for site resident, site worker, and construction worker scenarios. A cumulative non-cancer risk value for each of the three scenarios was calculated by use of information obtained from the IDNR Cumulative Risk Calculator (IDNR 2016c) and sample-specific concentrations (or the 95% UCL of the mean for DU samples). The non-cancer risk calculations are presented in Appendix F and summarized in Table 4 below.

Based on this screening, 5 of the 12 DUs exceeded the cumulative non-cancer risk criterion for site resident scenarios, 2 of the 12 DUs exceeded the criterion for the site work scenario, and 1 DU exceeded the criterion for the construction worker scenario. The primary driver for non-cancer risks within the DUs was lead.

None of the samples collected as part of the “elevated lead investigation” (borings B-55 through B-55) yielded non-cancer risk values exceeding criteria under the site worker or construction worker scenario; however, as stated previously, lead contamination in this area appears to be heterogeneously distributed, and the previously detected maximum lead concentration of 20,000 mg/kg (detected in Terracon boring B-8 within the 0- to 2-foot bgs interval) would be a concentration of concern under the site worker and construction worker scenarios.

None of the samples collected as part of the “elevated PAH investigation” (borings B-56 through B-60) yielded non-cancer risk values exceeding criteria under site resident, site worker, or construction worker scenarios.

The sample B-63 (6-8 feet bgs) collected as part of the “USTs/hydraulic lift investigation” and exhibiting the elevated lead concentration of 5,600 mg/kg yielded non-cancer risk values exceeding the criteria for each of the exposure scenarios (site residential, site worker, and construction). However and notably, this sample was collected at a depth exceeding 2 feet bgs—a soil depth generally not considered when screening against the site worker scenario.

Overall, lead was the driver for non-cancer risks. Specific standards for lead have been prescribed or derived by IDNR: 400 mg/kg for soils in a residential area, 1,100 mg/kg for soils less than 2 feet deep in a nonresidential area, and 2,100 mg/kg for construction worker scenarios (IDNR 2016c).

TABLE 4

**SCREENING OF CUMULATIVE NON-CANCER RISK
ELKEM CARBIDE SITE, KEOKUK, IOWA**

Purpose of Sampling	Analyses	Sample Location(s)	Sample Depth	Cumulative Non-Cancer Risk		
				Site Resident	Site Worker	Construction Worker
Soil Depth Considered for Screening of Exposure Scenario				All	0-2 feet bgs	All
DU Sampling – Investigate shallow soil within DUs to assess PAH and metals (including lead) contamination	Arsenic, lead, PAHs	DU-01	Surface	1.48	0.52	0.30
		DU-02	Surface	0.19	0.06	0.04
		DU-03	Surface	2.62	0.86	0.53
		DU-04	Surface	1.19	0.42	0.24
		DU-05	Surface	0.58	0.17	0.12
		DU-06	Surface	0.25	0.08	0.05
		DU-07	Surface	0.88	0.28	0.18
		DU-08	Surface	4.25	1.27	0.86
		DU-09	Surface	0.33	0.08	0.07
		DU-10	Surface	0.56	0.12	0.11
		DU-11	Surface	13.78	4.82	2.79
		DU-12	Surface	0.10	0.03	0.02
Elevated Lead Investigation – Investigate a previously detected maximum lead soil concentration	Arsenic, lead	B-51 through B-55	0-2 ft bgs	1.30 [†]	0.47 [†]	0.26 [†]
			> 2 ft bgs	0.97 [†]	[0.35 [†]]	0.20 [†]
Elevated PAH Investigation – Investigate a previously detected maximum PAH soil concentration	PAHs	B-56 through B-60	0-2 ft bgs	0.0021 [†]	0.00039 [†]	0.00044 [†]
			> 2 ft bgs	0.0150 [†]	[0.0028 [†]]	0.0031 [†]
USTs/Hydraulic Lift Investigation – Investigate areas of concern related to USTs and a former hydraulic lift	Arsenic, lead, PAHs	B-63	0-2 ft bgs	NS	NS	NS
			> 2 ft bgs	14.00 [†]	[5.09 [†]]	2.83 [†]

Notes:

Shading indicates a cumulative non-cancer risk value exceeding the 1.0 criterion at a soil depth considered under the exposure scenario.

Brackets [] indicate that the cumulative risk value is associated with a soil depth not considered under the exposure scenario, and the value is shown for informational purposes.

[†] Indicates that the maximum risk value among the sample group is shown.

DU	Decision unit	NS	Soil depth not sampled
ft bgs	Feet below ground surface	UST	Underground storage tank
PAH	Polycyclic aromatic hydrocarbon		

6.0 DISCUSSION OF FINDINGS AND CONCLUSIONS

This section summarizes findings and offers conclusions regarding Phase II TBA field activities. A property profile form for the subject property is in Appendix G.

6.1 RECOGNIZED ENVIRONMENTAL CONDITIONS

Tetra Tech conducted a Phase I TBA of the subject property in February 2016, documenting multiple RECs related to previous site operations. The Phase I TBA also identified, from historical sampling, presence of numerous contaminants at concentrations exceeding statewide standards for soil. The purpose of the Phase II ESA was to assess potential impacts on the subject property of hazardous substances that may have been released into soil and groundwater. The investigation identified lead and PAH concentrations exceeding statewide standards for soil, confirming previously identified RECs related to former manufacturing operations that involved use of lead and coal, coke, and coal tar pitch (sources of PAHs). The following summarizes results of the Phase II sampling.

DU Sampling

Twelve DUs were defined and sampled to characterize mean concentrations of PAHs and lead within each DU. Each DU sample contained PAH concentrations exceeding respective statewide standards. PAHs occur naturally in coal and are associated with production of coal-tar pitch and coke from coal, and are also ubiquitous in the environment due to their production from burning of fossil fuels, wood, and other carbon-containing materials (ATSDR 2009). DU sampling results appear to indicate widespread PAH contamination of soil within the former manufacturing area of the subject property, likely related to former use, storage, and handling of coal, coke, or coal-tar pitch at the subject property. Lead concentrations exceeding the statewide soil standard of 400 mg/kg were also detected in samples from five of the DUs. A preliminary screening of the site resident, site worker, and construction worker exposure pathways identified PAH and lead concentrations among the DU samples that exceeded IDNR criteria for each of these pathways.

Elevated Lead Investigation

Borings B-51 through B-55 were advanced in the central portion of the former manufacturing area to investigate a lead concentration of 20,000 mg/kg that had been previously detected in Terracon boring B-8 within the 0- to 2-foot bgs interval. One of the 20 samples collected from this group of borings (sample B-55 within 1-2 feet bgs) contained lead at 520 mg/kg—above the statewide standard of 400 mg/kg. An additional analyte, arsenic, was detected at concentrations above the statewide standard.

A preliminary screening of the site resident, site worker, and construction worker exposure pathways yielded risk values exceeding the IDNR criteria for the site resident pathway, but not the site work or construction worker pathways. However, the previously detected maximum lead concentration of 20,000 mg/kg (detected in Terracon boring B-8 within the 0- to 2-foot bgs interval) is a concentration of concern for the site worker and construction worker scenarios.

Elevated PAH Investigation

Borings B-56 through B-60 were advanced in the southeast portion of the former manufacturing area where maximum PAH soil concentrations have been detected, including a benzo(a)pyrene detection of 550 mg/kg (Terracon boring B-48 within the 0- to 2-foot bgs interval). Several samples collected from this group of borings contained PAH concentrations above statewide standards. A preliminary screening of the site resident, site worker, and construction worker exposure pathways did not identify concentrations corresponding to risk values exceeding IDNR criteria; however, the previously detected maximum benzo(a)pyrene concentration of 550 mg/kg is a concentration of concern for the site worker and construction worker scenarios.

USTs/Hydraulic Lift Investigation

Borings B-61 through B-65 were advanced to investigate five areas of concern related to USTs and a former hydraulic lift. One sample collected from this group of borings (sample B-63 within 6-8 feet bgs) contained lead at 5,600 mg/kg, exceeding the statewide standard of 400 mg/kg. Although not exceeding statewide soil standards, samples from each of the borings contained detectable concentrations of petroleum hydrocarbons (as DRO or GRO)—detections potentially related to the closed USTs and former hydraulic lift. The elevated lead concentration of 5,600 mg/kg yielded non-cancer risk values exceeding the criteria for each of the exposure scenarios (site residential, site worker, and construction). However and notably, this sample was collected at depth exceeding 2 feet below the surface—a soil depth generally not considered when screening against the site worker scenario.

A groundwater sample was collected from boring B-61 near a reportedly closed UST at the east end of the Carbide Container Storage building. Comparisons of results from the groundwater sample to statewide standards did not identify contaminants exceeding statewide standards for a non-protected groundwater source; however, the sample did contain lead and cadmium at concentrations exceeding standards for a protected groundwater source.

PCB Release Investigation

To assess for PCB contamination related to an approximately 400-gallon oil release from a transformer on December 20, 2000, a sample was collected within the reported area of release, and a multi-aliquot sediment was collected from Soap Creek immediately downstream of the outfall. These samples did not contain detectable concentrations of PCBs.

Waste Characterization Sampling

Eight samples were collected where a bulk amount of coal-tar pitch, coke, or coal was observed during sampling activities (the “TCLP”-series of samples), and sample results were compared to TCLP regulatory limits. None of these samples exhibited TCLP extract concentrations exceeding regulatory limits, indicating that the materials, if removed, would likely not be considered characteristic of a hazardous waste. Solid material from an oil-stained trench drain within the maintenance building was also sampled and analyzed for TPH and RCRA metals. This sample exhibited a TPH ORO concentration exceeding the statewide soil standard, indicating that the material in the trench drain would likely be categorized as a special waste if removed.

6.2 AFFECTED MEDIA

Based on sampling during this Phase II TBA, arsenic, lead, and PAHs are present in surface and subsurface soil at concentrations exceeding the Iowa Statewide Standards for Soil. A preliminary screening of the site resident, site worker, and construction worker pathways yielded cancer and non-cancer risk values exceeding IDNR’s criteria ($1\text{E-}04$ for cancer risks and 1.0 for non-cancer risks) for each of the exposure pathways assessed. Lead and PAHs (and in particular, benzo(a)pyrene) were the predominant risk drivers. PAH concentrations exceeding IDNR cancer risk criteria for the site worker pathway were detected in 7 of the 12 DUs, indicating that PAH contamination is relatively widespread across the former manufacturing area. Lead concentrations exceeding the non-cancer risk criterion for the site worker scenario were also detected in multiple surface and sub-surface soil samples.

One groundwater sample was collected during the Phase II, from boring B-61 near a reportedly closed UST at the east end of the Carbide Container Storage building. IDNR specifies statewide standards for groundwater of two classes: protected groundwater and non-protected groundwater. The two classes differ in likelihood that an aquifer would be used for a drinking-water supply, based on its hydraulic conductivity and presence of total dissolved solids. Based on the previously reported low hydraulic conductivity of the shallow aquifer at the subject property (Terracon 2010), the non-protected groundwater standards are likely the relevant standards. Comparisons of the groundwater sample to

statewide standards did not identify contaminants at concentrations exceeding statewide standards for a non-protected groundwater source; however, the sample did contain lead and cadmium at concentrations exceeding standards for a protected groundwater source.

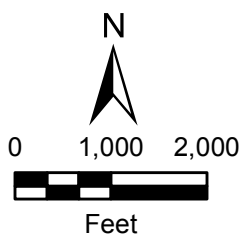
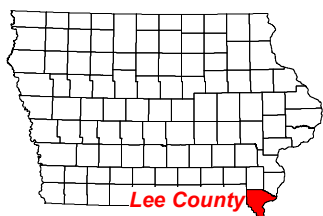
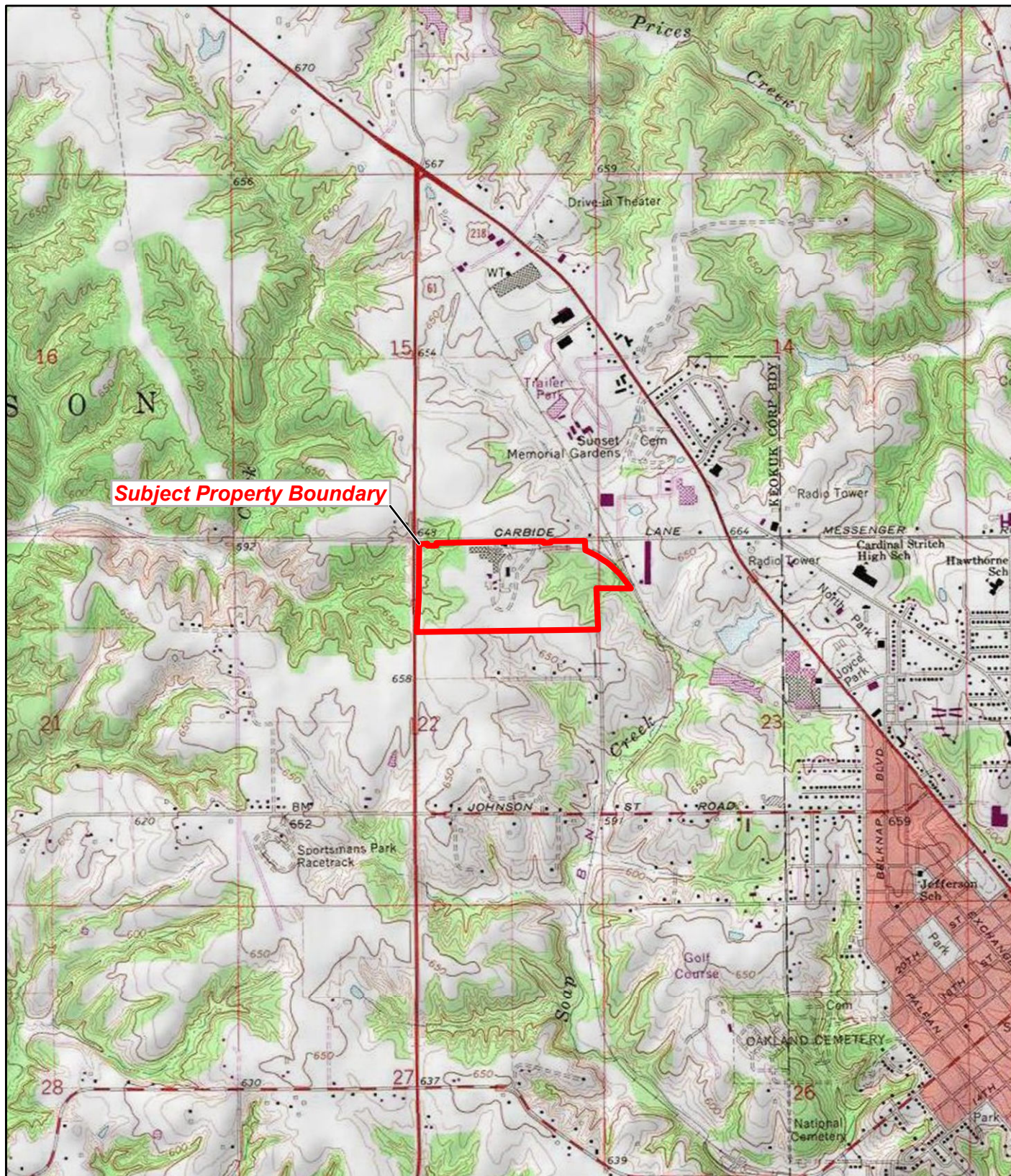
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APPENDIX A

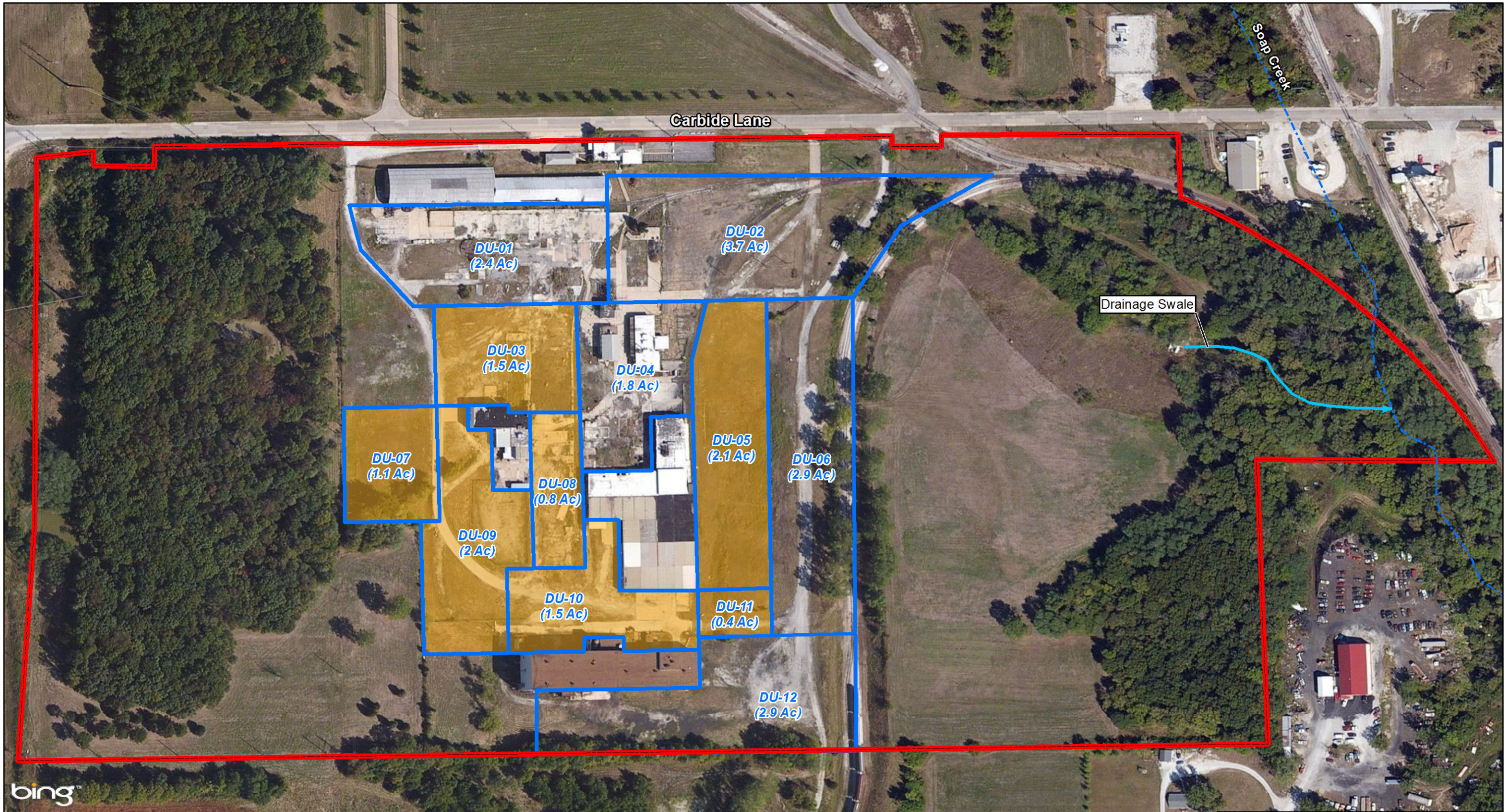
FIGURES



Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 1
Site Location Map





Legend

→ Drainage swale

--- Soap Creek

Decision unit boundary

Decision unit with contaminant concentrations of potential concern under the Site Worker exposure scenario

Subject property boundary

Ac Acre

DU Decision unit

0 100 200

Feet

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 2
Decision Unit Sampling Areas

TETRA TECH

Date: 9/19/2016 Drawn By: Nick Wiederholt Project No: X9025.14.0002.019.017

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Legend

	Sediment sample location		Drainage swale	PAH	Polycyclic aromatic hydrocarbon
	Soil sample location		Soap Creek	UST	Underground storage tank
	Soil/groundwater sample location		Subject property boundary		
	Surface soil sample location				

0 100 200
Feet

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

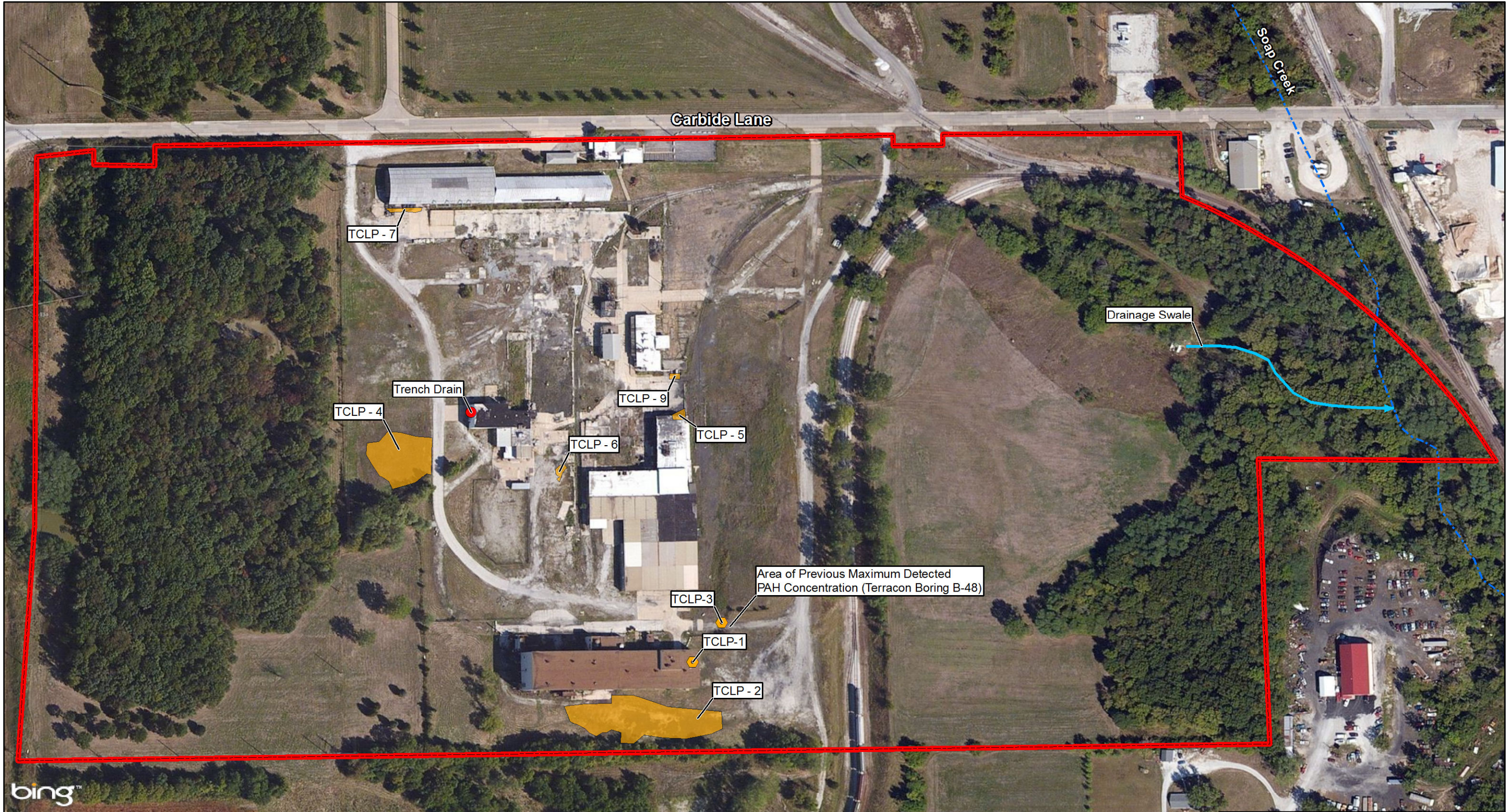
Figure 3
Sampling Locations

TETRA TECH

Date: 9/19/2016 Drawn By: Nick Wiederholt Project No: X9025.14.0002.019.017

X:\9025\000201\9017\Project\mxd\Figure3_090816.mxd

Source: ESRI, ArcGIS Online, Bing Maps, 2011



bing™

Source: ESRI, ArcGIS Online, Bing Maps, 2011

Legend

	TCLP waste characterization sample location		Drainage swale	PAH	Polycyclic aromatic hydrocarbon
	TCLP waste characterization sample area		Soap Creek	TCLP	Toxicity characteristic leaching procedure
	Waste characterization sample location		Subject property boundary		

0 100 200
Feet

Elkem Carbide
365 Carbide Lane
Keokuk, Iowa

Figure 4
Waste Characterization Sample Map

TETRA TECH

Date: 9/19/2016 Drawn By: Nick Wiederholt Project No: X9025.14.0002.019.017

APPENDIX B
PHOTOGRAPHIC DOCUMENTATION

**Elkem Carbide
Keokuk, Iowa**



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows drilling operations at soil boring B-61.	1
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/27/2016
	PHOTOGRAPHER	Joann Jeplawy	



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph show drilling operations at soil boring B-61.	2
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/27/2016
	PHOTOGRAPHER	Joann Jeplawy	

**Elkem Carbide
Keokuk, Iowa**



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows soil cores from soil boring B-61.	3
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/27/2016
	PHOTOGRAPHER	Joann Jeplawy	



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows drilling operations at soil boring B-62.	4
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/27/2016
	PHOTOGRAPHER	Joann Jeplawy	

**Elkem Carbide
Keokuk, Iowa**



<p style="text-align: center;">TETRA TECH PROJECT NO. X9025.14.0002.019017</p>	DESCRIPTION	This photograph shows soil cores from soil boring B-62.	5
	CLIENT	Environmental Protection Agency - Region 7	<p style="text-align: center;">DATE 06/27/2016</p>
	PHOTOGRAPHER	Joann Jeplawy	



<p style="text-align: center;">TETRA TECH PROJECT NO. X9025.14.0002.019017</p>	DESCRIPTION	This photograph shows drilling operations at soil boring B-53.	6
	CLIENT	Environmental Protection Agency - Region 7	<p style="text-align: center;">DATE 06/28/2016</p>
	PHOTOGRAPHER	Joann Jeplawy	

**Elkem Carbide
Keokuk, Iowa**



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows sampling at sampling location TCLP-3.	7
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/29/2016
	PHOTOGRAPHER	Joann Jeplawy	



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows sampling location TCLP 4.	8
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/29/2016
	PHOTOGRAPHER	Joann Jeplawy	

**Elkem Carbide
Keokuk, Iowa**



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows sampling location TCLP 5.	9
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/29/2016
	PHOTOGRAPHER	Joann Jeplawy	



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows sampling location TCLP 6.	10
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/29/2016
	PHOTOGRAPHER	Joann Jeplawy	

**Elkem Carbide
Keokuk, Iowa**



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows sampling location TCLP 7.	11
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/29/2016
	PHOTOGRAPHER	Joann Jeplawy	



TETRA TECH PROJECT NO. X9025.14.0002.019017	DESCRIPTION	This photograph shows sampling location TCLP 9.	12
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/29/2016
	PHOTOGRAPHER	Joann Jeplawy	

APPENDIX C
SITE LOGBOOK AND BORING LOGS

KS 1557



Rite in the Rain
ALL-WEATHER
LEVEL
No 311FX

Elkem
Carbide

6/27/16

1240 Arrive on site. Meet with
S. Bisenius and
to get access/keys

1300 Boring B-61

Hit refusal at 10'

1320 Relocate B-61 N10'

1415 Collect sample B-61 (4-5')

1420 Collect sample B-61 (5-6')

1430 Boring B-62

1556 Collect sample B-62 (16-17')

1600 Collect sample B-62 (4-5')

1620 Boring B-51

1623 Collect sample B-51 (1-2')

1625 Collect sample B-51 (3-4')

1630 Collect sample B-51 (5-6')

1634 Collect sample B-51 (7-8')

1640 Boring B-52

1646 Collect sample B-52 (1-2')

1648 Collect sample B-52 (3-4')

1655 Collect sample B-52 (5-6')

1658 Collect sample B-52 (7-8')

1715 off site

6/28/16

0900 ARRIVE ON SITE

0915 BORING B-65

0925 COLLECT B-65 (2-4')

0930 COLLECT B-65 (6-8')

0940 BORING B-64

1000 COLLECT B-64 (6-8')

1005 COLLECT B-64 (26-28')

1015 BORING B-63

1120 COLLECT B-63 (6-8')

1125 COLLECT B-63 (24-26')

1140 BORING B-53

1150 COLLECT B-53 (1-2')

1155 COLLECT B-53 (3-4')

1205 COLLECT B-53 (5-6')

1207 COLLECT B-53 (7-8')

1210 BORING B-54

1213 COLLECT B-54 (1-2')

1215 COLLECT B-54 (3-4')

1217 COLLECT B-54 (5-6')

1219 COLLECT B-54 (7-8')

1230 LUNCH

1330 BORING B-55

1335 COLLECT B-55 (1-2')

1337 COLLECT B-55 (3-4')

→ Rite in the Rain

6/28/16

- 1340 COLLECT B-55 (5-6')
 1343 COLLECT B-55 (7-8')
 1400 BORING B-57
 1404 COLLECT B-57 (1-2')
 1406 COLLECT B-57 (3-4')
 1408 COLLECT B-57 (5-6')
 1408 COLLECT B-57 (7-8')
 1410 BORING B-58
 1417 COLLECT B-58 (1-2')
 1415 COLLECT B-58 (3-4')
 1416 COLLECT B-58 (5-6')
 1419 COLLECT B-58 (7-8')
 1425 BORING B-56
 1427 COLLECT B-56 (1-2')
 1428 COLLECT B-56 (3-4')
 1430 COLLECT B-56 (5-6')
 1433 COLLECT B-56 (7-8')
 1445 BORING B-60
 1448 COLLECT B-60 (1-2')
 1449 COLLECT B-60 (3-4')
 1452 COLLECT B-60 (5-6')
 1454 COLLECT B-60 (7-8')
 1500 BORING B-59
 1505 COLLECT B-59 (1-2')

→

6/28/16

- 1509 COLLECT B-59 (3-4')
 1510 COLLECT B-59 (5-6')
 1513 COLLECT B-59 (7-8')
 1630 COLLECT B-61 GW
 1645 COLLECT RENSA
 1700 END OF DAY

Rite in the Rain

6/28/16

0700 arrive on-site

organize equipment, purchase additional field supplies

0800 speak with Jim from Griner and Schmitz to attempt to solve issues with GPS

0845 DU-12

0935 DU-06

1015 DU-11

1047 DU-05 < 1115 - collect SED-67

1130 DU-02

1209 DU-01

1340 DU-04

1412 DU-03

1450 DU-07

1525 DU-10

1556 DU-09

6/29/16

~~0836~~

0800 arrive on site

0836 collect TCLP-1

0845 collect TCLP-2

0850 collect SS-66

0857 collect TCLP-3

0916 collect TCLP-6

0915 collect TCLP-8 → Analyzed for
TPH & metals not
TCLP

0923 collect TCLP-5

0930 collect TCLP-9

0945 collect TCLP-4

1000 collect TCLP-7

1010 DU-08

1050 Return keys to county office

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-51

Date Drilled (Start/Finish): 6/27/16 1620

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: _____

Total Depth: 8'

Coordinates: 40.419378 -91.421894

Depth to Water: _____

Geologist: _____

Project Number: 10319025140002019017

Weather: 95 clear

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1-2			0.0					grass
3-4			0.0	4				gravel/rock fill silt, med. sand
5-6			0.0					clay light gray/brown, med. sand
7-8			0.0	8				2" layer: light gray silty clay brown clay, med. plast.
				12				
				16				
				20				
				24				
				28				
				31				

623

Boring Log Form

Site Name: Elkem Carbide Boring Number: B-52
 Date Drilled (Start/Finish): 6/27/16 1640
 Drilling Method: Direct-Push
 Drilling Company: Seagull Environmental
 Elevation: _____ Total Depth: 8'
 Coordinates: 40.419443 - 91.421962
 Depth to Water: _____ Geologist: _____
 Project Number: 10319025140002019017 Weather: 95 clear

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1-2			0.0					gravel fill
3-4			0.0	4				gray, silt
5-6			0.0					gray clay, stiff, dry
7-8			0.0	8				"
								brown. clay, med. plast.
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-53

Date Drilled (Start/Finish): 6/29/16

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: _____

Total Depth: 8'

Coordinates: 40.419419 91.421825

Depth to Water: _____

Geologist: _____

Project Number: 10319025140002019017

Weather: 76° CLOUD

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				BROWN / GRAY, CLAY, LOAM
2			0.0	8				AS ABOVE.
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-54

Date Drilled (Start/Finish): 6/28/06

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: _____

Total Depth: 8'

Coordinates: 40.419312 91.421985

Depth to Water: _____

Geologist: _____

Project Number: 10319025140002019017

Weather: 76° CLEAR

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				BROWN / GRAY, CLAY, LOAN
2			0.0	8				AS ABOVE.
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-55

Date Drilled (Start/Finish): 6/28/16

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: 29

Total Depth: 8'

Coordinates: 40.419925 91.421761

Depth to Water: _____

Geologist: _____

Project Number: 103I9025140002019017

Weather: 78° CLEAR

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				BLACK, SOIL CLAYEY SOIL, TRACT SAND
			0.0	8				GRAY/BROWN, CLAY, LOESS.
2				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-56

Date Drilled (Start/Finish): 6/28/10

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: _____

Total Depth: 8'

Coordinates: 40.418791 91.420707

Depth to Water: _____

Geologist: _____

Project Number: 10319025140002019017

Weather: 77° CLEAR

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				BLACK/GRAY/BROWN, CLAY, LOAN, TRACES SAND.
2			0.0	8				
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-57

Date Drilled (Start/Finish): 6/28/16

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: _____

Total Depth: 8'

Coordinates: 40.419886 -91.420882

Depth to Water: _____

Geologist: _____

Project Number: 103I9025140002019017

Weather: 76° cloudy

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				GRAY/BROWN, CLAY, LOAN.
2			0.0	8				AS ABOVE.
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-58

Date Drilled (Start/Finish): 6/28/16

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation: _____

Total Depth: 9'

Coordinates: 40.418867 91.420531

Depth to Water: _____

Geologist: _____

Project Number: 10319025140002019017

Weather: 76° clear

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				BROWN/GRAY, CLAY, LOAN
2			0.0	8				BROWN/GRAY/BLACK, SOFT CLAY, LOAN.
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide Boring Number: B-59
 Date Drilled (Start/Finish): 6/28/11
 Drilling Method: Direct-Push
 Drilling Company: Seagull Environmental
 Elevation: _____ Total Depth: 8'
 Coordinates: 40.418721 91.470777
 Depth to Water: _____ Geologist: _____
 Project Number: 10319025140002019017 Weather: 77° Cloud

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				CLAY / BROWN, CLAY, LOAM
2			0.0	8				AS ABOVE.
				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide Boring Number: B-60
 Date Drilled (Start/Finish): 6/28/16
 Drilling Method: Direct-Push
 Drilling Company: Seagull Environmental
 Elevation: _____ Total Depth: 4'
 Coordinates: 40.48717 91.420599
 Depth to Water: _____ Geologist: _____
 Project Number: 10319025140002019017 Weather: 73° CLEAR

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				BROWN/GRAY, SILTY CLAY, LOAN
			00	8				BROWN/GRAY, CLAY, LOAN
2				12				
				16				
				20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide Boring Number: B-61
 Date Drilled (Start/Finish): 6/27/16 1300
 Drilling Method: Direct-Push
 Drilling Company: Seagull Environmental
 Elevation: _____ Total Depth: 18'
 Coordinates: 40.421249 -91.421408
 Depth to Water: 16' - 5' Geologist: J. Blum
 Project Number: 10319025140002019017 Weather: 75° / sunny

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
4-5 5-10			0.0					grass
			0.0					brown, sandy
			16.2	4				
			16.2 8.6					*INERT ^{some} soil dropped back into hole
			0.0	8				~6' - GW
			0.0					
			0.0	12				brown clay, medium plasticity
			0.0					black streaks
			0.0	16				
			0.0					
			0.0	20				
				24				
				28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number: B-62

Date Drilled (Start/Finish): 6/27/16 1430

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation:

Total Depth: 28'

Coordinates: 40.420249 -91.421491

Depth to Water:

Geologist:

Project Number: 10319025140002019017

Weather: 95 sunny

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1600 4-5			0.0					gravel fill
			0.0	4				brown silty clay, stiff
			14.0					black petroleum staining - apparent odor
			0.7					grey clay, dry, stiff
1556 16-17			1.0	8				visual staining (black) - no odor
			0.0					brown/grey clay, dry, hard
			0.0					silty grey clay
			2.6	12				grey clay, dry, hard
			8.0					
			0.0	16				petroleum staining black, strong odor
			24.8					grey clay, dry, hard
			0.1	20				grey clay, dry, hard
			0.0					"
			1.0	24				bits of gravel
			0.0					
			0.0	28				
				31				

Boring Log Form

Site Name: Elkem Carbide

Boring Number:

Date Drilled (Start/Finish): 6/28/16

Drilling Method: Direct-Push

Drilling Company: Seagull Environmental

Elevation:

Total Depth: 2.8'

Coordinates: 40.426191 91.420916

Depth to Water:

Geologist:

Project Number: 103I9025140002019017

Weather: 73° cloudy.

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	4				SILTY SOFT BLACK, CLAY, LOAN, MOIST
2			0.0	8				AS ABOVE
3			0.0	12				AS ABOVE GRAY, CLAY, FAT
4			0.0	16				BLACK / GRAY, CLAY, TRACE SAND, LOAN.
5			0.0	20				BROWN / GRAY, CLAY, LOAN
6			0.0	24				AS ABOVE,
7			0.0	28				AS ABOVE
				31				

Boring Log Form

Site Name: Elkem Carbide Boring Number: B-64
 Date Drilled (Start/Finish): 6/28/16
 Drilling Method: Direct-Push
 Drilling Company: Seagull Environmental
 Elevation: _____ Total Depth: 28'
 Coordinates: 40.418824 91.421704
 Depth to Water: _____ Geologist: _____
 Project Number: 10319025140002019017 Weather: 71° clear

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.0	0				FILL, BLACK
				4				BROWN CLAY, LOAN
2			0.0	8				AS ABOVE
3			0.0	12				AS ABOVE
								BROWN / GRAY, SANDY CLAY, LOAN
4			0.0	16				AS ABOVE
5			0.0	20				BROWN, CLAY, LOAN, TRACES SAND.
6			0.0	24				AS ABOVE
7			0.0	28				AS ABOVE.
				31				

REFUSAL

Boring Log Form

Site Name: Elkem Carbide Boring Number: B-65
 Date Drilled (Start/Finish): 6/28/16
 Drilling Method: Direct-Push
 Drilling Company: Seagull Environmental
 Elevation: _____ Total Depth: 23'
 Coordinates: 40.419952 91.422125
 Depth to Water: _____ Geologist: _____
 Project Number: 10319025140002019017 Weather: 68° CLEAR

Sample Interval	Interval	Soil Recv.	PID Reading (ppm)	Depth (Feet)	Color (Munsell or Rock)	Lithology	Graphic Log	Description and Remarks
1			0.6	4				BLACK/BROWN, SANDY CLAY, LOAN
2			0.3	8				AS ABOVE
3			0.0	12				BROWN / GRAY, SANDY CLAY, LOAN, MOIST
4			0.0	16				GRAY/BROWN, CLAY, FAT, MOIST.
5			0.0	20				GRAY/BROWN/BLACK, CLAY, FAT, MOIST
6			0.0	24				AS ABOVE, VERY MOIST
				28				
				31				

REFUSAL DUE TO DRY CLAY

APPENDIX D

CHAIN-OF-CUSTODY RECORDS, ANALYTICAL DATA PACKAGES, AND DATA VALIDATION REPORT

Tetra Tech, Inc.
DATA VALIDATION REPORT
LEVEL II

Site: Elkem Carbide Site (Keokuk, Iowa)

Laboratory: ALS Group, Inc. (Holland, Michigan)

Data Reviewer: Harry Ellis, Tetra Tech, Inc. (Tetra Tech)

Review Date: September 6, 2016

Sample Delivery Group (SDG): 1607017

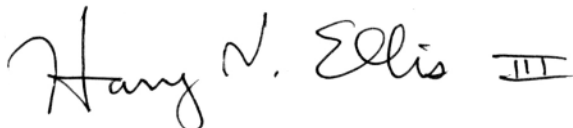
Sample Numbers: B-51 (1-2), B-52 (1-2), B-53 (1-2), B-54 (1-2), B-55 (1-2), B-56 (1-2), B-57 (1-2), B-58 (1-2), B-59 (1-2), B-60 (1-2), B-61 (4-5), B-62- (16-17), B-63 (6-8), B-64 (6-8), B-65 (2-4), B-51 (3-4), B-52 (3-4), B-53 (3-4), B-54 (3-4), B-55 (3-4), B-56 (3-4), B-57 (3-4), B-58 (3-4), B-59 (3-4), B-30 (3-4), B-61 (5-6), B-62 (4-5), B-63 (24-26), B-64 (26-28), B-65 (6-8), B-51 (5-6), B-52 (5-6), B-53 (5-6), B-54 (5-6), B-55 (5-6), B-56 (5-6), B-57 (5-6), B-58 (5-6), B-59 (5-6), B-60 (5-6), B-51 (7-8), B-52 (7-8), B-53 (7-8), B-54 (7-8), B-55 (7-8), B-56 (7-8), B-57 (7-8), B-58 (7-8), B-59 (7-8), B-60 (7-8), B-61 GW, Rinsate, Trip Blank—Soil, and Trip Blank--Water

Matrix / Number of Samples: 51 Soil Samples and 3 Water Samples

The data were qualified according to the U.S. Environmental Protection Agency (EPA) entitled "Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Superfund Organic Methods Data Review" and CLP NFG for Inorganic Superfund Data Review", both dated August 2014. In addition, the Tetra Tech document "Review of Data Packages from Subcontracted Laboratories" (February 2002) was used along with other criteria specified in the applicable methods.

The review was intended to identify problems and quality control (QC) deficiencies that were readily apparent from the summary data package. The following sections discuss any problems or deficiencies that were found, and data qualifications applied because of non-compliant QC. The data review was limited to the available field and laboratory QC information submitted with the project-specific data package.

I, Harry Ellis, certify that all data validation criteria outlined in the above-referenced documents were assessed, and any qualifications made to the data accorded with those documents.



6 September 2016

Certified by Harry Ellis, Chemist

Date

DATA VALIDATION QUALIFIERS4

- | | | |
|-----------|---|---|
| U | — | The analyte was not detected above the reported sample quantitation limit. |
| J | — | The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. |
| UJ | — | The analyte was not detected above the reported sample quantitation limit, which is estimated. |
| R | — | The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the analyte cannot be verified. |

DATA ASSESSMENT

Sample delivery group (SDG) 1607017 included fifty (50) environmental soil samples, one (1) environmental groundwater sample, and three (3) QC samples (one, each, soil trip blank, water trip blank, and water equipment rinsate). The samples were analyzed for volatile organic compounds (VOC) by EPA SW-846 Method 8260B, semivolatile organic compounds by EPA SW-846 Method 8270D, total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by Iowa Method OA-1 and diesel range organics (DRO) and oil range organics (ORO) by Iowa Method OA-2, and metals by EPA SW-846 Methods 6010C, 7470A, and 7471A. No sample received all analyses. The following summarizes the data validation that was performed.

VOLATILE ORGANIC COMPOUNDS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding time of 14 days from sample collection to analysis. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications were applied for MS/MSD analyses performed on samples from other sites. The first MS/MSD analyses performed on sample B-61 (4-5) yielded fully satisfactory results. The second set yielded a few slightly low recoveries from the MS sample, all low recoveries (averaging around 30 percent) from the MSD sample, and, consequently, excessive RPD for all analytes. This appears to be the result of mis-spiking or other laboratory error. Therefore no qualifications were applied.

III. Blanks

Some laboratory blanks yielded low concentrations of chloroform and toluene. Associated field sample results were qualified. The aqueous trip blank yielded a low concentration of chloroform. None was reported in the groundwater sample so no qualifications were applied. The soil trip blank yielded low concentrations of the common laboratory contaminants acetone and toluene. Similar concentrations in some soil samples were qualified as handling artifacts and flagged "U". However, the much higher concentrations of acetone in some samples were not qualified. The rinsate blank also yielded low concentrations of acetone and toluene. No further qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged "J").

VI. Overall Assessment of Data

Overall data quality is acceptable, with few qualifications applied. All data are usable as qualified for their intended purposes.

SEMIVOLATILES ORGANIC COMPOUNDS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding times of 14 days from sample collection to extraction and 60 days to analysis. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications were applied for MS/MSD analyses performed on samples from other site. The MS/MSD analyses performed on sample B-56 (1-2ft) yielded low benzaldehyde recoveries. Therefore the nondetected benzaldehyde result in the unspiked sample was qualified as estimated and flagged "UJ". Hexachlorocyclopentadiene yielded one recovery slightly below QC limits and the other recovery and the average recovery well within QC limits. No further qualifications were applied.

III. Blanks

No SVOC were detected in the blank samples. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits. No qualifications were applied.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged "J").

VI. Overall Assessment of Data

Overall data quality is acceptable, with few qualifications applied. All data are usable as qualified for their intended purposes.

TOTAL PETROLEUM HYDROCARBON ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding times. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD analyses were acceptable. No qualifications were applied.

III. Blanks

No analytes were detected in the laboratory blanks, but low levels of DRO and ORO were detected in the equipment rinsate blank. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits. No qualifications were applied.

V. Comments

One sample was analyzed at a 5-fold dilution to minimize matrix interference. No qualifications were applied.

VI. Overall Assessment of Data

Overall data quality is acceptable, with no qualifications applied. All data are usable as reported for their intended purposes.

METALS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding time of 6 months (28 days for mercury) from sample collection to analysis. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications were applied for irregularities in MS/MSD analyses performed on samples from other sites. In the MS/MSD analyses performed on sample B-55 (3-4ft), recoveries of barium and lead could not be determined because the unspiked sample contained much more than the amounts of the spikes. No qualifications were applied for these data gaps. However, the barium results yielded an RPD of 70 percent, well over the QC limit, indicating heterogeneity if its distribution within the soil. Therefore the barium concentration in sample B-55 (3-4ft) was qualified as estimated and flagged "J". In addition, arsenic, cadmium, chromium, and silver yielded recoveries above QC limits, indicating either matrix interference or heterogeneity. Therefore the arsenic, cadmium, chromium, and silver results for that sample were also qualified as estimated and flagged "J". Similar irregularities may exist in other soil samples.

III. Blanks

Some soil laboratory blanks yielded low concentrations of chromium. All soil samples yielded much higher concentrations so no qualifications were applied. The equipment rinsate yielded low concentrations of several metals. Again, no qualifications were applied.

IV. Laboratory Control Sample (LCS)

Some LCS recoveries were slightly above the laboratory's QC limits of 80 to 120 percent recovery. All of these were well within the NFG limits of 70 to 130 percent, so no qualifications were applied.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged "J"). A few samples were analyzed for mercury or selenium at dilutions, apparently to minimize matrix interference. The mercury results were well within calibration range, so no qualifications were applied. However, in sample B-55 (5-6ft), selenium was not detected at a 20-fold dilution. Therefore this results is not comparable to the other nondetected selenium results. No qualifications were applied.

VI. Overall Assessment of Data

Overall data quality is acceptable, with few qualifications applied. All data are usable as qualified for their intended purposes.

Tetra Tech, Inc.
DATA VALIDATION REPORT
LEVEL II

Site: Elkem Carbide Site (Keokuk, Iowa)

Laboratory: ALS Group, Inc. (Holland, Michigan)

Data Reviewer: Harry Ellis, Tetra Tech, Inc. (Tetra Tech)

Review Date: September 8, 2016

Sample Delivery Group (SDG): 16061792

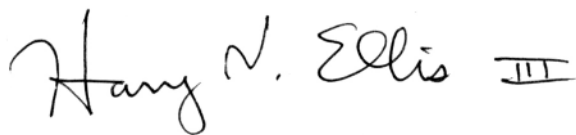
Sample Numbers: DU-01, DU-02, DU-03, DU-04, DU-05, DU-06, DU-07, DU-08, DU-09, DU-10, DU-11, DU-12, and SED-67

Matrix / Number of Samples: 12 Soil Samples and 1 Sediment Sample

The data were qualified according to the U.S. Environmental Protection Agency (EPA) entitled "Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Superfund Organic Methods Data Review" and CLP NFG for Inorganic Superfund Data Review", both dated August 2014. In addition, the Tetra Tech document "Review of Data Packages from Subcontracted Laboratories" (February 2002) was used along with other criteria specified in the applicable methods.

The review was intended to identify problems and quality control (QC) deficiencies that were readily apparent from the summary data package. The following sections discuss any problems or deficiencies that were found, and data qualifications applied because of non-compliant QC. The data review was limited to the available field and laboratory QC information submitted with the project-specific data package.

I, Harry Ellis, certify that all data validation criteria outlined in the above-referenced documents were assessed, and any qualifications made to the data accorded with those documents.



8 September 2016

Certified by Harry Ellis, Chemist

Date

DATA VALIDATION QUALIFIERS⁴

- | | | |
|-----------|---|---|
| U | — | The analyte was not detected above the reported sample quantitation limit. |
| J | — | The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. |
| UJ | — | The analyte was not detected above the reported sample quantitation limit, which is estimated. |
| R | — | The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the analyte cannot be verified. |

DATA ASSESSMENT

Sample delivery group (SDG) 16061792 included twelve (12) environmental soil samples, one (1) environmental sediment sample, and thirty-two (32) QC samples (all soil samples included a duplicate and a triplicate and four had two further replicates of one of the original replicates.). The soil samples were analyzed for semivolatile organic compounds by EPA SW-846 Method 8270D and metals by EPA SW-846 Methods 6010C and 7471A. The sediment sample was analyzed for polychlorinated biphenyls by EPA SW-846 Method 8082. The following summarizes the data validation that was performed.

SEMIVOLATILES ORGANIC COMPOUNDS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

All samples were analyzed well within the holding time limit. However, most were extracted on the 15th day after collection, just beyond the holding time limit of 14 days. No qualifications were applied for these minor exceedances. However, two replicates, each, of samples DU-02, DU-06, DU-10, and DU-11 were extracted on the 22nd day after collection. All results for these analyses were qualified as estimated and flagged “J” or “UJ”, as appropriate.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications were applied for MS/MSD analyses performed on samples from other sites. MS/MSD analyses were performed on sample DU-07-TRIP, MS analyses on sample DU-09-DUP, and laboratory duplicate (LD) analyses on sample DU-09-TRIP. For many polynuclear aromatic hydrocarbons (PAH), spike recoveries could not be determined because the unspiked sample contained much more than the amount spiked. No qualifications were applied for these data gaps. In the MS only analysis, most PAH and many other analytes yielded recoveries below the QC limits, due to either matrix interference or heterogeneity in the distribution of the PAH. Therefore all results for sample DU-09-DUP were qualified as estimated and flagged “J” or “UJ”, as appropriate, to indicate the uncertainty. In the MS/MSD pair and the LD, most recoveries were acceptable but most PAH yielded relative percent differences (RPD) well above the QC limit, indicating heterogeneity of distribution of the contaminants. Due to this uncertainty in the true concentrations, all detected PAH in samples DU-07-TRIP and DU-09-TRIP were qualified as estimated and flagged “J”.

III. Blanks

No SVOC were detected in the blank samples. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

Almost all LCS results were within QC limits. In one of the four, benzaldehyde and hexachlorocyclopentadiene yielded slightly high recoveries. Neither was detected in associated samples so no qualifications were applied.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged “J”). Most sample extracts

were analyzed at 10- or 20-fold dilutions to bring high PAH concentrations within calibration range. In addition, many extracts were re-analyzed at a dilution (or further dilution) of 5- to 25-fold to bring a few high-concentration PAH down within calibration range. These efforts succeeded so no qualifications were applied. But data users should note the variations in detection and reporting limits mean that some results are not comparable to others.

VI. Overall Assessment of Data

Overall data quality is acceptable, with few qualifications applied. All data are usable as qualified for their intended purposes. Data users should note that there is good evidence of heterogeneity in the distribution of PAH in these samples, so single results will not be completely representative of the mass of the material samples.

POLYCHLORINATED BIPHENYL ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The sample was extracted on the 16th day after collection and promptly analyzed. No data were qualified for this minor exceedance of the 14 day holding time for these very persistent compounds.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD analyses were acceptable. No qualifications were applied.

III. Blanks

No analytes were detected in the laboratory blank. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits. No qualifications were applied.

V. Comments

None.

VI. Overall Assessment of Data

Overall data quality is acceptable, with no PCB detected and no qualifications applied. All data are usable as reported for their intended purposes.

METALS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding time of 6 months (28 days for mercury) from sample collection to analysis. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications were applied for irregularities in MS/MSD analyses performed on samples from other sites. In the MS/MSD analyses performed on samples DU-01 and DU-07-TRIP, recoveries of barium, chromium, and lead could not be determined because the unspiked concentration was much higher than the spike. In sample DU-07-TRIP, the same problem exists with mercury. No qualifications were applied for these data gaps. In the analyses on DU-01, arsenic and selenium yielded high recoveries and cadmium yielded a low recovery, while in the analyses on DU-07-TRIP cadmium yielded a high recovery. These results are due to either matrix interference or distribution heterogeneity. The affected metals in the analyzed samples were qualified as estimated and flagged “J”. In addition, barium and chromium in sample DU-01 and lead in sample DU-07-TRIP yielded excessive RPD due to heterogeneous distributions. Again, the affected metals in the analyzed samples were qualified as estimated and flagged “J”. Similar irregularities may exist in other soil samples.

III. Blanks

The laboratory blanks yielded low concentrations of cadmium and chromium. All soil samples yielded much higher concentrations of chromium so no qualifications were applied for it. However a number of samples had cadmium concentrations similar to those in the blanks. These results were qualified as laboratory artifacts and flagged “U”.

IV. Laboratory Control Sample (LCS)

Some LCS recoveries were slightly above the laboratory’s QC limits of 80 to 120 percent recovery. All of these were well within the NFG limits of 70 to 130 percent, so no qualifications were applied.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged “J”). Most samples were analyzed at 2- or 5-fold dilutions to minimize matrix interference or to bring higher concentration results within calibration range. Due to these dilutions, nondetected results are not comparable to the other nondetected results. No further qualifications were applied.

VI. Overall Assessment of Data

Overall data quality is acceptable, with few qualifications applied. All data are usable as qualified for their intended purposes.

Tetra Tech, Inc.
DATA VALIDATION REPORT
LEVEL II

Site: Elkem Carbide Site (Keokuk, Iowa)

Laboratory: ALS Group, Inc. (Holland, Michigan)

Data Reviewer: Harry Ellis, Tetra Tech, Inc. (Tetra Tech)

Review Date: September 8, 2016

Sample Delivery Group (SDG): 16061821

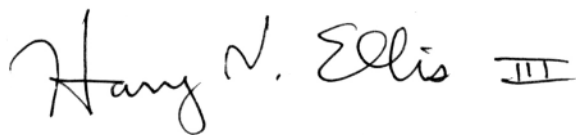
Sample Numbers: TCLP-1, TCLP-3, TCLP-3, TCLP-4, TCLP-5, TCLP-6, TCLP-7, TCLP-9, Trench Drain, and SS-66

Matrix / Number of Samples: 8 Bulk Samples and 2 Soil Samples

The data were qualified according to the U.S. Environmental Protection Agency (EPA) entitled "Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Superfund Organic Methods Data Review" and CLP NFG for Inorganic Superfund Data Review", both dated August 2014. In addition, the Tetra Tech document "Review of Data Packages from Subcontracted Laboratories" (February 2002) was used along with other criteria specified in the applicable methods.

The review was intended to identify problems and quality control (QC) deficiencies that were readily apparent from the summary data package. The following sections discuss any problems or deficiencies that were found, and data qualifications applied because of non-compliant QC. The data review was limited to the available field and laboratory QC information submitted with the project-specific data package.

I, Harry Ellis, certify that all data validation criteria outlined in the above-referenced documents were assessed, and any qualifications made to the data accorded with those documents.



8 September 2016

Certified by Harry Ellis, Chemist

Date

DATA VALIDATION QUALIFIERS⁴

- | | | |
|-----------|---|---|
| U | — | The analyte was not detected above the reported sample quantitation limit. |
| J | — | The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. |
| UJ | — | The analyte was not detected above the reported sample quantitation limit, which is estimated. |
| R | — | The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. Presence or absence of the analyte cannot be verified. |

DATA ASSESSMENT

Sample delivery group (SDG) 16061821 included eight (8) bulk environmental samples, two (2) environmental soil samples, and no QC samples. The bulk samples were extracted by the toxicity characteristic leaching procedure (TCLP), EPA SW-846 Method 1311, and the extracts were analyzed for semivolatile organic compounds by EPA SW-846 Method 8270D, and metals by EPA SW-846 Methods 6010C and 7470A. One soil sample was analyzed for total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by Iowa Method OA-1 and diesel range organics (DRO) and oil range organics (ORO) by Iowa Method OA-2, and metals by EPA SW-846 Methods 6010C and 7471A. The other soil sample was analyzed for polychlorinated biphenyls by EPA SW-846 Method 8082. The following summarizes the data validation that was performed.

SEMIVOLATILES ORGANIC COMPOUNDS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding times. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD results were within QC limits. No qualifications were applied.

III. Blanks

No SVOC were detected in the blank sample. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits. No qualifications were applied.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged "J").

VI. Overall Assessment of Data

Overall data quality is acceptable, with no qualifications applied. All data are usable as reported for their intended purposes.

TOTAL PETROLEUM HYDROCARBON ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding times. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD analyses were acceptable. No qualifications were applied.

III. Blanks

No analytes were detected in the laboratory blank. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits. No qualifications were applied.

V. Comments

The sample was analyzed for DRO and ORO at a 10-fold dilution to bring the results within calibration range. No qualifications were applied.

VI. Overall Assessment of Data

Overall data quality is acceptable, with no qualifications applied. All data are usable as reported for their intended purposes.

POLYCHLORINATED BIPHENYLS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding times of 14 days from sample collection to extraction and 60 days to analysis. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

All MS/MSD results were within QC limits. No qualifications were applied.

III. Blanks

No PCB were detected in the blank sample. No qualifications were applied.

IV. Laboratory Control Sample (LCS)

All LCS results were within QC limits. No qualifications were applied.

V. Comments

No PCB were detected in the field sample.

VI. Overall Assessment of Data

Overall data quality is acceptable, with no qualifications applied. All data are usable as reported for their intended purposes.

METALS ANALYSES

I. Holding Time and Chain of Custody (COC) Requirements

The samples were received by the laboratory and analyzed within the established holding time of 6 months (28 days for mercury) from sample collection to analysis. No data were qualified.

II. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No qualifications were applied for irregularities in the soil MS/MSD analyses performed on a sample from a different data package or a different site. In the MS/MSD analyses performed on sample TCLP-01, barium recoveries were 148 and 105 percent, versus QC limits of 75 to 125 percent. These irregularities led to an excessive relative percent difference. These results indicate a heterogeneous distribution of barium, probably in the form of fine particles, in the TCLP extract. The barium result for sample TCLP-01 was qualified as estimated and flagged "J". Similar irregularities may exist in other samples.

III. Blanks

No analytes were detected in the aqueous blanks, but the soil blank yielded low a low concentration of chromium. The soil sample yielded much a higher concentration so no qualification was applied.

IV. Laboratory Control Sample (LCS)

All LCS recoveries were acceptable. No qualifications were applied.

V. Comments

Some results were below the sample reporting limits, which correspond to the lowest calibration standard. The laboratory correctly qualified these extrapolations as estimates (flagged "J"). Some metals were analyzed at a 2-fold dilution to minimize matrix interference. No further qualifications were applied.

VI. Overall Assessment of Data

Overall data quality is acceptable, with few qualifications applied. All data are usable as qualified for their intended purposes.



13-Jul-2016

Rob Monnig
Tetra Tech
415 Oak Street
Kansas City, MO 64106

Re: **Elkem Carbide X9025-14-0002-019-017**

Work Order: **1607017**

Dear Rob,

ALS Environmental received 54 samples on 30-Jun-2016 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 177.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Joseph Ribar".

Electronically approved by: Joseph Ribar

Joseph Ribar
Project Manager



Certificate No: IA: 403

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 1607017

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1607017-01	B-51 (1-2 ft)	Soil		6/27/2016 16:23	6/30/2016 09:30	<input type="checkbox"/>
1607017-02	B-52 (1-2 ft)	Soil		6/27/2016 16:46	6/30/2016 09:30	<input type="checkbox"/>
1607017-03	B-53 (1-2 ft)	Soil		6/28/2016 11:50	6/30/2016 09:30	<input type="checkbox"/>
1607017-04	B-54 (1-2 ft)	Soil		6/28/2016 12:13	6/30/2016 09:30	<input type="checkbox"/>
1607017-05	B-55 (1-2 ft)	Soil		6/28/2016 13:35	6/30/2016 09:30	<input type="checkbox"/>
1607017-06	B-56 (1-2 ft)	Soil		6/28/2016 14:27	6/30/2016 09:30	<input type="checkbox"/>
1607017-07	B-57 (1-2 ft)	Soil		6/28/2016 14:04	6/30/2016 09:30	<input type="checkbox"/>
1607017-08	B-58 (1-2 ft)	Soil		6/28/2016 14:13	6/30/2016 09:30	<input type="checkbox"/>
1607017-09	B-59 (1-2 ft)	Soil		6/28/2016 15:05	6/30/2016 09:30	<input type="checkbox"/>
1607017-10	B-60 (1-2 ft)	Soil		6/28/2016 14:48	6/30/2016 09:30	<input type="checkbox"/>
1607017-11	B-61 (4'-5')	Soil		6/27/2016 14:15	6/30/2016 09:30	<input type="checkbox"/>
1607017-12	B-62 (16'-17')	Soil		6/27/2016 15:56	6/30/2016 09:30	<input type="checkbox"/>
1607017-13	B-63 (6'-8')	Soil		6/28/2016 11:20	6/30/2016 09:30	<input type="checkbox"/>
1607017-14	B-64 (6'-8')	Soil		6/28/2016 10:00	6/30/2016 09:30	<input type="checkbox"/>
1607017-15	B-65 (2'-4')	Soil		6/28/2016 08:25	6/30/2016 09:30	<input type="checkbox"/>
1607017-16	B-51 (3-4 ft)	Soil		6/27/2016 16:25	6/30/2016 09:30	<input type="checkbox"/>
1607017-17	B-52 (3-4 ft)	Soil		6/27/2016 16:48	6/30/2016 09:30	<input type="checkbox"/>
1607017-18	B-53 (3-4 ft)	Soil		6/28/2016 11:55	6/30/2016 09:30	<input type="checkbox"/>
1607017-19	B-54 (3-4 ft)	Soil		6/28/2016 12:15	6/30/2016 09:30	<input type="checkbox"/>
1607017-20	B-55 (3-4 ft)	Soil		6/28/2016 13:37	6/30/2016 09:30	<input type="checkbox"/>
1607017-21	B-56 (3-4 ft)	Soil		6/28/2016 14:28	6/30/2016 09:30	<input type="checkbox"/>
1607017-22	B-57 (3-4 ft)	Soil		6/28/2016 14:06	6/30/2016 09:30	<input type="checkbox"/>
1607017-23	B-58 (3-4 ft)	Soil		6/28/2016 14:15	6/30/2016 09:30	<input type="checkbox"/>
1607017-24	B-59 (3-4 ft)	Soil		6/28/2016 15:08	6/30/2016 09:30	<input type="checkbox"/>
1607017-25	B-60 (3-4 ft)	Soil		6/28/2016 14:49	6/30/2016 09:30	<input type="checkbox"/>
1607017-26	B-61 (5'-6')	Soil		6/27/2016 14:20	6/30/2016 09:30	<input type="checkbox"/>
1607017-27	B-62 (4'-5')	Soil		6/27/2016 16:00	6/30/2016 09:30	<input type="checkbox"/>
1607017-28	B-63 (24'-26')	Soil		6/28/2016 11:25	6/30/2016 09:30	<input type="checkbox"/>
1607017-29	B-64 (26'-28')	Soil		6/28/2016 10:05	6/30/2016 09:30	<input type="checkbox"/>
1607017-30	B-65 (6'-8')	Soil		6/28/2016 08:30	6/30/2016 09:30	<input type="checkbox"/>
1607017-31	B-61 GW	Water		6/28/2016 16:30	6/30/2016 09:30	<input type="checkbox"/>
1607017-32	B-51 (5-6 ft)	Soil		6/27/2016 16:30	6/30/2016 09:30	<input type="checkbox"/>
1607017-33	B-52 (5-6 ft)	Soil		6/27/2016 16:55	6/30/2016 09:30	<input type="checkbox"/>
1607017-34	B-53 (5-6 ft)	Soil		6/28/2016 12:05	6/30/2016 09:30	<input type="checkbox"/>
1607017-35	B-54 (5-6 ft)	Soil		6/28/2016 12:17	6/30/2016 09:30	<input type="checkbox"/>
1607017-36	B-55 (5-6 ft)	Soil		6/28/2016 13:40	6/30/2016 09:30	<input type="checkbox"/>
1607017-37	B-56 (5-6 ft)	Soil		6/28/2016 14:30	6/30/2016 09:30	<input type="checkbox"/>
1607017-38	B-57 (5-6 ft)	Soil		6/28/2016 14:07	6/30/2016 09:30	<input type="checkbox"/>
1607017-39	B-58 (5-6 ft)	Soil		6/28/2016 14:16	6/30/2016 09:30	<input type="checkbox"/>

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 1607017

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1607017-40	B-59 (5-6 ft)	Soil		6/28/2016 15:10	6/30/2016 09:30	<input type="checkbox"/>
1607017-41	B-60 (5-6 ft)	Soil		6/28/2016 14:52	6/30/2016 09:30	<input type="checkbox"/>
1607017-42	B-51 (7-8 ft)	Soil		6/27/2016 16:34	6/30/2016 09:30	<input type="checkbox"/>
1607017-43	B-52 (7-8 ft)	Soil		6/27/2016 16:58	6/30/2016 09:30	<input type="checkbox"/>
1607017-44	B-53 (7-8 ft)	Soil		6/28/2016 12:07	6/30/2016 09:30	<input type="checkbox"/>
1607017-45	B-54 (7-8 ft)	Soil		6/28/2016 12:19	6/30/2016 09:30	<input type="checkbox"/>
1607017-46	B-55 (7-8 ft)	Soil		6/28/2016 13:43	6/30/2016 09:30	<input type="checkbox"/>
1607017-47	B-56 (7-8 ft)	Soil		6/28/2016 14:33	6/30/2016 09:30	<input type="checkbox"/>
1607017-48	B-57 (7-8 ft)	Soil		6/28/2016 14:08	6/30/2016 09:30	<input type="checkbox"/>
1607017-49	B-58 (7-8 ft)	Soil		6/28/2016 14:19	6/30/2016 09:30	<input type="checkbox"/>
1607017-50	B-59 (7-8 ft)	Soil		6/28/2016 15:13	6/30/2016 09:30	<input type="checkbox"/>
1607017-51	B-60 (7-8 ft)	Soil		6/28/2016 14:54	6/30/2016 09:30	<input type="checkbox"/>
1607017-52	Rinsate	Water		6/28/2016 16:45	6/30/2016 09:30	<input type="checkbox"/>
1607017-53	Trip Blank - Soil	Soil		6/27/2016	6/30/2016 09:30	<input type="checkbox"/>
1607017-54	Trip Blank - Water	Water		6/28/2016	6/30/2016 09:30	<input type="checkbox"/>

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 1607017

Case Narrative

Samples for the above noted Work Order were received on 06/30/2016. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

Batch 88232, Method 8260, Sample 1607017-11A MS: The MS recovery was above the upper control limit. The corresponding result in the parent sample was non-detect, therefore no qualification is necessary: 1,2-Dibromoethane, Tetrachloroethane, and Trichloroethene

Batch R191188, Method 8260, Sample 1607017-11A MSD: The MSD was spiked incorrectly. Data does not need qualification

No other deviations or anomalies were noted.

Extractable Organics:

Batch 88235, Method 8270, Sample SLCSS1-88235: The LCS recovery was below the lower control limit. The sample results for this analyte may be biased low for this analyte: Benzaldehyde

Batch 88235, Method 8270, Sample 1607017-06A MS: The matrix spike recovery was outside of the control limit. However, the matrix spike duplicate recovery and the RPD between the MS and MSD were in control. No qualification is required for this analyte: Hexachlorocyclopentadiene

Batch 88235, Method 8270, Sample 1607017-06A MS: The MS and MSD recoveries were below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Benzaldehyde

No other deviations or anomalies were noted.

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 1607017

Case Narrative

Metals:

Batch 88230, Method 6010, Sample 1607017-20AMS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: As,Cd,Cr

Batch 88230, Method 6010, Sample 1607017-20AMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba,Pb

Batch 88230, Method 6010, Sample 1607017-20AMSD: The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Ba

No other deviations or anomalies were noted.

Wet Chemistry:

No other deviations or anomalies were noted.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-51 (1-2 ft)
Collection Date: 6/27/2016 04:23 PM

Work Order: 1607017
Lab ID: 1607017-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.13		0.0023	0.014	mg/Kg-dry	1	7/7/2016 19:38
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	11		0.11	0.42	mg/Kg-dry	1	7/9/2016 19:40
Barium	220		0.17	0.42	mg/Kg-dry	1	7/9/2016 19:40
Cadmium	1.1		0.041	0.85	mg/Kg-dry	1	7/9/2016 19:40
Chromium	12		0.024	0.42	mg/Kg-dry	1	7/9/2016 19:40
Lead	350		0.090	0.42	mg/Kg-dry	1	7/9/2016 19:40
Selenium	0.27	J	0.24	0.85	mg/Kg-dry	1	7/9/2016 19:40
Silver	0.14	J	0.053	0.42	mg/Kg-dry	1	7/9/2016 19:40
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	7.4		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-52 (1-2 ft)
Collection Date: 6/27/2016 04:46 PM

Work Order: 1607017
Lab ID: 1607017-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.024		0.0025	0.015	mg/Kg-dry	1	7/7/2016 19:40
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	9.3		0.11	0.41	mg/Kg-dry	1	7/9/2016 19:46
Barium	170		0.16	0.41	mg/Kg-dry	1	7/9/2016 19:46
Cadmium	0.054	J	0.039	0.82	mg/Kg-dry	1	7/9/2016 19:46
Chromium	11		0.023	0.41	mg/Kg-dry	1	7/9/2016 19:46
Lead	57		0.087	0.41	mg/Kg-dry	1	7/9/2016 19:46
Selenium	0.39	J	0.23	0.82	mg/Kg-dry	1	7/9/2016 19:46
Silver	U		0.051	0.41	mg/Kg-dry	1	7/9/2016 19:46
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	9.9		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-53 (1-2 ft)
Collection Date: 6/28/2016 11:50 AM

Work Order: 1607017
Lab ID: 1607017-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.049		0.0028	0.017	mg/Kg-dry	1	7/7/2016 19:42
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	8.8		0.12	0.44	mg/Kg-dry	1	7/9/2016 19:51
Barium	470		0.18	0.44	mg/Kg-dry	1	7/9/2016 19:51
Cadmium	U		0.043	0.89	mg/Kg-dry	1	7/9/2016 19:51
Chromium	20		0.025	0.44	mg/Kg-dry	1	7/9/2016 19:51
Lead	14		0.094	0.44	mg/Kg-dry	1	7/9/2016 19:51
Selenium	0.57	J	0.25	0.89	mg/Kg-dry	1	7/9/2016 19:51
Silver	U		0.055	0.44	mg/Kg-dry	1	7/9/2016 19:51
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-54 (1-2 ft)
Collection Date: 6/28/2016 12:13 PM

Work Order: 1607017
Lab ID: 1607017-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.029		0.0030	0.018	mg/Kg-dry	1	7/7/2016 19:44
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	20		0.13	0.49	mg/Kg-dry	1	7/9/2016 19:57
Barium	240		0.19	0.49	mg/Kg-dry	1	7/9/2016 19:57
Cadmium	U		0.047	0.97	mg/Kg-dry	1	7/9/2016 19:57
Chromium	23		0.027	0.49	mg/Kg-dry	1	7/9/2016 19:57
Lead	34		0.10	0.49	mg/Kg-dry	1	7/9/2016 19:57
Selenium	0.75	J	0.27	0.97	mg/Kg-dry	1	7/9/2016 19:57
Silver	U		0.060	0.49	mg/Kg-dry	1	7/9/2016 19:57
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-55 (1-2 ft)
Collection Date: 6/28/2016 01:35 PM

Work Order: 1607017
Lab ID: 1607017-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.23		0.0025	0.015	mg/Kg-dry	1	7/7/2016 19:53
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	9.1		0.10	0.40	mg/Kg-dry	1	7/9/2016 20:03
Barium	380		0.16	0.40	mg/Kg-dry	1	7/9/2016 20:03
Cadmium	2.6		0.038	0.80	mg/Kg-dry	1	7/9/2016 20:03
Chromium	21		0.022	0.40	mg/Kg-dry	1	7/9/2016 20:03
Lead	520		0.085	0.40	mg/Kg-dry	1	7/9/2016 20:03
Selenium	0.73	J	0.22	0.80	mg/Kg-dry	1	7/9/2016 20:03
Silver	0.39	J	0.050	0.40	mg/Kg-dry	1	7/9/2016 20:03
<hr/>							
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	15		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (1-2 ft)
Collection Date: 6/28/2016 02:27 PM

Work Order: 1607017
Lab ID: 1607017-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/6/16		Analyst: RM
1,1'-Biphenyl	U		12	76	µg/Kg-dry	1	7/7/2016 05:21
2,4,5-Trichlorophenol	U		21	76	µg/Kg-dry	1	7/7/2016 05:21
2,4,6-Trichlorophenol	U		20	76	µg/Kg-dry	1	7/7/2016 05:21
2,4-Dichlorophenol	U		16	76	µg/Kg-dry	1	7/7/2016 05:21
2,4-Dimethylphenol	U		16	76	µg/Kg-dry	1	7/7/2016 05:21
2,4-Dinitrophenol	U		41	76	µg/Kg-dry	1	7/7/2016 05:21
2,4-Dinitrotoluene	U		20	76	µg/Kg-dry	1	7/7/2016 05:21
2,6-Dinitrotoluene	U		13	76	µg/Kg-dry	1	7/7/2016 05:21
2-Chloronaphthalene	U		11	15	µg/Kg-dry	1	7/7/2016 05:21
2-Chlorophenol	U		24	76	µg/Kg-dry	1	7/7/2016 05:21
2-Methylnaphthalene	U		7.8	15	µg/Kg-dry	1	7/7/2016 05:21
2-Methylphenol	U		21	76	µg/Kg-dry	1	7/7/2016 05:21
2-Nitroaniline	U		18	76	µg/Kg-dry	1	7/7/2016 05:21
2-Nitrophenol	U		22	76	µg/Kg-dry	1	7/7/2016 05:21
3&4-Methylphenol	U		15	76	µg/Kg-dry	1	7/7/2016 05:21
3,3'-Dichlorobenzidine	U		11	380	µg/Kg-dry	1	7/7/2016 05:21
3-Nitroaniline	U		18	76	µg/Kg-dry	1	7/7/2016 05:21
4,6-Dinitro-2-methylphenol	U		19	76	µg/Kg-dry	1	7/7/2016 05:21
4-Bromophenyl phenyl ether	U		21	76	µg/Kg-dry	1	7/7/2016 05:21
4-Chloro-3-methylphenol	U		22	76	µg/Kg-dry	1	7/7/2016 05:21
4-Chloroaniline	U		12	150	µg/Kg-dry	1	7/7/2016 05:21
4-Chlorophenyl phenyl ether	U		21	76	µg/Kg-dry	1	7/7/2016 05:21
4-Nitroaniline	U		120	380	µg/Kg-dry	1	7/7/2016 05:21
4-Nitrophenol	U		68	76	µg/Kg-dry	1	7/7/2016 05:21
Acenaphthene	15	J	11	15	µg/Kg-dry	1	7/7/2016 05:21
Acenaphthylene	U		13	15	µg/Kg-dry	1	7/7/2016 05:21
Acetophenone	U		12	76	µg/Kg-dry	1	7/7/2016 05:21
Anthracene	52		11	15	µg/Kg-dry	1	7/7/2016 05:21
Atrazine	U		12	76	µg/Kg-dry	1	7/7/2016 05:21
Benzaldehyde	U		120	150	µg/Kg-dry	1	7/7/2016 05:21
Benzo(a)anthracene	250		13	15	µg/Kg-dry	1	7/7/2016 05:21
Benzo(a)pyrene	260		9.4	15	µg/Kg-dry	1	7/7/2016 05:21
Benzo(b)fluoranthene	330		11	15	µg/Kg-dry	1	7/7/2016 05:21
Benzo(g,h,i)perylene	190		12	15	µg/Kg-dry	1	7/7/2016 05:21
Benzo(k)fluoranthene	110		12	15	µg/Kg-dry	1	7/7/2016 05:21
Bis(2-chloroethoxy)methane	U		7.3	76	µg/Kg-dry	1	7/7/2016 05:21
Bis(2-chloroethyl)ether	U		22	76	µg/Kg-dry	1	7/7/2016 05:21
Bis(2-chloroisopropyl)ether	U		18	76	µg/Kg-dry	1	7/7/2016 05:21

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (1-2 ft)
Collection Date: 6/28/2016 02:27 PM

Work Order: 1607017
Lab ID: 1607017-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		13	76	µg/Kg-dry	1	7/7/2016 05:21
Butyl benzyl phthalate	U		13	76	µg/Kg-dry	1	7/7/2016 05:21
Caprolactam	U		26	76	µg/Kg-dry	1	7/7/2016 05:21
Carbazole	40	J	8.3	76	µg/Kg-dry	1	7/7/2016 05:21
Chrysene	310		12	15	µg/Kg-dry	1	7/7/2016 05:21
Dibenzo(a,h)anthracene	58		8.3	15	µg/Kg-dry	1	7/7/2016 05:21
Dibenzofuran	U		11	76	µg/Kg-dry	1	7/7/2016 05:21
Diethyl phthalate	U		12	76	µg/Kg-dry	1	7/7/2016 05:21
Dimethyl phthalate	U		15	76	µg/Kg-dry	1	7/7/2016 05:21
Di-n-butyl phthalate	U		14	76	µg/Kg-dry	1	7/7/2016 05:21
Di-n-octyl phthalate	U		15	76	µg/Kg-dry	1	7/7/2016 05:21
Fluoranthene	480		7.3	15	µg/Kg-dry	1	7/7/2016 05:21
Fluorene	U		11	15	µg/Kg-dry	1	7/7/2016 05:21
Hexachlorobenzene	U		22	76	µg/Kg-dry	1	7/7/2016 05:21
Hexachlorobutadiene	U		42	76	µg/Kg-dry	1	7/7/2016 05:21
Hexachlorocyclopentadiene	U		26	76	µg/Kg-dry	1	7/7/2016 05:21
Hexachloroethane	U		32	76	µg/Kg-dry	1	7/7/2016 05:21
Indeno(1,2,3-cd)pyrene	220		11	15	µg/Kg-dry	1	7/7/2016 05:21
Isophorone	U		15	380	µg/Kg-dry	1	7/7/2016 05:21
Naphthalene	U		9.8	15	µg/Kg-dry	1	7/7/2016 05:21
Nitrobenzene	U		26	380	µg/Kg-dry	1	7/7/2016 05:21
N-Nitrosodi-n-propylamine	U		13	76	µg/Kg-dry	1	7/7/2016 05:21
N-Nitrosodiphenylamine	U		7.3	76	µg/Kg-dry	1	7/7/2016 05:21
Pentachlorophenol	U		28	76	µg/Kg-dry	1	7/7/2016 05:21
Phenanthrene	250		7.1	15	µg/Kg-dry	1	7/7/2016 05:21
Phenol	U		19	76	µg/Kg-dry	1	7/7/2016 05:21
Pyrene	460		2.8	15	µg/Kg-dry	1	7/7/2016 05:21
Surr: 2,4,6-Tribromophenol	78.4			34-140	%REC	1	7/7/2016 05:21
Surr: 2-Fluorobiphenyl	67.6			12-100	%REC	1	7/7/2016 05:21
Surr: 2-Fluorophenol	80.7			33-117	%REC	1	7/7/2016 05:21
Surr: 4-Terphenyl-d14	89.9			25-137	%REC	1	7/7/2016 05:21
Surr: Nitrobenzene-d5	72.1			37-107	%REC	1	7/7/2016 05:21
Surr: Phenol-d6	78.5			40-106	%REC	1	7/7/2016 05:21
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	18		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (1-2 ft)
Collection Date: 6/28/2016 02:04 PM

Work Order: 1607017
Lab ID: 1607017-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/6/16		Analyst: JF
1,1'-Biphenyl	U		13	79	µg/Kg-dry	1	7/7/2016 23:41
2,4,5-Trichlorophenol	U		22	79	µg/Kg-dry	1	7/7/2016 23:41
2,4,6-Trichlorophenol	U		21	79	µg/Kg-dry	1	7/7/2016 23:41
2,4-Dichlorophenol	U		17	79	µg/Kg-dry	1	7/7/2016 23:41
2,4-Dimethylphenol	U		16	79	µg/Kg-dry	1	7/7/2016 23:41
2,4-Dinitrophenol	U		43	79	µg/Kg-dry	1	7/7/2016 23:41
2,4-Dinitrotoluene	U		21	79	µg/Kg-dry	1	7/7/2016 23:41
2,6-Dinitrotoluene	U		13	79	µg/Kg-dry	1	7/7/2016 23:41
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/7/2016 23:41
2-Chlorophenol	U		25	79	µg/Kg-dry	1	7/7/2016 23:41
2-Methylnaphthalene	U		8.2	16	µg/Kg-dry	1	7/7/2016 23:41
2-Methylphenol	U		22	79	µg/Kg-dry	1	7/7/2016 23:41
2-Nitroaniline	U		18	79	µg/Kg-dry	1	7/7/2016 23:41
2-Nitrophenol	U		23	79	µg/Kg-dry	1	7/7/2016 23:41
3&4-Methylphenol	U		16	79	µg/Kg-dry	1	7/7/2016 23:41
3,3'-Dichlorobenzidine	U		12	400	µg/Kg-dry	1	7/7/2016 23:41
3-Nitroaniline	U		18	79	µg/Kg-dry	1	7/7/2016 23:41
4,6-Dinitro-2-methylphenol	U		20	79	µg/Kg-dry	1	7/7/2016 23:41
4-Bromophenyl phenyl ether	U		22	79	µg/Kg-dry	1	7/7/2016 23:41
4-Chloro-3-methylphenol	U		23	79	µg/Kg-dry	1	7/7/2016 23:41
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/7/2016 23:41
4-Chlorophenyl phenyl ether	U		22	79	µg/Kg-dry	1	7/7/2016 23:41
4-Nitroaniline	U		120	400	µg/Kg-dry	1	7/7/2016 23:41
4-Nitrophenol	U		72	79	µg/Kg-dry	1	7/7/2016 23:41
Acenaphthene	U		12	16	µg/Kg-dry	1	7/7/2016 23:41
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/7/2016 23:41
Acetophenone	U		13	79	µg/Kg-dry	1	7/7/2016 23:41
Anthracene	21		11	16	µg/Kg-dry	1	7/7/2016 23:41
Atrazine	U		13	79	µg/Kg-dry	1	7/7/2016 23:41
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/7/2016 23:41
Benzo(a)anthracene	110		14	16	µg/Kg-dry	1	7/7/2016 23:41
Benzo(a)pyrene	130		9.9	16	µg/Kg-dry	1	7/7/2016 23:41
Benzo(b)fluoranthene	160		12	16	µg/Kg-dry	1	7/7/2016 23:41
Benzo(g,h,i)perylene	86		12	16	µg/Kg-dry	1	7/7/2016 23:41
Benzo(k)fluoranthene	81		12	16	µg/Kg-dry	1	7/7/2016 23:41
Bis(2-chloroethoxy)methane	U		7.7	79	µg/Kg-dry	1	7/7/2016 23:41
Bis(2-chloroethyl)ether	U		23	79	µg/Kg-dry	1	7/7/2016 23:41
Bis(2-chloroisopropyl)ether	U		19	79	µg/Kg-dry	1	7/7/2016 23:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (1-2 ft)
Collection Date: 6/28/2016 02:04 PM

Work Order: 1607017
Lab ID: 1607017-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	79	µg/Kg-dry	1	7/7/2016 23:41
Butyl benzyl phthalate	U		14	79	µg/Kg-dry	1	7/7/2016 23:41
Caprolactam	U		27	79	µg/Kg-dry	1	7/7/2016 23:41
Carbazole	62	J	8.7	79	µg/Kg-dry	1	7/7/2016 23:41
Chrysene	110		13	16	µg/Kg-dry	1	7/7/2016 23:41
Dibenzo(a,h)anthracene	50		8.7	16	µg/Kg-dry	1	7/7/2016 23:41
Dibenzofuran	U		12	79	µg/Kg-dry	1	7/7/2016 23:41
Diethyl phthalate	U		12	79	µg/Kg-dry	1	7/7/2016 23:41
Dimethyl phthalate	U		16	79	µg/Kg-dry	1	7/7/2016 23:41
Di-n-butyl phthalate	U		15	79	µg/Kg-dry	1	7/7/2016 23:41
Di-n-octyl phthalate	U		15	79	µg/Kg-dry	1	7/7/2016 23:41
Fluoranthene	200		7.7	16	µg/Kg-dry	1	7/7/2016 23:41
Fluorene	42		12	16	µg/Kg-dry	1	7/7/2016 23:41
Hexachlorobenzene	U		23	79	µg/Kg-dry	1	7/7/2016 23:41
Hexachlorobutadiene	U		44	79	µg/Kg-dry	1	7/7/2016 23:41
Hexachlorocyclopentadiene	U		27	79	µg/Kg-dry	1	7/7/2016 23:41
Hexachloroethane	U		33	79	µg/Kg-dry	1	7/7/2016 23:41
Indeno(1,2,3-cd)pyrene	110		11	16	µg/Kg-dry	1	7/7/2016 23:41
Isophorone	U		16	400	µg/Kg-dry	1	7/7/2016 23:41
Naphthalene	U		10	16	µg/Kg-dry	1	7/7/2016 23:41
Nitrobenzene	U		27	400	µg/Kg-dry	1	7/7/2016 23:41
N-Nitrosodi-n-propylamine	U		13	79	µg/Kg-dry	1	7/7/2016 23:41
N-Nitrosodiphenylamine	U		7.7	79	µg/Kg-dry	1	7/7/2016 23:41
Pentachlorophenol	U		30	79	µg/Kg-dry	1	7/7/2016 23:41
Phenanthrene	120		7.5	16	µg/Kg-dry	1	7/7/2016 23:41
Phenol	U		20	79	µg/Kg-dry	1	7/7/2016 23:41
Pyrene	180		2.9	16	µg/Kg-dry	1	7/7/2016 23:41
Surr: 2,4,6-Tribromophenol	68.9			34-140	%REC	1	7/7/2016 23:41
Surr: 2-Fluorobiphenyl	63.1			12-100	%REC	1	7/7/2016 23:41
Surr: 2-Fluorophenol	81.5			33-117	%REC	1	7/7/2016 23:41
Surr: 4-Terphenyl-d14	87.6			25-137	%REC	1	7/7/2016 23:41
Surr: Nitrobenzene-d5	64.1			37-107	%REC	1	7/7/2016 23:41
Surr: Phenol-d6	80.1			40-106	%REC	1	7/7/2016 23:41
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	18		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (1-2 ft)
Collection Date: 6/28/2016 02:13 PM

Work Order: 1607017
Lab ID: 1607017-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/6/16		Analyst: JF
1,1'-Biphenyl	49	J	13	80	µg/Kg-dry	1	7/8/2016 12:04
2,4,5-Trichlorophenol	U		22	80	µg/Kg-dry	1	7/8/2016 12:04
2,4,6-Trichlorophenol	U		22	80	µg/Kg-dry	1	7/8/2016 12:04
2,4-Dichlorophenol	U		17	80	µg/Kg-dry	1	7/8/2016 12:04
2,4-Dimethylphenol	U		17	80	µg/Kg-dry	1	7/8/2016 12:04
2,4-Dinitrophenol	U		44	80	µg/Kg-dry	1	7/8/2016 12:04
2,4-Dinitrotoluene	U		21	80	µg/Kg-dry	1	7/8/2016 12:04
2,6-Dinitrotoluene	U		13	80	µg/Kg-dry	1	7/8/2016 12:04
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 12:04
2-Chlorophenol	U		26	80	µg/Kg-dry	1	7/8/2016 12:04
2-Methylnaphthalene	19		8.2	16	µg/Kg-dry	1	7/8/2016 12:04
2-Methylphenol	U		22	80	µg/Kg-dry	1	7/8/2016 12:04
2-Nitroaniline	U		19	80	µg/Kg-dry	1	7/8/2016 12:04
2-Nitrophenol	U		23	80	µg/Kg-dry	1	7/8/2016 12:04
3&4-Methylphenol	U		16	80	µg/Kg-dry	1	7/8/2016 12:04
3,3'-Dichlorobenzidine	U		12	410	µg/Kg-dry	1	7/8/2016 12:04
3-Nitroaniline	U		19	80	µg/Kg-dry	1	7/8/2016 12:04
4,6-Dinitro-2-methylphenol	U		20	80	µg/Kg-dry	1	7/8/2016 12:04
4-Bromophenyl phenyl ether	U		22	80	µg/Kg-dry	1	7/8/2016 12:04
4-Chloro-3-methylphenol	U		23	80	µg/Kg-dry	1	7/8/2016 12:04
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 12:04
4-Chlorophenyl phenyl ether	U		22	80	µg/Kg-dry	1	7/8/2016 12:04
4-Nitroaniline	U		130	410	µg/Kg-dry	1	7/8/2016 12:04
4-Nitrophenol	U		72	80	µg/Kg-dry	1	7/8/2016 12:04
Acenaphthene	U		12	16	µg/Kg-dry	1	7/8/2016 12:04
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 12:04
Acetophenone	U		13	80	µg/Kg-dry	1	7/8/2016 12:04
Anthracene	66		11	16	µg/Kg-dry	1	7/8/2016 12:04
Atrazine	U		13	80	µg/Kg-dry	1	7/8/2016 12:04
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 12:04
Benzo(a)anthracene	360		14	16	µg/Kg-dry	1	7/8/2016 12:04
Benzo(a)pyrene	350		9.9	16	µg/Kg-dry	1	7/8/2016 12:04
Benzo(b)fluoranthene	530		12	16	µg/Kg-dry	1	7/8/2016 12:04
Benzo(g,h,i)perylene	240		12	16	µg/Kg-dry	1	7/8/2016 12:04
Benzo(k)fluoranthene	170		12	16	µg/Kg-dry	1	7/8/2016 12:04
Bis(2-chloroethoxy)methane	U		7.8	80	µg/Kg-dry	1	7/8/2016 12:04
Bis(2-chloroethyl)ether	U		23	80	µg/Kg-dry	1	7/8/2016 12:04
Bis(2-chloroisopropyl)ether	U		19	80	µg/Kg-dry	1	7/8/2016 12:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (1-2 ft)
Collection Date: 6/28/2016 02:13 PM

Work Order: 1607017
Lab ID: 1607017-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	80	µg/Kg-dry	1	7/8/2016 12:04
Butyl benzyl phthalate	U		14	80	µg/Kg-dry	1	7/8/2016 12:04
Caprolactam	U		28	80	µg/Kg-dry	1	7/8/2016 12:04
Carbazole	88		8.7	80	µg/Kg-dry	1	7/8/2016 12:04
Chrysene	380		13	16	µg/Kg-dry	1	7/8/2016 12:04
Dibenzo(a,h)anthracene	94		8.7	16	µg/Kg-dry	1	7/8/2016 12:04
Dibenzofuran	18	J	12	80	µg/Kg-dry	1	7/8/2016 12:04
Diethyl phthalate	U		12	80	µg/Kg-dry	1	7/8/2016 12:04
Dimethyl phthalate	U		16	80	µg/Kg-dry	1	7/8/2016 12:04
Di-n-butyl phthalate	U		15	80	µg/Kg-dry	1	7/8/2016 12:04
Di-n-octyl phthalate	U		16	80	µg/Kg-dry	1	7/8/2016 12:04
Fluoranthene	590		7.8	16	µg/Kg-dry	1	7/8/2016 12:04
Fluorene	48		12	16	µg/Kg-dry	1	7/8/2016 12:04
Hexachlorobenzene	U		24	80	µg/Kg-dry	1	7/8/2016 12:04
Hexachlorobutadiene	U		44	80	µg/Kg-dry	1	7/8/2016 12:04
Hexachlorocyclopentadiene	U		28	80	µg/Kg-dry	1	7/8/2016 12:04
Hexachloroethane	U		34	80	µg/Kg-dry	1	7/8/2016 12:04
Indeno(1,2,3-cd)pyrene	280		11	16	µg/Kg-dry	1	7/8/2016 12:04
Isophorone	U		16	410	µg/Kg-dry	1	7/8/2016 12:04
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 12:04
Nitrobenzene	U		27	410	µg/Kg-dry	1	7/8/2016 12:04
N-Nitrosodi-n-propylamine	U		13	80	µg/Kg-dry	1	7/8/2016 12:04
N-Nitrosodiphenylamine	U		7.8	80	µg/Kg-dry	1	7/8/2016 12:04
Pentachlorophenol	U		30	80	µg/Kg-dry	1	7/8/2016 12:04
Phenanthrene	310		7.5	16	µg/Kg-dry	1	7/8/2016 12:04
Phenol	U		20	80	µg/Kg-dry	1	7/8/2016 12:04
Pyrene	610		2.9	16	µg/Kg-dry	1	7/8/2016 12:04
Surr: 2,4,6-Tribromophenol	69.5			34-140	%REC	1	7/8/2016 12:04
Surr: 2-Fluorobiphenyl	65.9			12-100	%REC	1	7/8/2016 12:04
Surr: 2-Fluorophenol	81.4			33-117	%REC	1	7/8/2016 12:04
Surr: 4-Terphenyl-d14	89.5			25-137	%REC	1	7/8/2016 12:04
Surr: Nitrobenzene-d5	65.2			37-107	%REC	1	7/8/2016 12:04
Surr: Phenol-d6	79.8			40-106	%REC	1	7/8/2016 12:04
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/5/2016 21:03

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (1-2 ft)
Collection Date: 6/28/2016 03:05 PM

Work Order: 1607017
Lab ID: 1607017-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/6/16		Analyst: JF
1,1'-Biphenyl	U		13	76	µg/Kg-dry	1	7/8/2016 12:28
2,4,5-Trichlorophenol	U		21	76	µg/Kg-dry	1	7/8/2016 12:28
2,4,6-Trichlorophenol	U		21	76	µg/Kg-dry	1	7/8/2016 12:28
2,4-Dichlorophenol	U		16	76	µg/Kg-dry	1	7/8/2016 12:28
2,4-Dimethylphenol	U		16	76	µg/Kg-dry	1	7/8/2016 12:28
2,4-Dinitrophenol	U		42	76	µg/Kg-dry	1	7/8/2016 12:28
2,4-Dinitrotoluene	U		20	76	µg/Kg-dry	1	7/8/2016 12:28
2,6-Dinitrotoluene	U		13	76	µg/Kg-dry	1	7/8/2016 12:28
2-Chloronaphthalene	U		11	15	µg/Kg-dry	1	7/8/2016 12:28
2-Chlorophenol	U		24	76	µg/Kg-dry	1	7/8/2016 12:28
2-Methylnaphthalene	U		7.9	15	µg/Kg-dry	1	7/8/2016 12:28
2-Methylphenol	U		21	76	µg/Kg-dry	1	7/8/2016 12:28
2-Nitroaniline	U		18	76	µg/Kg-dry	1	7/8/2016 12:28
2-Nitrophenol	U		22	76	µg/Kg-dry	1	7/8/2016 12:28
3&4-Methylphenol	U		16	76	µg/Kg-dry	1	7/8/2016 12:28
3,3'-Dichlorobenzidine	U		11	390	µg/Kg-dry	1	7/8/2016 12:28
3-Nitroaniline	U		18	76	µg/Kg-dry	1	7/8/2016 12:28
4,6-Dinitro-2-methylphenol	280		19	76	µg/Kg-dry	1	7/8/2016 12:28
4-Bromophenyl phenyl ether	U		21	76	µg/Kg-dry	1	7/8/2016 12:28
4-Chloro-3-methylphenol	U		22	76	µg/Kg-dry	1	7/8/2016 12:28
4-Chloroaniline	U		12	160	µg/Kg-dry	1	7/8/2016 12:28
4-Chlorophenyl phenyl ether	U		21	76	µg/Kg-dry	1	7/8/2016 12:28
4-Nitroaniline	U		120	390	µg/Kg-dry	1	7/8/2016 12:28
4-Nitrophenol	U		69	76	µg/Kg-dry	1	7/8/2016 12:28
Acenaphthene	U		11	15	µg/Kg-dry	1	7/8/2016 12:28
Acenaphthylene	U		13	15	µg/Kg-dry	1	7/8/2016 12:28
Acetophenone	U		12	76	µg/Kg-dry	1	7/8/2016 12:28
Anthracene	36		11	15	µg/Kg-dry	1	7/8/2016 12:28
Atrazine	U		12	76	µg/Kg-dry	1	7/8/2016 12:28
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 12:28
Benzo(a)anthracene	230		13	15	µg/Kg-dry	1	7/8/2016 12:28
Benzo(a)pyrene	240		9.5	15	µg/Kg-dry	1	7/8/2016 12:28
Benzo(b)fluoranthene	330		12	15	µg/Kg-dry	1	7/8/2016 12:28
Benzo(g,h,i)perylene	170		12	15	µg/Kg-dry	1	7/8/2016 12:28
Benzo(k)fluoranthene	120		12	15	µg/Kg-dry	1	7/8/2016 12:28
Bis(2-chloroethoxy)methane	U		7.4	76	µg/Kg-dry	1	7/8/2016 12:28
Bis(2-chloroethyl)ether	U		22	76	µg/Kg-dry	1	7/8/2016 12:28
Bis(2-chloroisopropyl)ether	U		18	76	µg/Kg-dry	1	7/8/2016 12:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (1-2 ft)
Collection Date: 6/28/2016 03:05 PM

Work Order: 1607017
Lab ID: 1607017-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		13	76	µg/Kg-dry	1	7/8/2016 12:28
Butyl benzyl phthalate	U		13	76	µg/Kg-dry	1	7/8/2016 12:28
Caprolactam	U		26	76	µg/Kg-dry	1	7/8/2016 12:28
Carbazole	61	J	8.3	76	µg/Kg-dry	1	7/8/2016 12:28
Chrysene	220		12	15	µg/Kg-dry	1	7/8/2016 12:28
Dibenzo(a,h)anthracene	71		8.3	15	µg/Kg-dry	1	7/8/2016 12:28
Dibenzofuran	U		11	76	µg/Kg-dry	1	7/8/2016 12:28
Diethyl phthalate	U		12	76	µg/Kg-dry	1	7/8/2016 12:28
Dimethyl phthalate	U		15	76	µg/Kg-dry	1	7/8/2016 12:28
Di-n-butyl phthalate	U		14	76	µg/Kg-dry	1	7/8/2016 12:28
Di-n-octyl phthalate	U		15	76	µg/Kg-dry	1	7/8/2016 12:28
Fluoranthene	380		7.4	15	µg/Kg-dry	1	7/8/2016 12:28
Fluorene	42		11	15	µg/Kg-dry	1	7/8/2016 12:28
Hexachlorobenzene	U		22	76	µg/Kg-dry	1	7/8/2016 12:28
Hexachlorobutadiene	U		42	76	µg/Kg-dry	1	7/8/2016 12:28
Hexachlorocyclopentadiene	U		26	76	µg/Kg-dry	1	7/8/2016 12:28
Hexachloroethane	U		32	76	µg/Kg-dry	1	7/8/2016 12:28
Indeno(1,2,3-cd)pyrene	200		11	15	µg/Kg-dry	1	7/8/2016 12:28
Isophorone	U		15	390	µg/Kg-dry	1	7/8/2016 12:28
Naphthalene	U		9.9	15	µg/Kg-dry	1	7/8/2016 12:28
Nitrobenzene	U		26	390	µg/Kg-dry	1	7/8/2016 12:28
N-Nitrosodi-n-propylamine	U		13	76	µg/Kg-dry	1	7/8/2016 12:28
N-Nitrosodiphenylamine	U		7.4	76	µg/Kg-dry	1	7/8/2016 12:28
Pentachlorophenol	U		29	76	µg/Kg-dry	1	7/8/2016 12:28
Phenanthrene	160		7.2	15	µg/Kg-dry	1	7/8/2016 12:28
Phenol	U		19	76	µg/Kg-dry	1	7/8/2016 12:28
Pyrene	400		2.8	15	µg/Kg-dry	1	7/8/2016 12:28
Surr: 2,4,6-Tribromophenol	72.9			34-140	%REC	1	7/8/2016 12:28
Surr: 2-Fluorobiphenyl	68.1			12-100	%REC	1	7/8/2016 12:28
Surr: 2-Fluorophenol	84.7			33-117	%REC	1	7/8/2016 12:28
Surr: 4-Terphenyl-d14	94.9			25-137	%REC	1	7/8/2016 12:28
Surr: Nitrobenzene-d5	66.4			37-107	%REC	1	7/8/2016 12:28
Surr: Phenol-d6	83.9			40-106	%REC	1	7/8/2016 12:28
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	14		0.025	0.050	% of sample	1	7/6/2016 09:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (1-2 ft)
Collection Date: 6/28/2016 02:48 PM

Work Order: 1607017
Lab ID: 1607017-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D	Prep: SW3546 / 7/6/16		Analyst: JF	
1,1'-Biphenyl	U		12	75	µg/Kg-dry	1	7/8/2016 12:51
2,4,5-Trichlorophenol	U		21	75	µg/Kg-dry	1	7/8/2016 12:51
2,4,6-Trichlorophenol	U		20	75	µg/Kg-dry	1	7/8/2016 12:51
2,4-Dichlorophenol	U		16	75	µg/Kg-dry	1	7/8/2016 12:51
2,4-Dimethylphenol	U		15	75	µg/Kg-dry	1	7/8/2016 12:51
2,4-Dinitrophenol	U		41	75	µg/Kg-dry	1	7/8/2016 12:51
2,4-Dinitrotoluene	U		20	75	µg/Kg-dry	1	7/8/2016 12:51
2,6-Dinitrotoluene	U		12	75	µg/Kg-dry	1	7/8/2016 12:51
2-Chloronaphthalene	U		11	15	µg/Kg-dry	1	7/8/2016 12:51
2-Chlorophenol	U		24	75	µg/Kg-dry	1	7/8/2016 12:51
2-Methylnaphthalene	U		7.7	15	µg/Kg-dry	1	7/8/2016 12:51
2-Methylphenol	U		20	75	µg/Kg-dry	1	7/8/2016 12:51
2-Nitroaniline	U		17	75	µg/Kg-dry	1	7/8/2016 12:51
2-Nitrophenol	U		22	75	µg/Kg-dry	1	7/8/2016 12:51
3&4-Methylphenol	U		15	75	µg/Kg-dry	1	7/8/2016 12:51
3,3'-Dichlorobenzidine	U		11	380	µg/Kg-dry	1	7/8/2016 12:51
3-Nitroaniline	U		17	75	µg/Kg-dry	1	7/8/2016 12:51
4,6-Dinitro-2-methylphenol	U		19	75	µg/Kg-dry	1	7/8/2016 12:51
4-Bromophenyl phenyl ether	U		20	75	µg/Kg-dry	1	7/8/2016 12:51
4-Chloro-3-methylphenol	U		22	75	µg/Kg-dry	1	7/8/2016 12:51
4-Chloroaniline	U		12	150	µg/Kg-dry	1	7/8/2016 12:51
4-Chlorophenyl phenyl ether	U		21	75	µg/Kg-dry	1	7/8/2016 12:51
4-Nitroaniline	U		120	380	µg/Kg-dry	1	7/8/2016 12:51
4-Nitrophenol	U		68	75	µg/Kg-dry	1	7/8/2016 12:51
Acenaphthene	U		11	15	µg/Kg-dry	1	7/8/2016 12:51
Acenaphthylene	U		13	15	µg/Kg-dry	1	7/8/2016 12:51
Acetophenone	U		12	75	µg/Kg-dry	1	7/8/2016 12:51
Anthracene	26		11	15	µg/Kg-dry	1	7/8/2016 12:51
Atrazine	U		12	75	µg/Kg-dry	1	7/8/2016 12:51
Benzaldehyde	U		120	150	µg/Kg-dry	1	7/8/2016 12:51
Benzo(a)anthracene	190		13	15	µg/Kg-dry	1	7/8/2016 12:51
Benzo(a)pyrene	210		9.3	15	µg/Kg-dry	1	7/8/2016 12:51
Benzo(b)fluoranthene	280		11	15	µg/Kg-dry	1	7/8/2016 12:51
Benzo(g,h,i)perylene	140		12	15	µg/Kg-dry	1	7/8/2016 12:51
Benzo(k)fluoranthene	120		11	15	µg/Kg-dry	1	7/8/2016 12:51
Bis(2-chloroethoxy)methane	U		7.2	75	µg/Kg-dry	1	7/8/2016 12:51
Bis(2-chloroethyl)ether	U		21	75	µg/Kg-dry	1	7/8/2016 12:51
Bis(2-chloroisopropyl)ether	U		18	75	µg/Kg-dry	1	7/8/2016 12:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (1-2 ft)
Collection Date: 6/28/2016 02:48 PM

Work Order: 1607017
Lab ID: 1607017-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		13	75	µg/Kg-dry	1	7/8/2016 12:51
Butyl benzyl phthalate	U		13	75	µg/Kg-dry	1	7/8/2016 12:51
Caprolactam	U		26	75	µg/Kg-dry	1	7/8/2016 12:51
Carbazole	63	J	8.2	75	µg/Kg-dry	1	7/8/2016 12:51
Chrysene	210		12	15	µg/Kg-dry	1	7/8/2016 12:51
Dibenzo(a,h)anthracene	64		8.2	15	µg/Kg-dry	1	7/8/2016 12:51
Dibenzofuran	U		11	75	µg/Kg-dry	1	7/8/2016 12:51
Diethyl phthalate	U		12	75	µg/Kg-dry	1	7/8/2016 12:51
Dimethyl phthalate	U		15	75	µg/Kg-dry	1	7/8/2016 12:51
Di-n-butyl phthalate	U		14	75	µg/Kg-dry	1	7/8/2016 12:51
Di-n-octyl phthalate	U		14	75	µg/Kg-dry	1	7/8/2016 12:51
Fluoranthene	310		7.2	15	µg/Kg-dry	1	7/8/2016 12:51
Fluorene	39		11	15	µg/Kg-dry	1	7/8/2016 12:51
Hexachlorobenzene	U		22	75	µg/Kg-dry	1	7/8/2016 12:51
Hexachlorobutadiene	U		41	75	µg/Kg-dry	1	7/8/2016 12:51
Hexachlorocyclopentadiene	U		26	75	µg/Kg-dry	1	7/8/2016 12:51
Hexachloroethane	U		31	75	µg/Kg-dry	1	7/8/2016 12:51
Indeno(1,2,3-cd)pyrene	160		11	15	µg/Kg-dry	1	7/8/2016 12:51
Isophorone	U		15	380	µg/Kg-dry	1	7/8/2016 12:51
Naphthalene	U		9.7	15	µg/Kg-dry	1	7/8/2016 12:51
Nitrobenzene	U		25	380	µg/Kg-dry	1	7/8/2016 12:51
N-Nitrosodi-n-propylamine	U		12	75	µg/Kg-dry	1	7/8/2016 12:51
N-Nitrosodiphenylamine	U		7.2	75	µg/Kg-dry	1	7/8/2016 12:51
Pentachlorophenol	U		28	75	µg/Kg-dry	1	7/8/2016 12:51
Phenanthrene	150		7.0	15	µg/Kg-dry	1	7/8/2016 12:51
Phenol	U		19	75	µg/Kg-dry	1	7/8/2016 12:51
Pyrene	330		2.7	15	µg/Kg-dry	1	7/8/2016 12:51
Surr: 2,4,6-Tribromophenol	69.2			34-140	%REC	1	7/8/2016 12:51
Surr: 2-Fluorobiphenyl	64.5			12-100	%REC	1	7/8/2016 12:51
Surr: 2-Fluorophenol	85.9			33-117	%REC	1	7/8/2016 12:51
Surr: 4-Terphenyl-d14	87.5			25-137	%REC	1	7/8/2016 12:51
Surr: Nitrobenzene-d5	64.2			37-107	%REC	1	7/8/2016 12:51
Surr: Phenol-d6	82.2			40-106	%REC	1	7/8/2016 12:51
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	16		0.025	0.050	% of sample	1	7/6/2016 09:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-61 (4'-5')
Collection Date: 6/27/2016 02:15 PM

Work Order: 1607017
Lab ID: 1607017-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	13		1.6	9.9	mg/Kg-dry	1	7/6/2016 19:12
ORO (C20-C34)	14		3.2	9.9	mg/Kg-dry	1	7/6/2016 19:12
Surr: 4-Terphenyl-d14	71.9			39-133	%REC	1	7/6/2016 19:12
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,100	4,100	µg/Kg-dry	1	7/7/2016 08:50
Surr: a,a,a-Trifluorotoluene	93.4			80-120	%REC	1	7/7/2016 08:50
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.032		0.0024	0.014	mg/Kg-dry	1	7/7/2016 19:56
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	5.7		0.13	0.49	mg/Kg-dry	1	7/9/2016 20:09
Barium	94		0.20	0.49	mg/Kg-dry	1	7/9/2016 20:09
Cadmium	0.073	J	0.047	0.98	mg/Kg-dry	1	7/9/2016 20:09
Chromium	13		0.027	0.49	mg/Kg-dry	1	7/9/2016 20:09
Lead	8.4		0.10	0.49	mg/Kg-dry	1	7/9/2016 20:09
Selenium	U		0.27	0.98	mg/Kg-dry	1	7/9/2016 20:09
Silver	U		0.061	0.49	mg/Kg-dry	1	7/9/2016 20:09
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.14	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,1,2,2-Tetrachloroethane	U		0.10	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,1,2-Trichloroethane	U		0.56	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,1,2-Trichlorotrifluoroethane	U		0.16	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,1-Dichloroethane	U		0.12	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,1-Dichloroethene	U		0.16	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,2,4-Trichlorobenzene	U		0.12	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,2-Dibromo-3-chloropropane	U		0.47	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,2-Dibromoethane	U		0.14	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,2-Dichlorobenzene	U		0.080	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,2-Dichloroethane	U		0.14	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,2-Dichloropropane	U		0.32	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,3-Dichlorobenzene	U		0.075	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
1,4-Dichlorobenzene	U		0.16	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
2-Butanone	9.4		0.77	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
2-Hexanone	U		0.60	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
4-Methyl-2-pentanone	U		0.17	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Acetone	53		1.4	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
Benzene	U		0.088	4.5	µg/Kg-dry	0.759	7/10/2016 18:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-61 (4'-5')
Collection Date: 6/27/2016 02:15 PM

Work Order: 1607017
Lab ID: 1607017-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.098	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Bromoform	U		0.13	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Bromomethane	U		0.28	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
Carbon disulfide	U		0.17	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Carbon tetrachloride	U		0.22	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Chlorobenzene	U		0.14	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Chloroethane	U		0.47	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Chloroform	U		0.18	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Chloromethane	U		0.24	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
cis-1,2-Dichloroethene	U		0.11	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
cis-1,3-Dichloropropene	U		0.10	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Cyclohexane	U		0.15	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Dibromochloromethane	U		0.13	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Dichlorodifluoromethane	U		0.23	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
Ethylbenzene	U		0.10	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Isopropylbenzene	U		0.13	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
m,p-Xylene	U		0.33	2.3	µg/Kg-dry	0.759	7/10/2016 18:07
Methyl acetate	U		0.41	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
Methyl tert-butyl ether	U		0.17	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Methylcyclohexane	U		0.20	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
Methylene chloride	U		0.12	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
o-Xylene	U		0.16	2.3	µg/Kg-dry	0.759	7/10/2016 18:07
Styrene	U		0.27	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Tetrachloroethene	U		0.20	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Toluene	0.23	J	0.11	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
trans-1,2-Dichloroethene	U		0.21	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
trans-1,3-Dichloropropene	U		0.15	9.1	µg/Kg-dry	0.759	7/10/2016 18:07
Trichloroethene	U		0.17	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Trichlorofluoromethane	U		0.25	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Vinyl chloride	U		0.15	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Xylenes, Total	U		0.49	4.5	µg/Kg-dry	0.759	7/10/2016 18:07
Surr: 1,2-Dichloroethane-d4	105			70-120	%REC	0.759	7/10/2016 18:07
Surr: 4-Bromofluorobenzene	96.8			75-120	%REC	0.759	7/10/2016 18:07
Surr: Dibromofluoromethane	96.5			85-115	%REC	0.759	7/10/2016 18:07
Surr: Toluene-d8	97.8			85-120	%REC	0.759	7/10/2016 18:07

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	16	0.025	0.050	% of sample	1	7/6/2016 09:18
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-62 (16'-17')
Collection Date: 6/27/2016 03:56 PM

Work Order: 1607017
Lab ID: 1607017-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	84		1.6	10	mg/Kg-dry	1	7/6/2016 19:42
ORO (C20-C34)	130		3.4	10	mg/Kg-dry	1	7/6/2016 19:42
Surr: 4-Terphenyl-d14	72.5			39-133	%REC	1	7/6/2016 19:42
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	140,000		1,200	4,700	µg/Kg-dry	1	7/7/2016 09:15
Surr: a,a,a-Trifluorotoluene	95.8			80-120	%REC	1	7/7/2016 09:15
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.87		0.014	0.086	mg/Kg-dry	5	7/8/2016 14:28
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	7.0		0.13	0.48	mg/Kg-dry	1	7/9/2016 20:14
Barium	230		0.19	0.48	mg/Kg-dry	1	7/9/2016 20:14
Cadmium	0.068	J	0.046	0.97	mg/Kg-dry	1	7/9/2016 20:14
Chromium	16		0.027	0.48	mg/Kg-dry	1	7/9/2016 20:14
Lead	260		0.10	0.48	mg/Kg-dry	1	7/9/2016 20:14
Selenium	U		0.27	0.97	mg/Kg-dry	1	7/9/2016 20:14
Silver	U		0.060	0.48	mg/Kg-dry	1	7/9/2016 20:14
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B		Prep: SW5035 / 7/6/16		Analyst: AK
1,1,1-Trichloroethane	U		13	45	µg/Kg	1	7/9/2016 03:55
1,1,2,2-Tetrachloroethane	U		11	45	µg/Kg	1	7/9/2016 03:55
1,1,2-Trichloroethane	U		13	45	µg/Kg	1	7/9/2016 03:55
1,1,2-Trichlorotrifluoroethane	U		10	45	µg/Kg	1	7/9/2016 03:55
1,1-Dichloroethane	U		11	45	µg/Kg	1	7/9/2016 03:55
1,1-Dichloroethene	U		12	45	µg/Kg	1	7/9/2016 03:55
1,2,4-Trichlorobenzene	U		33	45	µg/Kg	1	7/9/2016 03:55
1,2-Dibromo-3-chloropropane	U		18	45	µg/Kg	1	7/9/2016 03:55
1,2-Dibromoethane	U		15	45	µg/Kg	1	7/9/2016 03:55
1,2-Dichlorobenzene	U		13	45	µg/Kg	1	7/9/2016 03:55
1,2-Dichloroethane	U		12	45	µg/Kg	1	7/9/2016 03:55
1,2-Dichloropropane	U		12	45	µg/Kg	1	7/9/2016 03:55
1,3-Dichlorobenzene	U		14	45	µg/Kg	1	7/9/2016 03:55
1,4-Dichlorobenzene	U		12	45	µg/Kg	1	7/9/2016 03:55
2-Butanone	U		61	300	µg/Kg	1	7/9/2016 03:55
2-Hexanone	U		30	45	µg/Kg	1	7/9/2016 03:55
4-Methyl-2-pentanone	U		33	45	µg/Kg	1	7/9/2016 03:55
Acetone	U		82	150	µg/Kg	1	7/9/2016 03:55
Benzene	U		10	45	µg/Kg	1	7/9/2016 03:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-62 (16'-17')
Collection Date: 6/27/2016 03:56 PM

Work Order: 1607017
Lab ID: 1607017-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		12	45	µg/Kg	1	7/9/2016 03:55
Bromoform	U		16	45	µg/Kg	1	7/9/2016 03:55
Bromomethane	U		20	110	µg/Kg	1	7/9/2016 03:55
Carbon disulfide	90		15	45	µg/Kg	1	7/9/2016 03:55
Carbon tetrachloride	U		8.0	45	µg/Kg	1	7/9/2016 03:55
Chlorobenzene	U		14	45	µg/Kg	1	7/9/2016 03:55
Chloroethane	U		29	150	µg/Kg	1	7/9/2016 03:55
Chloroform	U		15	45	µg/Kg	1	7/9/2016 03:55
Chloromethane	U		18	150	µg/Kg	1	7/9/2016 03:55
cis-1,2-Dichloroethene	U		13	45	µg/Kg	1	7/9/2016 03:55
cis-1,3-Dichloropropene	U		17	45	µg/Kg	1	7/9/2016 03:55
Cyclohexane	U		22	45	µg/Kg	1	7/9/2016 03:55
Dibromochloromethane	U		10	45	µg/Kg	1	7/9/2016 03:55
Dichlorodifluoromethane	U		20	45	µg/Kg	1	7/9/2016 03:55
Ethylbenzene	500		10	45	µg/Kg	1	7/9/2016 03:55
Isopropylbenzene	300		18	45	µg/Kg	1	7/9/2016 03:55
m,p-Xylene	28	J	20	90	µg/Kg	1	7/9/2016 03:55
Methyl acetate	U		92	300	µg/Kg	1	7/9/2016 03:55
Methyl tert-butyl ether	U		15	45	µg/Kg	1	7/9/2016 03:55
Methylcyclohexane	U		19	45	µg/Kg	1	7/9/2016 03:55
Methylene chloride	U		21	45	µg/Kg	1	7/9/2016 03:55
o-Xylene	U		15	45	µg/Kg	1	7/9/2016 03:55
Styrene	U		32	45	µg/Kg	1	7/9/2016 03:55
Tetrachloroethene	U		22	45	µg/Kg	1	7/9/2016 03:55
Toluene	U		15	45	µg/Kg	1	7/9/2016 03:55
trans-1,2-Dichloroethene	U		13	45	µg/Kg	1	7/9/2016 03:55
trans-1,3-Dichloropropene	U		8.0	45	µg/Kg	1	7/9/2016 03:55
Trichloroethene	U		12	45	µg/Kg	1	7/9/2016 03:55
Trichlorofluoromethane	U		8.7	45	µg/Kg	1	7/9/2016 03:55
Vinyl chloride	U		14	45	µg/Kg	1	7/9/2016 03:55
Xylenes, Total	U		35	140	µg/Kg	1	7/9/2016 03:55
Surr: 1,2-Dichloroethane-d4	97.7			70-130	%REC	1	7/9/2016 03:55
Surr: 4-Bromofluorobenzene	105			70-130	%REC	1	7/9/2016 03:55
Surr: Dibromofluoromethane	96.6			70-130	%REC	1	7/9/2016 03:55
Surr: Toluene-d8	95.6			70-130	%REC	1	7/9/2016 03:55
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/6/2016 09:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-63 (6'-8')
Collection Date: 6/28/2016 11:20 AM

Work Order: 1607017
Lab ID: 1607017-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	43		1.7	11	mg/Kg-dry	1	7/6/2016 20:12
ORO (C20-C34)	87		3.5	11	mg/Kg-dry	1	7/6/2016 20:12
Surr: 4-Terphenyl-d14	67.5			39-133	%REC	1	7/6/2016 20:12
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,300	5,200	µg/Kg-dry	1	7/7/2016 09:40
Surr: a,a,a-Trifluorotoluene	95.4			80-120	%REC	1	7/7/2016 09:40
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.38		0.0061	0.037	mg/Kg-dry	2	7/8/2016 14:31
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	16		0.14	0.54	mg/Kg-dry	1	7/9/2016 20:36
Barium	1,700		0.21	0.54	mg/Kg-dry	1	7/9/2016 20:36
Cadmium	12		0.051	1.1	mg/Kg-dry	1	7/9/2016 20:36
Chromium	19		0.030	0.54	mg/Kg-dry	1	7/9/2016 20:36
Lead	5,600		0.11	0.54	mg/Kg-dry	1	7/9/2016 20:36
Selenium	1.1	J	0.30	1.1	mg/Kg-dry	1	7/9/2016 20:36
Silver	0.29	J	0.067	0.54	mg/Kg-dry	1	7/9/2016 20:36
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.21	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,1,2,2-Tetrachloroethane	U		0.15	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,1,2-Trichloroethane	U		0.83	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,1,2-Trichlorotrifluoroethane	U		0.24	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,1-Dichloroethane	U		0.18	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,1-Dichloroethene	U		0.23	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,2,4-Trichlorobenzene	U		0.18	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,2-Dibromo-3-chloropropane	U		0.70	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,2-Dibromoethane	U		0.21	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,2-Dichlorobenzene	U		0.12	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,2-Dichloroethane	U		0.21	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,2-Dichloropropane	U		0.48	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,3-Dichlorobenzene	U		0.11	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
1,4-Dichlorobenzene	U		0.23	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
2-Butanone	7.1	J	1.1	13	µg/Kg-dry	1.03	7/11/2016 23:44
2-Hexanone	U		0.89	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
4-Methyl-2-pentanone	U		0.25	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Acetone	55		2.0	13	µg/Kg-dry	1.03	7/11/2016 23:44
Benzene	U		0.13	6.7	µg/Kg-dry	1.03	7/11/2016 23:44

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-63 (6'-8')
Collection Date: 6/28/2016 11:20 AM

Work Order: 1607017
Lab ID: 1607017-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.14	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Bromoform	U		0.20	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Bromomethane	U		0.41	13	µg/Kg-dry	1.03	7/11/2016 23:44
Carbon disulfide	3.2	J	0.25	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Carbon tetrachloride	U		0.32	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Chlorobenzene	U		0.21	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Chloroethane	U		0.70	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Chloroform	1.6	J	0.27	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Chloromethane	U		0.35	13	µg/Kg-dry	1.03	7/11/2016 23:44
cis-1,2-Dichloroethene	U		0.16	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
cis-1,3-Dichloropropene	U		0.15	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Cyclohexane	U		0.23	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Dibromochloromethane	U		0.20	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Dichlorodifluoromethane	U		0.34	13	µg/Kg-dry	1.03	7/11/2016 23:44
Ethylbenzene	U		0.16	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Isopropylbenzene	U		0.20	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
m,p-Xylene	U		0.49	3.4	µg/Kg-dry	1.03	7/11/2016 23:44
Methyl acetate	U		0.60	13	µg/Kg-dry	1.03	7/11/2016 23:44
Methyl tert-butyl ether	U		0.25	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Methylcyclohexane	U		0.29	13	µg/Kg-dry	1.03	7/11/2016 23:44
Methylene chloride	U		0.18	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
o-Xylene	U		0.24	3.4	µg/Kg-dry	1.03	7/11/2016 23:44
Styrene	U		0.40	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Tetrachloroethene	U		0.30	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Toluene	U		0.17	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
trans-1,2-Dichloroethene	U		0.31	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
trans-1,3-Dichloropropene	U		0.22	13	µg/Kg-dry	1.03	7/11/2016 23:44
Trichloroethene	U		0.26	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Trichlorofluoromethane	U		0.36	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Vinyl chloride	U		0.22	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Xylenes, Total	U		0.72	6.7	µg/Kg-dry	1.03	7/11/2016 23:44
Surr: 1,2-Dichloroethane-d4	104			70-120	%REC	1.03	7/11/2016 23:44
Surr: 4-Bromofluorobenzene	93.4			75-120	%REC	1.03	7/11/2016 23:44
Surr: Dibromofluoromethane	95.9			85-115	%REC	1.03	7/11/2016 23:44
Surr: Toluene-d8	97.8			85-120	%REC	1.03	7/11/2016 23:44

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	23	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-64 (6'-8')
Collection Date: 6/28/2016 10:00 AM

Work Order: 1607017
Lab ID: 1607017-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	43		1.5	9.8	mg/Kg-dry	1	7/6/2016 20:42
ORO (C20-C34)	110		3.2	9.8	mg/Kg-dry	1	7/6/2016 20:42
Surr: 4-Terphenyl-d14	78.9			39-133	%REC	1	7/6/2016 20:42
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,100	4,400	µg/Kg-dry	1	7/7/2016 10:05
Surr: a,a,a-Trifluorotoluene	99.8			80-120	%REC	1	7/7/2016 10:05
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.025		0.0027	0.016	mg/Kg-dry	1	7/7/2016 20:02
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	9.0		0.10	0.39	mg/Kg-dry	1	7/9/2016 20:42
Barium	140		0.16	0.39	mg/Kg-dry	1	7/9/2016 20:42
Cadmium	U		0.037	0.78	mg/Kg-dry	1	7/9/2016 20:42
Chromium	20		0.022	0.39	mg/Kg-dry	1	7/9/2016 20:42
Lead	9.5		0.082	0.39	mg/Kg-dry	1	7/9/2016 20:42
Selenium	U		0.22	0.78	mg/Kg-dry	1	7/9/2016 20:42
Silver	U		0.048	0.39	mg/Kg-dry	1	7/9/2016 20:42
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.16	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,1,2,2-Tetrachloroethane	U		0.12	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,1,2-Trichloroethane	U		0.63	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,1,2-Trichlorotrifluoroethane	U		0.18	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,1-Dichloroethane	U		0.13	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,1-Dichloroethene	U		0.18	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,2,4-Trichlorobenzene	U		0.14	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,2-Dibromo-3-chloropropane	U		0.53	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,2-Dibromoethane	U		0.16	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,2-Dichlorobenzene	U		0.090	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,2-Dichloroethane	U		0.16	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,2-Dichloropropane	U		0.36	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,3-Dichlorobenzene	U		0.084	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
1,4-Dichlorobenzene	U		0.18	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
2-Butanone	U		0.86	10	µg/Kg-dry	0.831	7/10/2016 18:31
2-Hexanone	U		0.68	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
4-Methyl-2-pentanone	U		0.19	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Acetone	25		1.5	10	µg/Kg-dry	0.831	7/10/2016 18:31
Benzene	U		0.099	5.1	µg/Kg-dry	0.831	7/10/2016 18:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-64 (6'-8')
Collection Date: 6/28/2016 10:00 AM

Work Order: 1607017
Lab ID: 1607017-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.11	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Bromoform	U		0.15	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Bromomethane	U		0.31	10	µg/Kg-dry	0.831	7/10/2016 18:31
Carbon disulfide	0.79	J	0.19	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Carbon tetrachloride	U		0.24	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Chlorobenzene	U		0.16	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Chloroethane	U		0.53	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Chloroform	U		0.20	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Chloromethane	U		0.26	10	µg/Kg-dry	0.831	7/10/2016 18:31
cis-1,2-Dichloroethene	U		0.12	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
cis-1,3-Dichloropropene	U		0.12	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Cyclohexane	U		0.17	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Dibromochloromethane	U		0.15	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Dichlorodifluoromethane	U		0.26	10	µg/Kg-dry	0.831	7/10/2016 18:31
Ethylbenzene	U		0.12	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Isopropylbenzene	U		0.15	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
m,p-Xylene	U		0.37	2.5	µg/Kg-dry	0.831	7/10/2016 18:31
Methyl acetate	U		0.46	10	µg/Kg-dry	0.831	7/10/2016 18:31
Methyl tert-butyl ether	U		0.19	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Methylcyclohexane	U		0.22	10	µg/Kg-dry	0.831	7/10/2016 18:31
Methylene chloride	U		0.14	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
o-Xylene	U		0.19	2.5	µg/Kg-dry	0.831	7/10/2016 18:31
Styrene	U		0.30	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Tetrachloroethene	U		0.22	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Toluene	U		0.13	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
trans-1,2-Dichloroethene	U		0.24	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
trans-1,3-Dichloropropene	U		0.17	10	µg/Kg-dry	0.831	7/10/2016 18:31
Trichloroethene	U		0.19	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Trichlorofluoromethane	U		0.28	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Vinyl chloride	U		0.17	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Xylenes, Total	U		0.55	5.1	µg/Kg-dry	0.831	7/10/2016 18:31
Surr: 1,2-Dichloroethane-d4	102			70-120	%REC	0.831	7/10/2016 18:31
Surr: 4-Bromofluorobenzene	97.0			75-120	%REC	0.831	7/10/2016 18:31
Surr: Dibromofluoromethane	95.8			85-115	%REC	0.831	7/10/2016 18:31
Surr: Toluene-d8	99.2			85-120	%REC	0.831	7/10/2016 18:31

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	18	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-65 (2'-4')
Collection Date: 6/28/2016 08:25 AM

Work Order: 1607017
Lab ID: 1607017-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	16		1.7	11	mg/Kg-dry	1	7/6/2016 21:12
ORO (C20-C34)	31		3.4	11	mg/Kg-dry	1	7/6/2016 21:12
Surr: 4-Terphenyl-d14	64.5			39-133	%REC	1	7/6/2016 21:12
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,300	4,900	µg/Kg-dry	1	7/7/2016 10:30
Surr: a,a,a-Trifluorotoluene	96.0			80-120	%REC	1	7/7/2016 10:30
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.021		0.0026	0.016	mg/Kg-dry	1	7/7/2016 20:04
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	8.9		0.11	0.44	mg/Kg-dry	1	7/9/2016 20:47
Barium	300		0.18	0.44	mg/Kg-dry	1	7/9/2016 20:47
Cadmium	0.88		0.042	0.88	mg/Kg-dry	1	7/9/2016 20:47
Chromium	13		0.025	0.44	mg/Kg-dry	1	7/9/2016 20:47
Lead	22		0.093	0.44	mg/Kg-dry	1	7/9/2016 20:47
Selenium	0.56	J	0.25	0.88	mg/Kg-dry	1	7/9/2016 20:47
Silver	U		0.054	0.44	mg/Kg-dry	1	7/9/2016 20:47
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.17	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,1,2,2-Tetrachloroethane	U		0.13	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,1,2-Trichloroethane	U		0.69	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,1,2-Trichlorotrifluoroethane	U		0.20	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,1-Dichloroethane	U		0.15	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,1-Dichloroethene	U		0.19	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,2,4-Trichlorobenzene	U		0.15	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,2-Dibromo-3-chloropropane	U		0.58	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,2-Dibromoethane	U		0.17	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,2-Dichlorobenzene	U		0.099	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,2-Dichloroethane	U		0.17	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,2-Dichloropropane	U		0.40	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,3-Dichlorobenzene	U		0.093	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
1,4-Dichlorobenzene	U		0.19	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
2-Butanone	7.8	J	0.95	11	µg/Kg-dry	0.882	7/10/2016 18:55
2-Hexanone	U		0.75	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
4-Methyl-2-pentanone	U		0.21	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Acetone	41		1.7	11	µg/Kg-dry	0.882	7/10/2016 18:55
Benzene	U		0.11	5.6	µg/Kg-dry	0.882	7/10/2016 18:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-65 (2'-4')
Collection Date: 6/28/2016 08:25 AM

Work Order: 1607017
Lab ID: 1607017-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.12	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Bromoform	U		0.16	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Bromomethane	U		0.34	11	µg/Kg-dry	0.882	7/10/2016 18:55
Carbon disulfide	9.7		0.21	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Carbon tetrachloride	U		0.27	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Chlorobenzene	U		0.18	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Chloroethane	U		0.59	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Chloroform	U		0.23	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Chloromethane	U		0.29	11	µg/Kg-dry	0.882	7/10/2016 18:55
cis-1,2-Dichloroethene	U		0.13	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
cis-1,3-Dichloropropene	U		0.13	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Cyclohexane	U		0.19	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Dibromochloromethane	U		0.16	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Dichlorodifluoromethane	U		0.28	11	µg/Kg-dry	0.882	7/10/2016 18:55
Ethylbenzene	U		0.13	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Isopropylbenzene	U		0.16	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
m,p-Xylene	U		0.41	2.8	µg/Kg-dry	0.882	7/10/2016 18:55
Methyl acetate	U		0.51	11	µg/Kg-dry	0.882	7/10/2016 18:55
Methyl tert-butyl ether	U		0.21	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Methylcyclohexane	U		0.24	11	µg/Kg-dry	0.882	7/10/2016 18:55
Methylene chloride	U		0.15	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
o-Xylene	U		0.20	2.8	µg/Kg-dry	0.882	7/10/2016 18:55
Styrene	U		0.33	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Tetrachloroethene	U		0.25	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Toluene	U		0.14	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
trans-1,2-Dichloroethene	U		0.26	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
trans-1,3-Dichloropropene	U		0.18	11	µg/Kg-dry	0.882	7/10/2016 18:55
Trichloroethene	U		0.21	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Trichlorofluoromethane	U		0.30	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Vinyl chloride	U		0.19	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Xylenes, Total	U		0.61	5.6	µg/Kg-dry	0.882	7/10/2016 18:55
Surr: 1,2-Dichloroethane-d4	101			70-120	%REC	0.882	7/10/2016 18:55
Surr: 4-Bromofluorobenzene	97.4			75-120	%REC	0.882	7/10/2016 18:55
Surr: Dibromofluoromethane	96.4			85-115	%REC	0.882	7/10/2016 18:55
Surr: Toluene-d8	99.1			85-120	%REC	0.882	7/10/2016 18:55

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	21	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-51 (3-4 ft)
Collection Date: 6/27/2016 04:25 PM

Work Order: 1607017
Lab ID: 1607017-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
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MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.047		0.0028	0.017	mg/Kg-dry	1	7/7/2016 20:07
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	13		0.11	0.41	mg/Kg-dry	1	7/9/2016 20:52
Barium	150		0.17	0.41	mg/Kg-dry	1	7/9/2016 20:52
Cadmium	U		0.040	0.83	mg/Kg-dry	1	7/9/2016 20:52
Chromium	16		0.023	0.41	mg/Kg-dry	1	7/9/2016 20:52
Lead	23		0.088	0.41	mg/Kg-dry	1	7/9/2016 20:52
Selenium	0.31	J	0.23	0.83	mg/Kg-dry	1	7/9/2016 20:52
Silver	U		0.051	0.41	mg/Kg-dry	1	7/9/2016 20:52
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-52 (3-4 ft)
Collection Date: 6/27/2016 04:48 PM

Work Order: 1607017
Lab ID: 1607017-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
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MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.046		0.0026	0.016	mg/Kg-dry	1	7/7/2016 20:13
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	27		0.13	0.51	mg/Kg-dry	1	7/9/2016 20:58
Barium	450		0.21	0.51	mg/Kg-dry	1	7/9/2016 20:58
Cadmium	U		0.049	1.0	mg/Kg-dry	1	7/9/2016 20:58
Chromium	22		0.029	0.51	mg/Kg-dry	1	7/9/2016 20:58
Lead	30		0.11	0.51	mg/Kg-dry	1	7/9/2016 20:58
Selenium	0.56	J	0.29	1.0	mg/Kg-dry	1	7/9/2016 20:58
Silver	U		0.064	0.51	mg/Kg-dry	1	7/9/2016 20:58
<hr/>							
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-53 (3-4 ft)
Collection Date: 6/28/2016 11:55 AM

Work Order: 1607017
Lab ID: 1607017-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.069		0.0029	0.017	mg/Kg-dry	1	7/7/2016 20:24
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	15		0.14	0.52	mg/Kg-dry	1	7/9/2016 21:03
Barium	280		0.21	0.52	mg/Kg-dry	1	7/9/2016 21:03
Cadmium	U		0.050	1.0	mg/Kg-dry	1	7/9/2016 21:03
Chromium	23		0.029	0.52	mg/Kg-dry	1	7/9/2016 21:03
Lead	14		0.11	0.52	mg/Kg-dry	1	7/9/2016 21:03
Selenium	0.31	J	0.29	1.0	mg/Kg-dry	1	7/9/2016 21:03
Silver	U		0.064	0.52	mg/Kg-dry	1	7/9/2016 21:03
<hr/>							
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-54 (3-4 ft)
Collection Date: 6/28/2016 12:15 PM

Work Order: 1607017
Lab ID: 1607017-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.052		0.0027	0.017	mg/Kg-dry	1	7/7/2016 20:27
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	14		0.13	0.50	mg/Kg-dry	1	7/9/2016 21:09
Barium	150		0.20	0.50	mg/Kg-dry	1	7/9/2016 21:09
Cadmium	U		0.048	1.0	mg/Kg-dry	1	7/9/2016 21:09
Chromium	22		0.028	0.50	mg/Kg-dry	1	7/9/2016 21:09
Lead	21		0.11	0.50	mg/Kg-dry	1	7/9/2016 21:09
Selenium	U		0.28	1.0	mg/Kg-dry	1	7/9/2016 21:09
Silver	U		0.062	0.50	mg/Kg-dry	1	7/9/2016 21:09
<hr/>							
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-55 (3-4 ft)
Collection Date: 6/28/2016 01:37 PM

Work Order: 1607017
Lab ID: 1607017-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.28		0.0053	0.032	mg/Kg-dry	2	7/8/2016 14:33
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	9.0		0.11	0.44	mg/Kg-dry	1	7/9/2016 21:14
Barium	350		0.18	0.44	mg/Kg-dry	1	7/9/2016 21:14
Cadmium	1.4		0.042	0.88	mg/Kg-dry	1	7/9/2016 21:14
Chromium	17		0.025	0.44	mg/Kg-dry	1	7/9/2016 21:14
Lead	390		0.093	0.44	mg/Kg-dry	1	7/9/2016 21:14
Selenium	0.85	J	0.25	0.88	mg/Kg-dry	1	7/9/2016 21:14
Silver	0.078	J	0.055	0.44	mg/Kg-dry	1	7/9/2016 21:14
<hr/>							
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	16		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (3-4 ft)
Collection Date: 6/28/2016 02:28 PM

Work Order: 1607017
Lab ID: 1607017-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/6/16		Analyst: JF
1,1'-Biphenyl	U		13	81	µg/Kg-dry	1	7/8/2016 01:15
2,4,5-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 01:15
2,4,6-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 01:15
2,4-Dichlorophenol	U		17	81	µg/Kg-dry	1	7/8/2016 01:15
2,4-Dimethylphenol	U		17	81	µg/Kg-dry	1	7/8/2016 01:15
2,4-Dinitrophenol	U		44	81	µg/Kg-dry	1	7/8/2016 01:15
2,4-Dinitrotoluene	U		21	81	µg/Kg-dry	1	7/8/2016 01:15
2,6-Dinitrotoluene	U		14	81	µg/Kg-dry	1	7/8/2016 01:15
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 01:15
2-Chlorophenol	U		26	81	µg/Kg-dry	1	7/8/2016 01:15
2-Methylnaphthalene	U		8.3	16	µg/Kg-dry	1	7/8/2016 01:15
2-Methylphenol	U		22	81	µg/Kg-dry	1	7/8/2016 01:15
2-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 01:15
2-Nitrophenol	U		23	81	µg/Kg-dry	1	7/8/2016 01:15
3&4-Methylphenol	U		16	81	µg/Kg-dry	1	7/8/2016 01:15
3,3'-Dichlorobenzidine	U		12	410	µg/Kg-dry	1	7/8/2016 01:15
3-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 01:15
4,6-Dinitro-2-methylphenol	U		21	81	µg/Kg-dry	1	7/8/2016 01:15
4-Bromophenyl phenyl ether	U		22	81	µg/Kg-dry	1	7/8/2016 01:15
4-Chloro-3-methylphenol	U		23	81	µg/Kg-dry	1	7/8/2016 01:15
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 01:15
4-Chlorophenyl phenyl ether	U		23	81	µg/Kg-dry	1	7/8/2016 01:15
4-Nitroaniline	U		130	410	µg/Kg-dry	1	7/8/2016 01:15
4-Nitrophenol	U		73	81	µg/Kg-dry	1	7/8/2016 01:15
Acenaphthene	58		12	16	µg/Kg-dry	1	7/8/2016 01:15
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 01:15
Acetophenone	U		13	81	µg/Kg-dry	1	7/8/2016 01:15
Anthracene	180		12	16	µg/Kg-dry	1	7/8/2016 01:15
Atrazine	U		13	81	µg/Kg-dry	1	7/8/2016 01:15
Benzaldehyde	U		130	160	µg/Kg-dry	1	7/8/2016 01:15
Benzo(a)anthracene	1,100		14	16	µg/Kg-dry	1	7/8/2016 01:15
Benzo(a)pyrene	1,100		10	16	µg/Kg-dry	1	7/8/2016 01:15
Benzo(b)fluoranthene	1,700		12	16	µg/Kg-dry	1	7/8/2016 01:15
Benzo(g,h,i)perylene	850		13	16	µg/Kg-dry	1	7/8/2016 01:15
Benzo(k)fluoranthene	490		12	16	µg/Kg-dry	1	7/8/2016 01:15
Bis(2-chloroethoxy)methane	U		7.9	81	µg/Kg-dry	1	7/8/2016 01:15
Bis(2-chloroethyl)ether	U		23	81	µg/Kg-dry	1	7/8/2016 01:15
Bis(2-chloroisopropyl)ether	U		19	81	µg/Kg-dry	1	7/8/2016 01:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (3-4 ft)
Collection Date: 6/28/2016 02:28 PM

Work Order: 1607017
Lab ID: 1607017-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 01:15
Butyl benzyl phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 01:15
Caprolactam	U		28	81	µg/Kg-dry	1	7/8/2016 01:15
Carbazole	170		8.8	81	µg/Kg-dry	1	7/8/2016 01:15
Chrysene	1,300		13	16	µg/Kg-dry	1	7/8/2016 01:15
Dibenzo(a,h)anthracene	250		8.8	16	µg/Kg-dry	1	7/8/2016 01:15
Dibenzofuran	20	J	12	81	µg/Kg-dry	1	7/8/2016 01:15
Diethyl phthalate	U		13	81	µg/Kg-dry	1	7/8/2016 01:15
Dimethyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 01:15
Di-n-butyl phthalate	U		15	81	µg/Kg-dry	1	7/8/2016 01:15
Di-n-octyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 01:15
Fluoranthene	1,900		7.9	16	µg/Kg-dry	1	7/8/2016 01:15
Fluorene	68		12	16	µg/Kg-dry	1	7/8/2016 01:15
Hexachlorobenzene	U		24	81	µg/Kg-dry	1	7/8/2016 01:15
Hexachlorobutadiene	U		44	81	µg/Kg-dry	1	7/8/2016 01:15
Hexachlorocyclopentadiene	U		28	81	µg/Kg-dry	1	7/8/2016 01:15
Hexachloroethane	U		34	81	µg/Kg-dry	1	7/8/2016 01:15
Indeno(1,2,3-cd)pyrene	920		11	16	µg/Kg-dry	1	7/8/2016 01:15
Isophorone	U		16	410	µg/Kg-dry	1	7/8/2016 01:15
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 01:15
Nitrobenzene	U		27	410	µg/Kg-dry	1	7/8/2016 01:15
N-Nitrosodi-n-propylamine	U		14	81	µg/Kg-dry	1	7/8/2016 01:15
N-Nitrosodiphenylamine	U		7.9	81	µg/Kg-dry	1	7/8/2016 01:15
Pentachlorophenol	U		30	81	µg/Kg-dry	1	7/8/2016 01:15
Phenanthrene	810		7.6	16	µg/Kg-dry	1	7/8/2016 01:15
Phenol	U		20	81	µg/Kg-dry	1	7/8/2016 01:15
Pyrene	2,100		3.0	16	µg/Kg-dry	1	7/8/2016 01:15
Surr: 2,4,6-Tribromophenol	73.6			34-140	%REC	1	7/8/2016 01:15
Surr: 2-Fluorobiphenyl	68.5			12-100	%REC	1	7/8/2016 01:15
Surr: 2-Fluorophenol	80.8			33-117	%REC	1	7/8/2016 01:15
Surr: 4-Terphenyl-d14	91.8			25-137	%REC	1	7/8/2016 01:15
Surr: Nitrobenzene-d5	66.1			37-107	%REC	1	7/8/2016 01:15
Surr: Phenol-d6	79.3			40-106	%REC	1	7/8/2016 01:15
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	21		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (3-4 ft)
Collection Date: 6/28/2016 02:06 PM

Work Order: 1607017
Lab ID: 1607017-22
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/6/16		Analyst: JF
1,1'-Biphenyl	U		14	84	µg/Kg-dry	1	7/8/2016 01:39
2,4,5-Trichlorophenol	U		23	84	µg/Kg-dry	1	7/8/2016 01:39
2,4,6-Trichlorophenol	U		22	84	µg/Kg-dry	1	7/8/2016 01:39
2,4-Dichlorophenol	U		18	84	µg/Kg-dry	1	7/8/2016 01:39
2,4-Dimethylphenol	U		17	84	µg/Kg-dry	1	7/8/2016 01:39
2,4-Dinitrophenol	U		46	84	µg/Kg-dry	1	7/8/2016 01:39
2,4-Dinitrotoluene	U		22	84	µg/Kg-dry	1	7/8/2016 01:39
2,6-Dinitrotoluene	U		14	84	µg/Kg-dry	1	7/8/2016 01:39
2-Chloronaphthalene	U		12	17	µg/Kg-dry	1	7/8/2016 01:39
2-Chlorophenol	U		27	84	µg/Kg-dry	1	7/8/2016 01:39
2-Methylnaphthalene	U		8.6	17	µg/Kg-dry	1	7/8/2016 01:39
2-Methylphenol	U		23	84	µg/Kg-dry	1	7/8/2016 01:39
2-Nitroaniline	U		19	84	µg/Kg-dry	1	7/8/2016 01:39
2-Nitrophenol	U		24	84	µg/Kg-dry	1	7/8/2016 01:39
3&4-Methylphenol	U		17	84	µg/Kg-dry	1	7/8/2016 01:39
3,3'-Dichlorobenzidine	U		13	420	µg/Kg-dry	1	7/8/2016 01:39
3-Nitroaniline	U		19	84	µg/Kg-dry	1	7/8/2016 01:39
4,6-Dinitro-2-methylphenol	U		21	84	µg/Kg-dry	1	7/8/2016 01:39
4-Bromophenyl phenyl ether	U		23	84	µg/Kg-dry	1	7/8/2016 01:39
4-Chloro-3-methylphenol	U		24	84	µg/Kg-dry	1	7/8/2016 01:39
4-Chloroaniline	U		13	170	µg/Kg-dry	1	7/8/2016 01:39
4-Chlorophenyl phenyl ether	U		23	84	µg/Kg-dry	1	7/8/2016 01:39
4-Nitroaniline	U		130	420	µg/Kg-dry	1	7/8/2016 01:39
4-Nitrophenol	U		75	84	µg/Kg-dry	1	7/8/2016 01:39
Acenaphthene	U		12	17	µg/Kg-dry	1	7/8/2016 01:39
Acenaphthylene	U		15	17	µg/Kg-dry	1	7/8/2016 01:39
Acetophenone	U		13	84	µg/Kg-dry	1	7/8/2016 01:39
Anthracene	U		12	17	µg/Kg-dry	1	7/8/2016 01:39
Atrazine	U		13	84	µg/Kg-dry	1	7/8/2016 01:39
Benzaldehyde	U		130	170	µg/Kg-dry	1	7/8/2016 01:39
Benzo(a)anthracene	75		15	17	µg/Kg-dry	1	7/8/2016 01:39
Benzo(a)pyrene	95		10	17	µg/Kg-dry	1	7/8/2016 01:39
Benzo(b)fluoranthene	110		13	17	µg/Kg-dry	1	7/8/2016 01:39
Benzo(g,h,i)perylene	42		13	17	µg/Kg-dry	1	7/8/2016 01:39
Benzo(k)fluoranthene	62		13	17	µg/Kg-dry	1	7/8/2016 01:39
Bis(2-chloroethoxy)methane	U		8.1	84	µg/Kg-dry	1	7/8/2016 01:39
Bis(2-chloroethyl)ether	U		24	84	µg/Kg-dry	1	7/8/2016 01:39
Bis(2-chloroisopropyl)ether	U		20	84	µg/Kg-dry	1	7/8/2016 01:39

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (3-4 ft)
Collection Date: 6/28/2016 02:06 PM

Work Order: 1607017
Lab ID: 1607017-22
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		15	84	µg/Kg-dry	1	7/8/2016 01:39
Butyl benzyl phthalate	U		14	84	µg/Kg-dry	1	7/8/2016 01:39
Caprolactam	U		29	84	µg/Kg-dry	1	7/8/2016 01:39
Carbazole	56	J	9.1	84	µg/Kg-dry	1	7/8/2016 01:39
Chrysene	46		14	17	µg/Kg-dry	1	7/8/2016 01:39
Dibenzo(a,h)anthracene	U		9.1	17	µg/Kg-dry	1	7/8/2016 01:39
Dibenzofuran	U		12	84	µg/Kg-dry	1	7/8/2016 01:39
Diethyl phthalate	U		13	84	µg/Kg-dry	1	7/8/2016 01:39
Dimethyl phthalate	U		16	84	µg/Kg-dry	1	7/8/2016 01:39
Di-n-butyl phthalate	U		15	84	µg/Kg-dry	1	7/8/2016 01:39
Di-n-octyl phthalate	U		16	84	µg/Kg-dry	1	7/8/2016 01:39
Fluoranthene	130		8.1	17	µg/Kg-dry	1	7/8/2016 01:39
Fluorene	U		12	17	µg/Kg-dry	1	7/8/2016 01:39
Hexachlorobenzene	U		25	84	µg/Kg-dry	1	7/8/2016 01:39
Hexachlorobutadiene	U		46	84	µg/Kg-dry	1	7/8/2016 01:39
Hexachlorocyclopentadiene	U		29	84	µg/Kg-dry	1	7/8/2016 01:39
Hexachloroethane	U		35	84	µg/Kg-dry	1	7/8/2016 01:39
Indeno(1,2,3-cd)pyrene	77		12	17	µg/Kg-dry	1	7/8/2016 01:39
Isophorone	U		16	420	µg/Kg-dry	1	7/8/2016 01:39
Naphthalene	U		11	17	µg/Kg-dry	1	7/8/2016 01:39
Nitrobenzene	U		28	420	µg/Kg-dry	1	7/8/2016 01:39
N-Nitrosodi-n-propylamine	U		14	84	µg/Kg-dry	1	7/8/2016 01:39
N-Nitrosodiphenylamine	U		8.1	84	µg/Kg-dry	1	7/8/2016 01:39
Pentachlorophenol	U		31	84	µg/Kg-dry	1	7/8/2016 01:39
Phenanthrene	72		7.8	17	µg/Kg-dry	1	7/8/2016 01:39
Phenol	U		21	84	µg/Kg-dry	1	7/8/2016 01:39
Pyrene	91		3.1	17	µg/Kg-dry	1	7/8/2016 01:39
Surr: 2,4,6-Tribromophenol	69.8			34-140	%REC	1	7/8/2016 01:39
Surr: 2-Fluorobiphenyl	66.0			12-100	%REC	1	7/8/2016 01:39
Surr: 2-Fluorophenol	83.4			33-117	%REC	1	7/8/2016 01:39
Surr: 4-Terphenyl-d14	89.4			25-137	%REC	1	7/8/2016 01:39
Surr: Nitrobenzene-d5	64.8			37-107	%REC	1	7/8/2016 01:39
Surr: Phenol-d6	83.5			40-106	%REC	1	7/8/2016 01:39
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	21		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (3-4 ft)
Collection Date: 6/28/2016 02:15 PM

Work Order: 1607017
Lab ID: 1607017-23
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	53	J	13	81	µg/Kg-dry	1	7/8/2016 02:49
2,4,5-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 02:49
2,4,6-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 02:49
2,4-Dichlorophenol	U		17	81	µg/Kg-dry	1	7/8/2016 02:49
2,4-Dimethylphenol	U		17	81	µg/Kg-dry	1	7/8/2016 02:49
2,4-Dinitrophenol	U		44	81	µg/Kg-dry	1	7/8/2016 02:49
2,4-Dinitrotoluene	U		21	81	µg/Kg-dry	1	7/8/2016 02:49
2,6-Dinitrotoluene	U		13	81	µg/Kg-dry	1	7/8/2016 02:49
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 02:49
2-Chlorophenol	U		26	81	µg/Kg-dry	1	7/8/2016 02:49
2-Methylnaphthalene	32		8.3	16	µg/Kg-dry	1	7/8/2016 02:49
2-Methylphenol	U		22	81	µg/Kg-dry	1	7/8/2016 02:49
2-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 02:49
2-Nitrophenol	U		23	81	µg/Kg-dry	1	7/8/2016 02:49
3&4-Methylphenol	U		16	81	µg/Kg-dry	1	7/8/2016 02:49
3,3'-Dichlorobenzidine	U		12	410	µg/Kg-dry	1	7/8/2016 02:49
3-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 02:49
4,6-Dinitro-2-methylphenol	U		20	81	µg/Kg-dry	1	7/8/2016 02:49
4-Bromophenyl phenyl ether	U		22	81	µg/Kg-dry	1	7/8/2016 02:49
4-Chloro-3-methylphenol	U		23	81	µg/Kg-dry	1	7/8/2016 02:49
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 02:49
4-Chlorophenyl phenyl ether	U		23	81	µg/Kg-dry	1	7/8/2016 02:49
4-Nitroaniline	U		130	410	µg/Kg-dry	1	7/8/2016 02:49
4-Nitrophenol	U		73	81	µg/Kg-dry	1	7/8/2016 02:49
Acenaphthene	95		12	16	µg/Kg-dry	1	7/8/2016 02:49
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 02:49
Acetophenone	U		13	81	µg/Kg-dry	1	7/8/2016 02:49
Anthracene	290		12	16	µg/Kg-dry	1	7/8/2016 02:49
Atrazine	U		13	81	µg/Kg-dry	1	7/8/2016 02:49
Benzaldehyde	U		130	160	µg/Kg-dry	1	7/8/2016 02:49
Benzo(a)anthracene	1,300		14	16	µg/Kg-dry	1	7/8/2016 02:49
Benzo(a)pyrene	1,200		10	16	µg/Kg-dry	1	7/8/2016 02:49
Benzo(b)fluoranthene	1,900		12	16	µg/Kg-dry	1	7/8/2016 02:49
Benzo(g,h,i)perylene	860		13	16	µg/Kg-dry	1	7/8/2016 02:49
Benzo(k)fluoranthene	650		12	16	µg/Kg-dry	1	7/8/2016 02:49
Bis(2-chloroethoxy)methane	U		7.8	81	µg/Kg-dry	1	7/8/2016 02:49
Bis(2-chloroethyl)ether	U		23	81	µg/Kg-dry	1	7/8/2016 02:49
Bis(2-chloroisopropyl)ether	U		19	81	µg/Kg-dry	1	7/8/2016 02:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (3-4 ft)
Collection Date: 6/28/2016 02:15 PM

Work Order: 1607017
Lab ID: 1607017-23
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 02:49
Butyl benzyl phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 02:49
Caprolactam	U		28	81	µg/Kg-dry	1	7/8/2016 02:49
Carbazole	240		8.8	81	µg/Kg-dry	1	7/8/2016 02:49
Chrysene	1,500		13	16	µg/Kg-dry	1	7/8/2016 02:49
Dibenzo(a,h)anthracene	270		8.8	16	µg/Kg-dry	1	7/8/2016 02:49
Dibenzofuran	54	J	12	81	µg/Kg-dry	1	7/8/2016 02:49
Diethyl phthalate	U		12	81	µg/Kg-dry	1	7/8/2016 02:49
Dimethyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 02:49
Di-n-butyl phthalate	U		15	81	µg/Kg-dry	1	7/8/2016 02:49
Di-n-octyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 02:49
Fluoranthene	2,300		7.8	16	µg/Kg-dry	1	7/8/2016 02:49
Fluorene	100		12	16	µg/Kg-dry	1	7/8/2016 02:49
Hexachlorobenzene	U		24	81	µg/Kg-dry	1	7/8/2016 02:49
Hexachlorobutadiene	U		44	81	µg/Kg-dry	1	7/8/2016 02:49
Hexachlorocyclopentadiene	U		28	81	µg/Kg-dry	1	7/8/2016 02:49
Hexachloroethane	U		34	81	µg/Kg-dry	1	7/8/2016 02:49
Indeno(1,2,3-cd)pyrene	930		11	16	µg/Kg-dry	1	7/8/2016 02:49
Isophorone	U		16	410	µg/Kg-dry	1	7/8/2016 02:49
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 02:49
Nitrobenzene	U		27	410	µg/Kg-dry	1	7/8/2016 02:49
N-Nitrosodi-n-propylamine	U		13	81	µg/Kg-dry	1	7/8/2016 02:49
N-Nitrosodiphenylamine	U		7.8	81	µg/Kg-dry	1	7/8/2016 02:49
Pentachlorophenol	U		30	81	µg/Kg-dry	1	7/8/2016 02:49
Phenanthrene	1,200		7.6	16	µg/Kg-dry	1	7/8/2016 02:49
Phenol	U		20	81	µg/Kg-dry	1	7/8/2016 02:49
Pyrene	2,500		3.0	16	µg/Kg-dry	1	7/8/2016 02:49
Surr: 2,4,6-Tribromophenol	68.0			34-140	%REC	1	7/8/2016 02:49
Surr: 2-Fluorobiphenyl	65.4			12-100	%REC	1	7/8/2016 02:49
Surr: 2-Fluorophenol	78.6			33-117	%REC	1	7/8/2016 02:49
Surr: 4-Terphenyl-d14	91.8			25-137	%REC	1	7/8/2016 02:49
Surr: Nitrobenzene-d5	65.5			37-107	%REC	1	7/8/2016 02:49
Surr: Phenol-d6	84.2			40-106	%REC	1	7/8/2016 02:49
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (3-4 ft)
Collection Date: 6/28/2016 03:08 PM

Work Order: 1607017
Lab ID: 1607017-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	45	J	13	77	µg/Kg-dry	1	7/7/2016 21:42
2,4,5-Trichlorophenol	U		21	77	µg/Kg-dry	1	7/7/2016 21:42
2,4,6-Trichlorophenol	U		21	77	µg/Kg-dry	1	7/7/2016 21:42
2,4-Dichlorophenol	U		16	77	µg/Kg-dry	1	7/7/2016 21:42
2,4-Dimethylphenol	U		16	77	µg/Kg-dry	1	7/7/2016 21:42
2,4-Dinitrophenol	U		42	77	µg/Kg-dry	1	7/7/2016 21:42
2,4-Dinitrotoluene	U		20	77	µg/Kg-dry	1	7/7/2016 21:42
2,6-Dinitrotoluene	U		13	77	µg/Kg-dry	1	7/7/2016 21:42
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/7/2016 21:42
2-Chlorophenol	U		25	77	µg/Kg-dry	1	7/7/2016 21:42
2-Methylnaphthalene	U		7.9	16	µg/Kg-dry	1	7/7/2016 21:42
2-Methylphenol	U		21	77	µg/Kg-dry	1	7/7/2016 21:42
2-Nitroaniline	U		18	77	µg/Kg-dry	1	7/7/2016 21:42
2-Nitrophenol	U		22	77	µg/Kg-dry	1	7/7/2016 21:42
3&4-Methylphenol	U		16	77	µg/Kg-dry	1	7/7/2016 21:42
3,3'-Dichlorobenzidine	U		12	390	µg/Kg-dry	1	7/7/2016 21:42
3-Nitroaniline	U		18	77	µg/Kg-dry	1	7/7/2016 21:42
4,6-Dinitro-2-methylphenol	U		20	77	µg/Kg-dry	1	7/7/2016 21:42
4-Bromophenyl phenyl ether	U		21	77	µg/Kg-dry	1	7/7/2016 21:42
4-Chloro-3-methylphenol	U		22	77	µg/Kg-dry	1	7/7/2016 21:42
4-Chloroaniline	U		12	160	µg/Kg-dry	1	7/7/2016 21:42
4-Chlorophenyl phenyl ether	U		22	77	µg/Kg-dry	1	7/7/2016 21:42
4-Nitroaniline	U		120	390	µg/Kg-dry	1	7/7/2016 21:42
4-Nitrophenol	U		70	77	µg/Kg-dry	1	7/7/2016 21:42
Acenaphthene	47		11	16	µg/Kg-dry	1	7/7/2016 21:42
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/7/2016 21:42
Acetophenone	U		12	77	µg/Kg-dry	1	7/7/2016 21:42
Anthracene	110		11	16	µg/Kg-dry	1	7/7/2016 21:42
Atrazine	U		12	77	µg/Kg-dry	1	7/7/2016 21:42
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/7/2016 21:42
Benzo(a)anthracene	440		14	16	µg/Kg-dry	1	7/7/2016 21:42
Benzo(a)pyrene	400		9.6	16	µg/Kg-dry	1	7/7/2016 21:42
Benzo(b)fluoranthene	560		12	16	µg/Kg-dry	1	7/7/2016 21:42
Benzo(g,h,i)perylene	280		12	16	µg/Kg-dry	1	7/7/2016 21:42
Benzo(k)fluoranthene	210		12	16	µg/Kg-dry	1	7/7/2016 21:42
Bis(2-chloroethoxy)methane	U		7.5	77	µg/Kg-dry	1	7/7/2016 21:42
Bis(2-chloroethyl)ether	U		22	77	µg/Kg-dry	1	7/7/2016 21:42
Bis(2-chloroisopropyl)ether	U		18	77	µg/Kg-dry	1	7/7/2016 21:42

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (3-4 ft)
Collection Date: 6/28/2016 03:08 PM

Work Order: 1607017
Lab ID: 1607017-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	77	µg/Kg-dry	1	7/7/2016 21:42
Butyl benzyl phthalate	U		13	77	µg/Kg-dry	1	7/7/2016 21:42
Caprolactam	U		27	77	µg/Kg-dry	1	7/7/2016 21:42
Carbazole	95		8.4	77	µg/Kg-dry	1	7/7/2016 21:42
Chrysene	460		13	16	µg/Kg-dry	1	7/7/2016 21:42
Dibenzo(a,h)anthracene	100		8.4	16	µg/Kg-dry	1	7/7/2016 21:42
Dibenzofuran	U		11	77	µg/Kg-dry	1	7/7/2016 21:42
Diethyl phthalate	U		12	77	µg/Kg-dry	1	7/7/2016 21:42
Dimethyl phthalate	U		15	77	µg/Kg-dry	1	7/7/2016 21:42
Di-n-butyl phthalate	U		14	77	µg/Kg-dry	1	7/7/2016 21:42
Di-n-octyl phthalate	U		15	77	µg/Kg-dry	1	7/7/2016 21:42
Fluoranthene	840		7.5	16	µg/Kg-dry	1	7/7/2016 21:42
Fluorene	64		11	16	µg/Kg-dry	1	7/7/2016 21:42
Hexachlorobenzene	U		23	77	µg/Kg-dry	1	7/7/2016 21:42
Hexachlorobutadiene	U		42	77	µg/Kg-dry	1	7/7/2016 21:42
Hexachlorocyclopentadiene	U		27	77	µg/Kg-dry	1	7/7/2016 21:42
Hexachloroethane	U		32	77	µg/Kg-dry	1	7/7/2016 21:42
Indeno(1,2,3-cd)pyrene	320		11	16	µg/Kg-dry	1	7/7/2016 21:42
Isophorone	U		15	390	µg/Kg-dry	1	7/7/2016 21:42
Naphthalene	U		10	16	µg/Kg-dry	1	7/7/2016 21:42
Nitrobenzene	U		26	390	µg/Kg-dry	1	7/7/2016 21:42
N-Nitrosodi-n-propylamine	U		13	77	µg/Kg-dry	1	7/7/2016 21:42
N-Nitrosodiphenylamine	U		7.5	77	µg/Kg-dry	1	7/7/2016 21:42
Pentachlorophenol	U		29	77	µg/Kg-dry	1	7/7/2016 21:42
Phenanthrene	470		7.3	16	µg/Kg-dry	1	7/7/2016 21:42
Phenol	U		19	77	µg/Kg-dry	1	7/7/2016 21:42
Pyrene	900		2.8	16	µg/Kg-dry	1	7/7/2016 21:42
Surr: 2,4,6-Tribromophenol	70.6			34-140	%REC	1	7/7/2016 21:42
Surr: 2-Fluorobiphenyl	64.0			12-100	%REC	1	7/7/2016 21:42
Surr: 2-Fluorophenol	81.0			33-117	%REC	1	7/7/2016 21:42
Surr: 4-Terphenyl-d14	89.5			25-137	%REC	1	7/7/2016 21:42
Surr: Nitrobenzene-d5	66.3			37-107	%REC	1	7/7/2016 21:42
Surr: Phenol-d6	81.5			40-106	%REC	1	7/7/2016 21:42
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	19		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (3-4 ft)
Collection Date: 6/28/2016 02:49 PM

Work Order: 1607017
Lab ID: 1607017-25
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	U		14	83	µg/Kg-dry	1	7/8/2016 03:13
2,4,5-Trichlorophenol	U		23	83	µg/Kg-dry	1	7/8/2016 03:13
2,4,6-Trichlorophenol	U		22	83	µg/Kg-dry	1	7/8/2016 03:13
2,4-Dichlorophenol	U		18	83	µg/Kg-dry	1	7/8/2016 03:13
2,4-Dimethylphenol	U		17	83	µg/Kg-dry	1	7/8/2016 03:13
2,4-Dinitrophenol	U		45	83	µg/Kg-dry	1	7/8/2016 03:13
2,4-Dinitrotoluene	U		22	83	µg/Kg-dry	1	7/8/2016 03:13
2,6-Dinitrotoluene	U		14	83	µg/Kg-dry	1	7/8/2016 03:13
2-Chloronaphthalene	U		12	17	µg/Kg-dry	1	7/8/2016 03:13
2-Chlorophenol	U		26	83	µg/Kg-dry	1	7/8/2016 03:13
2-Methylnaphthalene	U		8.5	17	µg/Kg-dry	1	7/8/2016 03:13
2-Methylphenol	U		23	83	µg/Kg-dry	1	7/8/2016 03:13
2-Nitroaniline	U		19	83	µg/Kg-dry	1	7/8/2016 03:13
2-Nitrophenol	U		24	83	µg/Kg-dry	1	7/8/2016 03:13
3&4-Methylphenol	U		17	83	µg/Kg-dry	1	7/8/2016 03:13
3,3'-Dichlorobenzidine	U		12	420	µg/Kg-dry	1	7/8/2016 03:13
3-Nitroaniline	U		19	83	µg/Kg-dry	1	7/8/2016 03:13
4,6-Dinitro-2-methylphenol	U		21	83	µg/Kg-dry	1	7/8/2016 03:13
4-Bromophenyl phenyl ether	U		22	83	µg/Kg-dry	1	7/8/2016 03:13
4-Chloro-3-methylphenol	U		24	83	µg/Kg-dry	1	7/8/2016 03:13
4-Chloroaniline	U		13	170	µg/Kg-dry	1	7/8/2016 03:13
4-Chlorophenyl phenyl ether	U		23	83	µg/Kg-dry	1	7/8/2016 03:13
4-Nitroaniline	U		130	420	µg/Kg-dry	1	7/8/2016 03:13
4-Nitrophenol	U		75	83	µg/Kg-dry	1	7/8/2016 03:13
Acenaphthene	U		12	17	µg/Kg-dry	1	7/8/2016 03:13
Acenaphthylene	U		14	17	µg/Kg-dry	1	7/8/2016 03:13
Acetophenone	U		13	83	µg/Kg-dry	1	7/8/2016 03:13
Anthracene	23		12	17	µg/Kg-dry	1	7/8/2016 03:13
Atrazine	U		13	83	µg/Kg-dry	1	7/8/2016 03:13
Benzaldehyde	U		130	170	µg/Kg-dry	1	7/8/2016 03:13
Benzo(a)anthracene	160		14	17	µg/Kg-dry	1	7/8/2016 03:13
Benzo(a)pyrene	170		10	17	µg/Kg-dry	1	7/8/2016 03:13
Benzo(b)fluoranthene	200		12	17	µg/Kg-dry	1	7/8/2016 03:13
Benzo(g,h,i)perylene	100		13	17	µg/Kg-dry	1	7/8/2016 03:13
Benzo(k)fluoranthene	88		13	17	µg/Kg-dry	1	7/8/2016 03:13
Bis(2-chloroethoxy)methane	U		8.0	83	µg/Kg-dry	1	7/8/2016 03:13
Bis(2-chloroethyl)ether	U		24	83	µg/Kg-dry	1	7/8/2016 03:13
Bis(2-chloroisopropyl)ether	U		20	83	µg/Kg-dry	1	7/8/2016 03:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (3-4 ft)
Collection Date: 6/28/2016 02:49 PM

Work Order: 1607017
Lab ID: 1607017-25
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	83	µg/Kg-dry	1	7/8/2016 03:13
Butyl benzyl phthalate	U		14	83	µg/Kg-dry	1	7/8/2016 03:13
Caprolactam	U		29	83	µg/Kg-dry	1	7/8/2016 03:13
Carbazole	65	J	9.0	83	µg/Kg-dry	1	7/8/2016 03:13
Chrysene	130		13	17	µg/Kg-dry	1	7/8/2016 03:13
Dibenzo(a,h)anthracene	U		9.0	17	µg/Kg-dry	1	7/8/2016 03:13
Dibenzofuran	U		12	83	µg/Kg-dry	1	7/8/2016 03:13
Diethyl phthalate	U		13	83	µg/Kg-dry	1	7/8/2016 03:13
Dimethyl phthalate	U		16	83	µg/Kg-dry	1	7/8/2016 03:13
Di-n-butyl phthalate	U		15	83	µg/Kg-dry	1	7/8/2016 03:13
Di-n-octyl phthalate	U		16	83	µg/Kg-dry	1	7/8/2016 03:13
Fluoranthene	250		8.0	17	µg/Kg-dry	1	7/8/2016 03:13
Fluorene	U		12	17	µg/Kg-dry	1	7/8/2016 03:13
Hexachlorobenzene	U		24	83	µg/Kg-dry	1	7/8/2016 03:13
Hexachlorobutadiene	U		45	83	µg/Kg-dry	1	7/8/2016 03:13
Hexachlorocyclopentadiene	U		29	83	µg/Kg-dry	1	7/8/2016 03:13
Hexachloroethane	U		35	83	µg/Kg-dry	1	7/8/2016 03:13
Indeno(1,2,3-cd)pyrene	130		12	17	µg/Kg-dry	1	7/8/2016 03:13
Isophorone	U		16	420	µg/Kg-dry	1	7/8/2016 03:13
Naphthalene	U		11	17	µg/Kg-dry	1	7/8/2016 03:13
Nitrobenzene	U		28	420	µg/Kg-dry	1	7/8/2016 03:13
N-Nitrosodi-n-propylamine	U		14	83	µg/Kg-dry	1	7/8/2016 03:13
N-Nitrosodiphenylamine	U		8.0	83	µg/Kg-dry	1	7/8/2016 03:13
Pentachlorophenol	U		31	83	µg/Kg-dry	1	7/8/2016 03:13
Phenanthrene	130		7.8	17	µg/Kg-dry	1	7/8/2016 03:13
Phenol	U		21	83	µg/Kg-dry	1	7/8/2016 03:13
Pyrene	230		3.0	17	µg/Kg-dry	1	7/8/2016 03:13
Surr: 2,4,6-Tribromophenol	72.5			34-140	%REC	1	7/8/2016 03:13
Surr: 2-Fluorobiphenyl	64.7			12-100	%REC	1	7/8/2016 03:13
Surr: 2-Fluorophenol	83.9			33-117	%REC	1	7/8/2016 03:13
Surr: 4-Terphenyl-d14	92.4			25-137	%REC	1	7/8/2016 03:13
Surr: Nitrobenzene-d5	65.1			37-107	%REC	1	7/8/2016 03:13
Surr: Phenol-d6	82.4			40-106	%REC	1	7/8/2016 03:13
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-61 (5'-6')
Collection Date: 6/27/2016 02:20 PM

Work Order: 1607017
Lab ID: 1607017-26
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	14		1.6	9.9	mg/Kg-dry	1	7/6/2016 21:42
ORO (C20-C34)	26		3.2	9.9	mg/Kg-dry	1	7/6/2016 21:42
Surr: 4-Terphenyl-d14	68.7			39-133	%REC	1	7/6/2016 21:42
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,200	4,500	µg/Kg-dry	1	7/7/2016 12:09
Surr: a,a,a-Trifluorotoluene	100			80-120	%REC	1	7/7/2016 12:09
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.025		0.0027	0.016	mg/Kg-dry	1	7/7/2016 20:31
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	7.1		0.11	0.43	mg/Kg-dry	1	7/9/2016 21:59
Barium	310		0.17	0.43	mg/Kg-dry	1	7/9/2016 21:59
Cadmium	1.4		0.041	0.85	mg/Kg-dry	1	7/9/2016 21:59
Chromium	18		0.024	0.43	mg/Kg-dry	1	7/9/2016 21:59
Lead	12		0.091	0.43	mg/Kg-dry	1	7/9/2016 21:59
Selenium	U		0.24	0.85	mg/Kg-dry	1	7/9/2016 21:59
Silver	U		0.053	0.43	mg/Kg-dry	1	7/9/2016 21:59
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.14	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,1,2,2-Tetrachloroethane	U		0.11	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,1,2-Trichloroethane	U		0.57	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,1,2-Trichlorotrifluoroethane	U		0.17	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,1-Dichloroethane	U		0.12	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,1-Dichloroethene	U		0.16	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,2,4-Trichlorobenzene	U		0.13	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,2-Dibromo-3-chloropropane	U		0.48	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,2-Dibromoethane	U		0.14	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,2-Dichlorobenzene	U		0.082	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,2-Dichloroethane	U		0.14	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,2-Dichloropropane	U		0.33	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,3-Dichlorobenzene	U		0.077	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
1,4-Dichlorobenzene	U		0.16	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
2-Butanone	U		0.79	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
2-Hexanone	U		0.62	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
4-Methyl-2-pentanone	U		0.17	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Acetone	32		1.4	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
Benzene	U		0.090	4.6	µg/Kg-dry	0.755	7/10/2016 19:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-61 (5'-6')
Collection Date: 6/27/2016 02:20 PM

Work Order: 1607017
Lab ID: 1607017-26
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.10	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Bromoform	U		0.14	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Bromomethane	U		0.29	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
Carbon disulfide	0.30	J	0.18	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Carbon tetrachloride	U		0.22	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Chlorobenzene	U		0.15	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Chloroethane	U		0.49	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Chloroform	U		0.19	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Chloromethane	U		0.24	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
cis-1,2-Dichloroethene	U		0.11	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
cis-1,3-Dichloropropene	U		0.11	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Cyclohexane	U		0.16	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Dibromochloromethane	U		0.14	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Dichlorodifluoromethane	U		0.23	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
Ethylbenzene	U		0.11	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Isopropylbenzene	U		0.14	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
m,p-Xylene	U		0.34	2.3	µg/Kg-dry	0.755	7/10/2016 19:18
Methyl acetate	U		0.42	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
Methyl tert-butyl ether	U		0.17	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Methylcyclohexane	U		0.20	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
Methylene chloride	U		0.13	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
o-Xylene	U		0.17	2.3	µg/Kg-dry	0.755	7/10/2016 19:18
Styrene	U		0.28	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Tetrachloroethene	U		0.20	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Toluene	U		0.12	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
trans-1,2-Dichloroethene	U		0.22	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
trans-1,3-Dichloropropene	U		0.15	9.3	µg/Kg-dry	0.755	7/10/2016 19:18
Trichloroethene	U		0.18	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Trichlorofluoromethane	U		0.25	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Vinyl chloride	U		0.15	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Xylenes, Total	U		0.50	4.6	µg/Kg-dry	0.755	7/10/2016 19:18
Surr: 1,2-Dichloroethane-d4	103			70-120	%REC	0.755	7/10/2016 19:18
Surr: 4-Bromofluorobenzene	96.6			75-120	%REC	0.755	7/10/2016 19:18
Surr: Dibromofluoromethane	95.8			85-115	%REC	0.755	7/10/2016 19:18
Surr: Toluene-d8	98.2			85-120	%REC	0.755	7/10/2016 19:18

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	19	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-62 (4'-5')
Collection Date: 6/27/2016 04:00 PM

Work Order: 1607017
Lab ID: 1607017-27
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	300		1.6	10	mg/Kg-dry	1	7/6/2016 22:43
ORO (C20-C34)	440		3.4	10	mg/Kg-dry	1	7/6/2016 22:43
Surr: 4-Terphenyl-d14	69.7			39-133	%REC	1	7/6/2016 22:43
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	1,500,000		1,300	4,800	µg/Kg-dry	1	7/7/2016 12:34
Surr: a,a,a-Trifluorotoluene	103			80-120	%REC	1	7/7/2016 12:34
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.038		0.0028	0.017	mg/Kg-dry	1	7/7/2016 20:33
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	13		0.13	0.51	mg/Kg-dry	1	7/9/2016 22:04
Barium	170		0.20	0.51	mg/Kg-dry	1	7/9/2016 22:04
Cadmium	U		0.049	1.0	mg/Kg-dry	1	7/9/2016 22:04
Chromium	25		0.029	0.51	mg/Kg-dry	1	7/9/2016 22:04
Lead	38		0.11	0.51	mg/Kg-dry	1	7/9/2016 22:04
Selenium	0.46	J	0.29	1.0	mg/Kg-dry	1	7/9/2016 22:04
Silver	U		0.063	0.51	mg/Kg-dry	1	7/9/2016 22:04
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B		Prep: SW5035 / 7/6/16		Analyst: AK
1,1,1-Trichloroethane	U		13	46	µg/Kg	1	7/9/2016 06:05
1,1,2,2-Tetrachloroethane	U		11	46	µg/Kg	1	7/9/2016 06:05
1,1,2-Trichloroethane	U		14	46	µg/Kg	1	7/9/2016 06:05
1,1,2-Trichlorotrifluoroethane	U		10	46	µg/Kg	1	7/9/2016 06:05
1,1-Dichloroethane	U		12	46	µg/Kg	1	7/9/2016 06:05
1,1-Dichloroethene	U		12	46	µg/Kg	1	7/9/2016 06:05
1,2,4-Trichlorobenzene	U		34	46	µg/Kg	1	7/9/2016 06:05
1,2-Dibromo-3-chloropropane	U		19	46	µg/Kg	1	7/9/2016 06:05
1,2-Dibromoethane	U		15	46	µg/Kg	1	7/9/2016 06:05
1,2-Dichlorobenzene	U		14	46	µg/Kg	1	7/9/2016 06:05
1,2-Dichloroethane	U		12	46	µg/Kg	1	7/9/2016 06:05
1,2-Dichloropropane	U		13	46	µg/Kg	1	7/9/2016 06:05
1,3-Dichlorobenzene	U		15	46	µg/Kg	1	7/9/2016 06:05
1,4-Dichlorobenzene	U		12	46	µg/Kg	1	7/9/2016 06:05
2-Butanone	U		62	310	µg/Kg	1	7/9/2016 06:05
2-Hexanone	U		30	46	µg/Kg	1	7/9/2016 06:05
4-Methyl-2-pentanone	U		34	46	µg/Kg	1	7/9/2016 06:05
Acetone	U		83	150	µg/Kg	1	7/9/2016 06:05
Benzene	U		10	46	µg/Kg	1	7/9/2016 06:05

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-62 (4'-5')
Collection Date: 6/27/2016 04:00 PM

Work Order: 1607017
Lab ID: 1607017-27
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		12	46	µg/Kg	1	7/9/2016 06:05
Bromoform	U		16	46	µg/Kg	1	7/9/2016 06:05
Bromomethane	U		20	110	µg/Kg	1	7/9/2016 06:05
Carbon disulfide	U		16	46	µg/Kg	1	7/9/2016 06:05
Carbon tetrachloride	U		8.1	46	µg/Kg	1	7/9/2016 06:05
Chlorobenzene	U		14	46	µg/Kg	1	7/9/2016 06:05
Chloroethane	U		29	150	µg/Kg	1	7/9/2016 06:05
Chloroform	U		16	46	µg/Kg	1	7/9/2016 06:05
Chloromethane	U		19	150	µg/Kg	1	7/9/2016 06:05
cis-1,2-Dichloroethene	U		13	46	µg/Kg	1	7/9/2016 06:05
cis-1,3-Dichloropropene	U		18	46	µg/Kg	1	7/9/2016 06:05
Cyclohexane	U		23	46	µg/Kg	1	7/9/2016 06:05
Dibromochloromethane	U		10	46	µg/Kg	1	7/9/2016 06:05
Dichlorodifluoromethane	U		20	46	µg/Kg	1	7/9/2016 06:05
Ethylbenzene	6,200		11	46	µg/Kg	1	7/9/2016 06:05
Isopropylbenzene	2,900		18	46	µg/Kg	1	7/9/2016 06:05
m,p-Xylene	210		21	92	µg/Kg	1	7/9/2016 06:05
Methyl acetate	U		94	310	µg/Kg	1	7/9/2016 06:05
Methyl tert-butyl ether	U		15	46	µg/Kg	1	7/9/2016 06:05
Methylcyclohexane	11,000		99	230	µg/Kg	5	7/10/2016 12:05
Methylene chloride	U		21	46	µg/Kg	1	7/9/2016 06:05
o-Xylene	U		15	46	µg/Kg	1	7/9/2016 06:05
Styrene	U		32	46	µg/Kg	1	7/9/2016 06:05
Tetrachloroethene	U		23	46	µg/Kg	1	7/9/2016 06:05
Toluene	U		15	46	µg/Kg	1	7/9/2016 06:05
trans-1,2-Dichloroethene	U		13	46	µg/Kg	1	7/9/2016 06:05
trans-1,3-Dichloropropene	U		8.2	46	µg/Kg	1	7/9/2016 06:05
Trichloroethene	U		12	46	µg/Kg	1	7/9/2016 06:05
Trichlorofluoromethane	U		8.8	46	µg/Kg	1	7/9/2016 06:05
Vinyl chloride	U		15	46	µg/Kg	1	7/9/2016 06:05
Xylenes, Total	210		36	140	µg/Kg	1	7/9/2016 06:05
Surr: 1,2-Dichloroethane-d4	92.8			70-130	%REC	1	7/9/2016 06:05
Surr: 1,2-Dichloroethane-d4	101			70-130	%REC	5	7/10/2016 12:05
Surr: 4-Bromofluorobenzene	111			70-130	%REC	1	7/9/2016 06:05
Surr: 4-Bromofluorobenzene	101			70-130	%REC	5	7/10/2016 12:05
Surr: Dibromofluoromethane	89.0			70-130	%REC	1	7/9/2016 06:05
Surr: Dibromofluoromethane	103			70-130	%REC	5	7/10/2016 12:05
Surr: Toluene-d8	121			70-130	%REC	1	7/9/2016 06:05
Surr: Toluene-d8	97.8			70-130	%REC	5	7/10/2016 12:05

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: B-62 (4'-5')

Collection Date: 6/27/2016 04:00 PM

Work Order: 1607017

Lab ID: 1607017-27

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	21		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-63 (24'-26')
Collection Date: 6/28/2016 11:25 AM

Work Order: 1607017
Lab ID: 1607017-28
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	27		1.5	9.5	mg/Kg-dry	1	7/6/2016 23:13
ORO (C20-C34)	63		3.1	9.5	mg/Kg-dry	1	7/6/2016 23:13
Surr: 4-Terphenyl-d14	70.7			39-133	%REC	1	7/6/2016 23:13
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,000	4,000	µg/Kg-dry	1	7/7/2016 14:14
Surr: a,a,a-Trifluorotoluene	100			80-120	%REC	1	7/7/2016 14:14
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.027		0.0025	0.015	mg/Kg-dry	1	7/7/2016 20:36
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	4.6		0.12	0.46	mg/Kg-dry	1	7/9/2016 22:10
Barium	82		0.18	0.46	mg/Kg-dry	1	7/9/2016 22:10
Cadmium	U		0.044	0.92	mg/Kg-dry	1	7/9/2016 22:10
Chromium	10		0.026	0.46	mg/Kg-dry	1	7/9/2016 22:10
Lead	38		0.098	0.46	mg/Kg-dry	1	7/9/2016 22:10
Selenium	U		0.26	0.92	mg/Kg-dry	1	7/9/2016 22:10
Silver	U		0.057	0.46	mg/Kg-dry	1	7/9/2016 22:10
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.15	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,1,2,2-Tetrachloroethane	U		0.11	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,1,2-Trichloroethane	U		0.62	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,1,2-Trichlorotrifluoroethane	U		0.18	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,1-Dichloroethane	U		0.13	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,1-Dichloroethene	U		0.17	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,2,4-Trichlorobenzene	U		0.14	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,2-Dibromo-3-chloropropane	U		0.52	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,2-Dibromoethane	U		0.15	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,2-Dichlorobenzene	U		0.088	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,2-Dichloroethane	U		0.15	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,2-Dichloropropane	U		0.36	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,3-Dichlorobenzene	U		0.083	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
1,4-Dichlorobenzene	U		0.17	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
2-Butanone	U		0.85	10	µg/Kg-dry	0.852	7/10/2016 20:30
2-Hexanone	U		0.67	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
4-Methyl-2-pentanone	U		0.18	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Acetone	13		1.5	10	µg/Kg-dry	0.852	7/10/2016 20:30
Benzene	U		0.097	5.0	µg/Kg-dry	0.852	7/10/2016 20:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-63 (24'-26')
Collection Date: 6/28/2016 11:25 AM

Work Order: 1607017
Lab ID: 1607017-28
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.11	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Bromoform	U		0.15	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Bromomethane	U		0.31	10	µg/Kg-dry	0.852	7/10/2016 20:30
Carbon disulfide	U		0.19	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Carbon tetrachloride	U		0.24	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Chlorobenzene	U		0.16	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Chloroethane	U		0.52	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Chloroform	U		0.20	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Chloromethane	U		0.26	10	µg/Kg-dry	0.852	7/10/2016 20:30
cis-1,2-Dichloroethene	U		0.12	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
cis-1,3-Dichloropropene	U		0.11	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Cyclohexane	U		0.17	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Dibromochloromethane	U		0.15	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Dichlorodifluoromethane	U		0.25	10	µg/Kg-dry	0.852	7/10/2016 20:30
Ethylbenzene	U		0.12	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Isopropylbenzene	U		0.15	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
m,p-Xylene	U		0.37	2.5	µg/Kg-dry	0.852	7/10/2016 20:30
Methyl acetate	U		0.45	10	µg/Kg-dry	0.852	7/10/2016 20:30
Methyl tert-butyl ether	U		0.18	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Methylcyclohexane	U		0.22	10	µg/Kg-dry	0.852	7/10/2016 20:30
Methylene chloride	U		0.14	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
o-Xylene	U		0.18	2.5	µg/Kg-dry	0.852	7/10/2016 20:30
Styrene	U		0.30	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Tetrachloroethene	U		0.22	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Toluene	U		0.12	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
trans-1,2-Dichloroethene	U		0.23	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
trans-1,3-Dichloropropene	U		0.16	10	µg/Kg-dry	0.852	7/10/2016 20:30
Trichloroethene	U		0.19	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Trichlorofluoromethane	U		0.27	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Vinyl chloride	U		0.17	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Xylenes, Total	U		0.54	5.0	µg/Kg-dry	0.852	7/10/2016 20:30
Surr: 1,2-Dichloroethane-d4	106			70-120	%REC	0.852	7/10/2016 20:30
Surr: 4-Bromofluorobenzene	94.3			75-120	%REC	0.852	7/10/2016 20:30
Surr: Dibromofluoromethane	97.7			85-115	%REC	0.852	7/10/2016 20:30
Surr: Toluene-d8	99.6			85-120	%REC	0.852	7/10/2016 20:30

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	15	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-64 (26'-28')
Collection Date: 6/28/2016 10:05 AM

Work Order: 1607017
Lab ID: 1607017-29
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	U		1.7	11	mg/Kg-dry	1	7/6/2016 23:43
ORO (C20-C34)	U		3.4	11	mg/Kg-dry	1	7/6/2016 23:43
Surr: 4-Terphenyl-d14	77.5			39-133	%REC	1	7/6/2016 23:43
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,300	5,200	µg/Kg-dry	1	7/7/2016 13:24
Surr: a,a,a-Trifluorotoluene	98.4			80-120	%REC	1	7/7/2016 13:24
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.032		0.0032	0.019	mg/Kg-dry	1	7/7/2016 20:38
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	5.2		0.13	0.49	mg/Kg-dry	1	7/9/2016 22:48
Barium	310		0.20	0.49	mg/Kg-dry	1	7/9/2016 22:48
Cadmium	U		0.047	0.99	mg/Kg-dry	1	7/9/2016 22:48
Chromium	18		0.028	0.49	mg/Kg-dry	1	7/9/2016 22:48
Lead	14		0.10	0.49	mg/Kg-dry	1	7/9/2016 22:48
Selenium	U		0.28	0.99	mg/Kg-dry	1	7/9/2016 22:48
Silver	U		0.061	0.49	mg/Kg-dry	1	7/9/2016 22:48
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.16	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,1,2,2-Tetrachloroethane	U		0.12	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,1,2-Trichloroethane	U		0.64	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,1,2-Trichlorotrifluoroethane	U		0.19	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,1-Dichloroethane	U		0.14	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,1-Dichloroethene	U		0.18	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,2,4-Trichlorobenzene	U		0.14	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,2-Dibromo-3-chloropropane	U		0.54	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,2-Dibromoethane	U		0.16	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,2-Dichlorobenzene	U		0.091	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,2-Dichloroethane	U		0.16	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,2-Dichloropropane	U		0.37	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,3-Dichlorobenzene	U		0.086	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
1,4-Dichlorobenzene	U		0.18	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
2-Butanone	U		0.88	10	µg/Kg-dry	0.801	7/10/2016 19:42
2-Hexanone	U		0.69	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
4-Methyl-2-pentanone	U		0.19	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Acetone	3.5	J	1.6	10	µg/Kg-dry	0.801	7/10/2016 19:42
Benzene	U		0.10	5.2	µg/Kg-dry	0.801	7/10/2016 19:42

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-64 (26'-28')
Collection Date: 6/28/2016 10:05 AM

Work Order: 1607017
Lab ID: 1607017-29
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.11	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Bromoform	U		0.15	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Bromomethane	U		0.32	10	µg/Kg-dry	0.801	7/10/2016 19:42
Carbon disulfide	U		0.20	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Carbon tetrachloride	U		0.25	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Chlorobenzene	U		0.17	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Chloroethane	U		0.54	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Chloroform	U		0.21	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Chloromethane	U		0.27	10	µg/Kg-dry	0.801	7/10/2016 19:42
cis-1,2-Dichloroethene	U		0.12	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
cis-1,3-Dichloropropene	U		0.12	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Cyclohexane	U		0.18	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Dibromochloromethane	U		0.15	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Dichlorodifluoromethane	U		0.26	10	µg/Kg-dry	0.801	7/10/2016 19:42
Ethylbenzene	U		0.12	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Isopropylbenzene	U		0.15	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
m,p-Xylene	U		0.38	2.6	µg/Kg-dry	0.801	7/10/2016 19:42
Methyl acetate	U		0.47	10	µg/Kg-dry	0.801	7/10/2016 19:42
Methyl tert-butyl ether	U		0.19	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Methylcyclohexane	U		0.22	10	µg/Kg-dry	0.801	7/10/2016 19:42
Methylene chloride	U		0.14	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
o-Xylene	U		0.19	2.6	µg/Kg-dry	0.801	7/10/2016 19:42
Styrene	U		0.31	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Tetrachloroethene	U		0.23	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Toluene	U		0.13	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
trans-1,2-Dichloroethene	U		0.24	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
trans-1,3-Dichloropropene	U		0.17	10	µg/Kg-dry	0.801	7/10/2016 19:42
Trichloroethene	U		0.20	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Trichlorofluoromethane	U		0.28	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Vinyl chloride	U		0.17	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Xylenes, Total	U		0.56	5.2	µg/Kg-dry	0.801	7/10/2016 19:42
Surr: 1,2-Dichloroethane-d4	106			70-120	%REC	0.801	7/10/2016 19:42
Surr: 4-Bromofluorobenzene	97.2			75-120	%REC	0.801	7/10/2016 19:42
Surr: Dibromofluoromethane	96.4			85-115	%REC	0.801	7/10/2016 19:42
Surr: Toluene-d8	96.1			85-120	%REC	0.801	7/10/2016 19:42

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	23	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-65 (6'-8")
Collection Date: 6/28/2016 08:30 AM

Work Order: 1607017
Lab ID: 1607017-30
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2		Prep: SW3546 / 7/6/16		Analyst: IT
DRO (C10-C20)	74		8.3	53	mg/Kg-dry	5	7/7/2016 12:13
ORO (C20-C34)	120		17	53	mg/Kg-dry	5	7/7/2016 12:13
Surr: 4-Terphenyl-d14	80.0			39-133	%REC	5	7/7/2016 12:13
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1		Prep: SW5035 / 7/6/16		Analyst: IT
GRO (C6-C10)	U		1,300	5,000	µg/Kg-dry	1	7/7/2016 13:49
Surr: a,a,a-Trifluorotoluene	99.4			80-120	%REC	1	7/7/2016 13:49
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/7/16		Analyst: LR
Mercury	0.016	J	0.0029	0.017	mg/Kg-dry	1	7/7/2016 20:40
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	8.8		0.12	0.48	mg/Kg-dry	1	7/9/2016 22:53
Barium	300		0.19	0.48	mg/Kg-dry	1	7/9/2016 22:53
Cadmium	0.25	J	0.046	0.96	mg/Kg-dry	1	7/9/2016 22:53
Chromium	18		0.027	0.48	mg/Kg-dry	1	7/9/2016 22:53
Lead	40		0.10	0.48	mg/Kg-dry	1	7/9/2016 22:53
Selenium	0.79	J	0.27	0.96	mg/Kg-dry	1	7/9/2016 22:53
Silver	0.41	J	0.059	0.48	mg/Kg-dry	1	7/9/2016 22:53
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: LSY
1,1,1-Trichloroethane	U		0.18	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,1,2,2-Tetrachloroethane	U		0.13	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,1,2-Trichloroethane	U		0.72	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,1,2-Trichlorotrifluoroethane	U		0.21	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,1-Dichloroethane	U		0.15	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,1-Dichloroethene	U		0.20	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,2,4-Trichlorobenzene	U		0.16	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,2-Dibromo-3-chloropropane	U		0.61	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,2-Dibromoethane	U		0.18	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,2-Dichlorobenzene	U		0.10	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,2-Dichloroethane	U		0.18	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,2-Dichloropropane	U		0.42	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,3-Dichlorobenzene	U		0.097	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
1,4-Dichlorobenzene	U		0.20	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
2-Butanone	5.9	J	0.99	12	µg/Kg-dry	0.917	7/10/2016 20:06
2-Hexanone	U		0.78	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
4-Methyl-2-pentanone	U		0.22	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Acetone	41		1.8	12	µg/Kg-dry	0.917	7/10/2016 20:06
Benzene	U		0.11	5.9	µg/Kg-dry	0.917	7/10/2016 20:06

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-65 (6'-8')
Collection Date: 6/28/2016 08:30 AM

Work Order: 1607017
Lab ID: 1607017-30
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.13	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Bromoform	U		0.17	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Bromomethane	U		0.36	12	µg/Kg-dry	0.917	7/10/2016 20:06
Carbon disulfide	2.5	J	0.22	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Carbon tetrachloride	U		0.28	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Chlorobenzene	U		0.19	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Chloroethane	U		0.61	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Chloroform	U		0.24	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Chloromethane	U		0.30	12	µg/Kg-dry	0.917	7/10/2016 20:06
cis-1,2-Dichloroethene	U		0.14	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
cis-1,3-Dichloropropene	U		0.13	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Cyclohexane	U		0.20	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Dibromochloromethane	U		0.17	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Dichlorodifluoromethane	U		0.30	12	µg/Kg-dry	0.917	7/10/2016 20:06
Ethylbenzene	U		0.14	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Isopropylbenzene	U		0.17	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
m,p-Xylene	U		0.43	2.9	µg/Kg-dry	0.917	7/10/2016 20:06
Methyl acetate	U		0.53	12	µg/Kg-dry	0.917	7/10/2016 20:06
Methyl tert-butyl ether	U		0.22	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Methylcyclohexane	U		0.25	12	µg/Kg-dry	0.917	7/10/2016 20:06
Methylene chloride	U		0.16	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
o-Xylene	U		0.21	2.9	µg/Kg-dry	0.917	7/10/2016 20:06
Styrene	U		0.35	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Tetrachloroethene	U		0.26	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Toluene	U		0.15	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
trans-1,2-Dichloroethene	U		0.27	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
trans-1,3-Dichloropropene	U		0.19	12	µg/Kg-dry	0.917	7/10/2016 20:06
Trichloroethene	U		0.22	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Trichlorofluoromethane	U		0.32	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Vinyl chloride	U		0.19	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Xylenes, Total	U		0.63	5.9	µg/Kg-dry	0.917	7/10/2016 20:06
Surr: 1,2-Dichloroethane-d4	103			70-120	%REC	0.917	7/10/2016 20:06
Surr: 4-Bromofluorobenzene	97.2			75-120	%REC	0.917	7/10/2016 20:06
Surr: Dibromofluoromethane	96.4			85-115	%REC	0.917	7/10/2016 20:06
Surr: Toluene-d8	97.2			85-120	%REC	0.917	7/10/2016 20:06

MOISTURE

Method: SW3550C

Analyst: EDL

Moisture	22	0.025	0.050	% of sample	1	7/6/2016 12:49
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Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-61 GW
Collection Date: 6/28/2016 04:30 PM

Work Order: 1607017
Lab ID: 1607017-31
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2			Prep: SW3511 / 7/1/16	Analyst: IT
DRO (C10-C20)	0.37		0.023	0.10	mg/L	1	7/1/2016 21:02
ORO (C20-C34)	0.16		0.026	0.10	mg/L	1	7/1/2016 21:02
Surr: 4-Terphenyl-d14	115			31-176	%REC	1	7/1/2016 21:02
GASOLINE RANGE ORGANICS BY GC-FID/PID							
			Method: OA-1				Analyst: IT
GRO (C6-C10)	U		17	100	µg/L	1	7/7/2016 05:07
Surr: a,a,a-Trifluorotoluene	99.6			80-120	%REC	1	7/7/2016 05:07
MERCURY BY CVAA (DISSOLVED)							
			Method: SW7470A			Prep: SW7470 / 7/7/16	Analyst: LR
Mercury	0.00059		0.000019	0.00020	mg/L	1	7/7/2016 18:07
METALS BY ICP-MS (DISSOLVED)							
			Method: SW6020A			Prep: SW3005A / 7/6/16	Analyst: ML
Arsenic	0.0012	J	0.00087	0.0050	mg/L	1	7/7/2016 01:56
Barium	0.33		0.0022	0.0050	mg/L	1	7/7/2016 01:56
Cadmium	0.011		0.000050	0.0020	mg/L	1	7/7/2016 01:56
Chromium	0.0028	J	0.00065	0.0050	mg/L	1	7/7/2016 01:56
Lead	0.026		0.00033	0.0050	mg/L	1	7/7/2016 01:56
Selenium	0.0017	J	0.00090	0.0050	mg/L	1	7/7/2016 01:56
Silver	U		0.000050	0.0050	mg/L	1	7/7/2016 01:56
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: BJB
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	7/11/2016 12:38
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	7/11/2016 12:38
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	7/11/2016 12:38
1,1,2-Trichlorotrifluoroethane	U		0.42	1.0	µg/L	1	7/11/2016 12:38
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	7/11/2016 12:38
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	7/11/2016 12:38
1,2,4-Trichlorobenzene	U		0.21	1.0	µg/L	1	7/11/2016 12:38
1,2-Dibromo-3-chloropropane	U		0.97	1.0	µg/L	1	7/11/2016 12:38
1,2-Dibromoethane	U		0.98	1.0	µg/L	1	7/11/2016 12:38
1,2-Dichlorobenzene	U		0.22	1.0	µg/L	1	7/11/2016 12:38
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	7/11/2016 12:38
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	7/11/2016 12:38
1,3-Dichlorobenzene	U		0.29	1.0	µg/L	1	7/11/2016 12:38
1,4-Dichlorobenzene	U		0.21	1.0	µg/L	1	7/11/2016 12:38
2-Butanone	U		0.58	5.0	µg/L	1	7/11/2016 12:38
2-Hexanone	U		0.13	5.0	µg/L	1	7/11/2016 12:38
4-Methyl-2-pentanone	U		0.11	1.0	µg/L	1	7/11/2016 12:38
Acetone	U		0.92	10	µg/L	1	7/11/2016 12:38
Benzene	U		0.30	1.0	µg/L	1	7/11/2016 12:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-61 GW
Collection Date: 6/28/2016 04:30 PM

Work Order: 1607017
Lab ID: 1607017-31
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.23	1.0	µg/L	1	7/11/2016 12:38
Bromoform	U		0.77	1.0	µg/L	1	7/11/2016 12:38
Bromomethane	U		0.38	1.0	µg/L	1	7/11/2016 12:38
Carbon disulfide	U		0.23	1.0	µg/L	1	7/11/2016 12:38
Carbon tetrachloride	U		0.31	1.0	µg/L	1	7/11/2016 12:38
Chlorobenzene	U		0.27	1.0	µg/L	1	7/11/2016 12:38
Chloroethane	U		0.29	1.0	µg/L	1	7/11/2016 12:38
Chloroform	U		0.26	1.0	µg/L	1	7/11/2016 12:38
Chloromethane	U		0.17	1.0	µg/L	1	7/11/2016 12:38
cis-1,2-Dichloroethene	U		0.25	1.0	µg/L	1	7/11/2016 12:38
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	7/11/2016 12:38
Cyclohexane	U		0.22	1.0	µg/L	1	7/11/2016 12:38
Dibromochloromethane	U		0.38	1.0	µg/L	1	7/11/2016 12:38
Dichlorodifluoromethane	U		0.13	1.0	µg/L	1	7/11/2016 12:38
Ethylbenzene	U		0.40	1.0	µg/L	1	7/11/2016 12:38
Isopropylbenzene	U		0.31	1.0	µg/L	1	7/11/2016 12:38
m,p-Xylene	U		0.98	2.0	µg/L	1	7/11/2016 12:38
Methyl acetate	U		0.23	2.0	µg/L	1	7/11/2016 12:38
Methyl tert-butyl ether	U		0.12	1.0	µg/L	1	7/11/2016 12:38
Methylcyclohexane	U		0.27	1.0	µg/L	1	7/11/2016 12:38
Methylene chloride	U		0.56	5.0	µg/L	1	7/11/2016 12:38
o-Xylene	U		0.35	1.0	µg/L	1	7/11/2016 12:38
Styrene	U		0.24	1.0	µg/L	1	7/11/2016 12:38
Tetrachloroethene	U		0.27	1.0	µg/L	1	7/11/2016 12:38
Toluene	6.7		0.37	1.0	µg/L	1	7/11/2016 12:38
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	7/11/2016 12:38
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	7/11/2016 12:38
Trichloroethene	U		0.30	1.0	µg/L	1	7/11/2016 12:38
Trichlorofluoromethane	U		0.20	1.0	µg/L	1	7/11/2016 12:38
Vinyl chloride	U		0.20	1.0	µg/L	1	7/11/2016 12:38
Xylenes, Total	U		1.3	3.0	µg/L	1	7/11/2016 12:38
Surr: 1,2-Dichloroethane-d4	102			75-120	%REC	1	7/11/2016 12:38
Surr: 4-Bromofluorobenzene	93.4			80-110	%REC	1	7/11/2016 12:38
Surr: Dibromofluoromethane	99.6			85-115	%REC	1	7/11/2016 12:38
Surr: Toluene-d8	95.3			85-110	%REC	1	7/11/2016 12:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-51 (5-6 ft)
Collection Date: 6/27/2016 04:30 PM

Work Order: 1607017
Lab ID: 1607017-32
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.037		0.0027	0.016	mg/Kg-dry	1	7/8/2016 14:39
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	14		0.13	0.49	mg/Kg-dry	1	7/9/2016 22:59
Barium	130		0.20	0.49	mg/Kg-dry	1	7/9/2016 22:59
Cadmium	0.10	J	0.047	0.98	mg/Kg-dry	1	7/9/2016 22:59
Chromium	22		0.028	0.49	mg/Kg-dry	1	7/9/2016 22:59
Lead	38		0.10	0.49	mg/Kg-dry	1	7/9/2016 22:59
Selenium	U		0.28	0.98	mg/Kg-dry	1	7/9/2016 22:59
Silver	U		0.061	0.49	mg/Kg-dry	1	7/9/2016 22:59
<hr/>							
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	22		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-52 (5-6 ft)
Collection Date: 6/27/2016 04:55 PM

Work Order: 1607017
Lab ID: 1607017-33
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.084		0.0025	0.015	mg/Kg-dry	1	7/8/2016 14:42
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	10		0.12	0.45	mg/Kg-dry	1	7/9/2016 23:04
Barium	490		0.18	0.45	mg/Kg-dry	1	7/9/2016 23:04
Cadmium	0.23	J	0.043	0.90	mg/Kg-dry	1	7/9/2016 23:04
Chromium	21		0.025	0.45	mg/Kg-dry	1	7/9/2016 23:04
Lead	52		0.095	0.45	mg/Kg-dry	1	7/9/2016 23:04
Selenium	U		0.25	0.90	mg/Kg-dry	1	7/9/2016 23:04
Silver	U		0.056	0.45	mg/Kg-dry	1	7/9/2016 23:04
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	19		0.025	0.050	% of sample	1	7/6/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
 Project: Elkem Carbide X9025-14-0002-019-017
 Sample ID: B-53 (5-6 ft)
 Collection Date: 6/28/2016 12:05 PM

Work Order: 1607017
 Lab ID: 1607017-34
 Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.026		0.0027	0.017	mg/Kg-dry	1	7/8/2016 14:44
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	12		0.13	0.50	mg/Kg-dry	1	7/9/2016 23:10
Barium	340		0.20	0.50	mg/Kg-dry	1	7/9/2016 23:10
Cadmium	0.17	J	0.048	1.0	mg/Kg-dry	1	7/9/2016 23:10
Chromium	21		0.028	0.50	mg/Kg-dry	1	7/9/2016 23:10
Lead	18		0.11	0.50	mg/Kg-dry	1	7/9/2016 23:10
Selenium	U		0.28	1.0	mg/Kg-dry	1	7/9/2016 23:10
Silver	U		0.062	0.50	mg/Kg-dry	1	7/9/2016 23:10
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-54 (5-6 ft)
Collection Date: 6/28/2016 12:17 PM

Work Order: 1607017
Lab ID: 1607017-35
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.023		0.0029	0.018	mg/Kg-dry	1	7/8/2016 14:46
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	8.2		0.12	0.48	mg/Kg-dry	1	7/9/2016 23:15
Barium	160		0.19	0.48	mg/Kg-dry	1	7/9/2016 23:15
Cadmium	U		0.046	0.95	mg/Kg-dry	1	7/9/2016 23:15
Chromium	22		0.027	0.48	mg/Kg-dry	1	7/9/2016 23:15
Lead	18		0.10	0.48	mg/Kg-dry	1	7/9/2016 23:15
Selenium	U		0.27	0.95	mg/Kg-dry	1	7/9/2016 23:15
Silver	U		0.059	0.48	mg/Kg-dry	1	7/9/2016 23:15
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-55 (5-6 ft)
Collection Date: 6/28/2016 01:40 PM

Work Order: 1607017
Lab ID: 1607017-36
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.036		0.0027	0.016	mg/Kg-dry	1	7/8/2016 14:48
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	21		0.12	0.46	mg/Kg-dry	1	7/9/2016 23:21
Barium	630		0.18	0.46	mg/Kg-dry	1	7/9/2016 23:21
Cadmium	2.9		0.044	0.92	mg/Kg-dry	1	7/9/2016 23:21
Chromium	21		0.026	0.46	mg/Kg-dry	1	7/9/2016 23:21
Lead	29		0.097	0.46	mg/Kg-dry	1	7/9/2016 23:21
Selenium	U		5.1	18	mg/Kg-dry	20	7/11/2016 21:21
Silver	0.67		0.057	0.46	mg/Kg-dry	1	7/9/2016 23:21
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	21		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (5-6 ft)
Collection Date: 6/28/2016 02:30 PM

Work Order: 1607017
Lab ID: 1607017-37
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF	
1,1'-Biphenyl	U		13	81	µg/Kg-dry	1	7/8/2016 03:36
2,4,5-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 03:36
2,4,6-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 03:36
2,4-Dichlorophenol	U		17	81	µg/Kg-dry	1	7/8/2016 03:36
2,4-Dimethylphenol	U		17	81	µg/Kg-dry	1	7/8/2016 03:36
2,4-Dinitrophenol	U		44	81	µg/Kg-dry	1	7/8/2016 03:36
2,4-Dinitrotoluene	U		21	81	µg/Kg-dry	1	7/8/2016 03:36
2,6-Dinitrotoluene	U		13	81	µg/Kg-dry	1	7/8/2016 03:36
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 03:36
2-Chlorophenol	U		26	81	µg/Kg-dry	1	7/8/2016 03:36
2-Methylnaphthalene	U		8.3	16	µg/Kg-dry	1	7/8/2016 03:36
2-Methylphenol	U		22	81	µg/Kg-dry	1	7/8/2016 03:36
2-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 03:36
2-Nitrophenol	U		23	81	µg/Kg-dry	1	7/8/2016 03:36
3&4-Methylphenol	U		16	81	µg/Kg-dry	1	7/8/2016 03:36
3,3'-Dichlorobenzidine	U		12	410	µg/Kg-dry	1	7/8/2016 03:36
3-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 03:36
4,6-Dinitro-2-methylphenol	U		20	81	µg/Kg-dry	1	7/8/2016 03:36
4-Bromophenyl phenyl ether	U		22	81	µg/Kg-dry	1	7/8/2016 03:36
4-Chloro-3-methylphenol	U		23	81	µg/Kg-dry	1	7/8/2016 03:36
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 03:36
4-Chlorophenyl phenyl ether	U		23	81	µg/Kg-dry	1	7/8/2016 03:36
4-Nitroaniline	U		130	410	µg/Kg-dry	1	7/8/2016 03:36
4-Nitrophenol	U		73	81	µg/Kg-dry	1	7/8/2016 03:36
Acenaphthene	50		12	16	µg/Kg-dry	1	7/8/2016 03:36
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 03:36
Acetophenone	U		13	81	µg/Kg-dry	1	7/8/2016 03:36
Anthracene	190		11	16	µg/Kg-dry	1	7/8/2016 03:36
Atrazine	U		13	81	µg/Kg-dry	1	7/8/2016 03:36
Benzaldehyde	U		130	160	µg/Kg-dry	1	7/8/2016 03:36
Benzo(a)anthracene	1,200		14	16	µg/Kg-dry	1	7/8/2016 03:36
Benzo(a)pyrene	1,200		10	16	µg/Kg-dry	1	7/8/2016 03:36
Benzo(b)fluoranthene	1,700		12	16	µg/Kg-dry	1	7/8/2016 03:36
Benzo(g,h,i)perylene	860		12	16	µg/Kg-dry	1	7/8/2016 03:36
Benzo(k)fluoranthene	580		12	16	µg/Kg-dry	1	7/8/2016 03:36
Bis(2-chloroethoxy)methane	U		7.8	81	µg/Kg-dry	1	7/8/2016 03:36
Bis(2-chloroethyl)ether	U		23	81	µg/Kg-dry	1	7/8/2016 03:36
Bis(2-chloroisopropyl)ether	U		19	81	µg/Kg-dry	1	7/8/2016 03:36

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (5-6 ft)
Collection Date: 6/28/2016 02:30 PM

Work Order: 1607017
Lab ID: 1607017-37
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 03:36
Butyl benzyl phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 03:36
Caprolactam	U		28	81	µg/Kg-dry	1	7/8/2016 03:36
Carbazole	210		8.8	81	µg/Kg-dry	1	7/8/2016 03:36
Chrysene	1,400		13	16	µg/Kg-dry	1	7/8/2016 03:36
Dibenzo(a,h)anthracene	250		8.8	16	µg/Kg-dry	1	7/8/2016 03:36
Dibenzofuran	20	J	12	81	µg/Kg-dry	1	7/8/2016 03:36
Diethyl phthalate	U		12	81	µg/Kg-dry	1	7/8/2016 03:36
Dimethyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 03:36
Di-n-butyl phthalate	U		15	81	µg/Kg-dry	1	7/8/2016 03:36
Di-n-octyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 03:36
Fluoranthene	2,000		7.8	16	µg/Kg-dry	1	7/8/2016 03:36
Fluorene	64		12	16	µg/Kg-dry	1	7/8/2016 03:36
Hexachlorobenzene	U		24	81	µg/Kg-dry	1	7/8/2016 03:36
Hexachlorobutadiene	U		44	81	µg/Kg-dry	1	7/8/2016 03:36
Hexachlorocyclopentadiene	U		28	81	µg/Kg-dry	1	7/8/2016 03:36
Hexachloroethane	U		34	81	µg/Kg-dry	1	7/8/2016 03:36
Indeno(1,2,3-cd)pyrene	960		11	16	µg/Kg-dry	1	7/8/2016 03:36
Isophorone	U		16	410	µg/Kg-dry	1	7/8/2016 03:36
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 03:36
Nitrobenzene	U		27	410	µg/Kg-dry	1	7/8/2016 03:36
N-Nitrosodi-n-propylamine	U		13	81	µg/Kg-dry	1	7/8/2016 03:36
N-Nitrosodiphenylamine	U		7.8	81	µg/Kg-dry	1	7/8/2016 03:36
Pentachlorophenol	U		30	81	µg/Kg-dry	1	7/8/2016 03:36
Phenanthrene	890		7.6	16	µg/Kg-dry	1	7/8/2016 03:36
Phenol	U		20	81	µg/Kg-dry	1	7/8/2016 03:36
Pyrene	2,200		3.0	16	µg/Kg-dry	1	7/8/2016 03:36
Surr: 2,4,6-Tribromophenol	72.9			34-140	%REC	1	7/8/2016 03:36
Surr: 2-Fluorobiphenyl	66.0			12-100	%REC	1	7/8/2016 03:36
Surr: 2-Fluorophenol	83.9			33-117	%REC	1	7/8/2016 03:36
Surr: 4-Terphenyl-d14	90.1			25-137	%REC	1	7/8/2016 03:36
Surr: Nitrobenzene-d5	65.9			37-107	%REC	1	7/8/2016 03:36
Surr: Phenol-d6	80.8			40-106	%REC	1	7/8/2016 03:36
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	18		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (5-6 ft)
Collection Date: 6/28/2016 02:07 PM

Work Order: 1607017
Lab ID: 1607017-38
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	U		13	79	µg/Kg-dry	1	7/8/2016 03:59
2,4,5-Trichlorophenol	U		22	79	µg/Kg-dry	1	7/8/2016 03:59
2,4,6-Trichlorophenol	U		21	79	µg/Kg-dry	1	7/8/2016 03:59
2,4-Dichlorophenol	U		17	79	µg/Kg-dry	1	7/8/2016 03:59
2,4-Dimethylphenol	U		16	79	µg/Kg-dry	1	7/8/2016 03:59
2,4-Dinitrophenol	U		43	79	µg/Kg-dry	1	7/8/2016 03:59
2,4-Dinitrotoluene	U		21	79	µg/Kg-dry	1	7/8/2016 03:59
2,6-Dinitrotoluene	U		13	79	µg/Kg-dry	1	7/8/2016 03:59
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 03:59
2-Chlorophenol	U		25	79	µg/Kg-dry	1	7/8/2016 03:59
2-Methylnaphthalene	U		8.1	16	µg/Kg-dry	1	7/8/2016 03:59
2-Methylphenol	U		22	79	µg/Kg-dry	1	7/8/2016 03:59
2-Nitroaniline	U		18	79	µg/Kg-dry	1	7/8/2016 03:59
2-Nitrophenol	U		23	79	µg/Kg-dry	1	7/8/2016 03:59
3&4-Methylphenol	U		16	79	µg/Kg-dry	1	7/8/2016 03:59
3,3'-Dichlorobenzidine	U		12	400	µg/Kg-dry	1	7/8/2016 03:59
3-Nitroaniline	U		18	79	µg/Kg-dry	1	7/8/2016 03:59
4,6-Dinitro-2-methylphenol	U		20	79	µg/Kg-dry	1	7/8/2016 03:59
4-Bromophenyl phenyl ether	U		21	79	µg/Kg-dry	1	7/8/2016 03:59
4-Chloro-3-methylphenol	U		23	79	µg/Kg-dry	1	7/8/2016 03:59
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 03:59
4-Chlorophenyl phenyl ether	U		22	79	µg/Kg-dry	1	7/8/2016 03:59
4-Nitroaniline	U		120	400	µg/Kg-dry	1	7/8/2016 03:59
4-Nitrophenol	U		71	79	µg/Kg-dry	1	7/8/2016 03:59
Acenaphthene	U		12	16	µg/Kg-dry	1	7/8/2016 03:59
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 03:59
Acetophenone	U		13	79	µg/Kg-dry	1	7/8/2016 03:59
Anthracene	38		11	16	µg/Kg-dry	1	7/8/2016 03:59
Atrazine	U		13	79	µg/Kg-dry	1	7/8/2016 03:59
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 03:59
Benzo(a)anthracene	230		14	16	µg/Kg-dry	1	7/8/2016 03:59
Benzo(a)pyrene	230		9.8	16	µg/Kg-dry	1	7/8/2016 03:59
Benzo(b)fluoranthene	330		12	16	µg/Kg-dry	1	7/8/2016 03:59
Benzo(g,h,i)perylene	160		12	16	µg/Kg-dry	1	7/8/2016 03:59
Benzo(k)fluoranthene	140		12	16	µg/Kg-dry	1	7/8/2016 03:59
Bis(2-chloroethoxy)methane	U		7.7	79	µg/Kg-dry	1	7/8/2016 03:59
Bis(2-chloroethyl)ether	U		23	79	µg/Kg-dry	1	7/8/2016 03:59
Bis(2-chloroisopropyl)ether	U		19	79	µg/Kg-dry	1	7/8/2016 03:59

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (5-6 ft)
Collection Date: 6/28/2016 02:07 PM

Work Order: 1607017
Lab ID: 1607017-38
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	79	µg/Kg-dry	1	7/8/2016 03:59
Butyl benzyl phthalate	U		14	79	µg/Kg-dry	1	7/8/2016 03:59
Caprolactam	U		27	79	µg/Kg-dry	1	7/8/2016 03:59
Carbazole	67	J	8.6	79	µg/Kg-dry	1	7/8/2016 03:59
Chrysene	250		13	16	µg/Kg-dry	1	7/8/2016 03:59
Dibenzo(a,h)anthracene	69		8.6	16	µg/Kg-dry	1	7/8/2016 03:59
Dibenzofuran	U		12	79	µg/Kg-dry	1	7/8/2016 03:59
Diethyl phthalate	U		12	79	µg/Kg-dry	1	7/8/2016 03:59
Dimethyl phthalate	U		16	79	µg/Kg-dry	1	7/8/2016 03:59
Di-n-butyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 03:59
Di-n-octyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 03:59
Fluoranthene	400		7.7	16	µg/Kg-dry	1	7/8/2016 03:59
Fluorene	45		12	16	µg/Kg-dry	1	7/8/2016 03:59
Hexachlorobenzene	U		23	79	µg/Kg-dry	1	7/8/2016 03:59
Hexachlorobutadiene	U		43	79	µg/Kg-dry	1	7/8/2016 03:59
Hexachlorocyclopentadiene	U		27	79	µg/Kg-dry	1	7/8/2016 03:59
Hexachloroethane	U		33	79	µg/Kg-dry	1	7/8/2016 03:59
Indeno(1,2,3-cd)pyrene	200		11	16	µg/Kg-dry	1	7/8/2016 03:59
Isophorone	U		16	400	µg/Kg-dry	1	7/8/2016 03:59
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 03:59
Nitrobenzene	U		27	400	µg/Kg-dry	1	7/8/2016 03:59
N-Nitrosodi-n-propylamine	U		13	79	µg/Kg-dry	1	7/8/2016 03:59
N-Nitrosodiphenylamine	U		7.7	79	µg/Kg-dry	1	7/8/2016 03:59
Pentachlorophenol	U		29	79	µg/Kg-dry	1	7/8/2016 03:59
Phenanthrene	170		7.4	16	µg/Kg-dry	1	7/8/2016 03:59
Phenol	U		20	79	µg/Kg-dry	1	7/8/2016 03:59
Pyrene	410		2.9	16	µg/Kg-dry	1	7/8/2016 03:59
Surr: 2,4,6-Tribromophenol	69.7			34-140	%REC	1	7/8/2016 03:59
Surr: 2-Fluorobiphenyl	64.7			12-100	%REC	1	7/8/2016 03:59
Surr: 2-Fluorophenol	84.7			33-117	%REC	1	7/8/2016 03:59
Surr: 4-Terphenyl-d14	89.9			25-137	%REC	1	7/8/2016 03:59
Surr: Nitrobenzene-d5	66.3			37-107	%REC	1	7/8/2016 03:59
Surr: Phenol-d6	79.6			40-106	%REC	1	7/8/2016 03:59
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	19		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (5-6 ft)
Collection Date: 6/28/2016 02:16 PM

Work Order: 1607017
Lab ID: 1607017-39
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	U		13	79	µg/Kg-dry	1	7/8/2016 04:23
2,4,5-Trichlorophenol	U		22	79	µg/Kg-dry	1	7/8/2016 04:23
2,4,6-Trichlorophenol	U		21	79	µg/Kg-dry	1	7/8/2016 04:23
2,4-Dichlorophenol	U		17	79	µg/Kg-dry	1	7/8/2016 04:23
2,4-Dimethylphenol	U		16	79	µg/Kg-dry	1	7/8/2016 04:23
2,4-Dinitrophenol	U		43	79	µg/Kg-dry	1	7/8/2016 04:23
2,4-Dinitrotoluene	U		21	79	µg/Kg-dry	1	7/8/2016 04:23
2,6-Dinitrotoluene	U		13	79	µg/Kg-dry	1	7/8/2016 04:23
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 04:23
2-Chlorophenol	U		25	79	µg/Kg-dry	1	7/8/2016 04:23
2-Methylnaphthalene	U		8.1	16	µg/Kg-dry	1	7/8/2016 04:23
2-Methylphenol	U		22	79	µg/Kg-dry	1	7/8/2016 04:23
2-Nitroaniline	U		18	79	µg/Kg-dry	1	7/8/2016 04:23
2-Nitrophenol	U		23	79	µg/Kg-dry	1	7/8/2016 04:23
3&4-Methylphenol	U		16	79	µg/Kg-dry	1	7/8/2016 04:23
3,3'-Dichlorobenzidine	U		12	400	µg/Kg-dry	1	7/8/2016 04:23
3-Nitroaniline	U		18	79	µg/Kg-dry	1	7/8/2016 04:23
4,6-Dinitro-2-methylphenol	U		20	79	µg/Kg-dry	1	7/8/2016 04:23
4-Bromophenyl phenyl ether	U		21	79	µg/Kg-dry	1	7/8/2016 04:23
4-Chloro-3-methylphenol	U		23	79	µg/Kg-dry	1	7/8/2016 04:23
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 04:23
4-Chlorophenyl phenyl ether	U		22	79	µg/Kg-dry	1	7/8/2016 04:23
4-Nitroaniline	U		120	400	µg/Kg-dry	1	7/8/2016 04:23
4-Nitrophenol	U		71	79	µg/Kg-dry	1	7/8/2016 04:23
Acenaphthene	U		12	16	µg/Kg-dry	1	7/8/2016 04:23
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 04:23
Acetophenone	U		13	79	µg/Kg-dry	1	7/8/2016 04:23
Anthracene	U		11	16	µg/Kg-dry	1	7/8/2016 04:23
Atrazine	U		13	79	µg/Kg-dry	1	7/8/2016 04:23
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 04:23
Benzo(a)anthracene	63		14	16	µg/Kg-dry	1	7/8/2016 04:23
Benzo(a)pyrene	84		9.8	16	µg/Kg-dry	1	7/8/2016 04:23
Benzo(b)fluoranthene	98		12	16	µg/Kg-dry	1	7/8/2016 04:23
Benzo(g,h,i)perylene	34		12	16	µg/Kg-dry	1	7/8/2016 04:23
Benzo(k)fluoranthene	50		12	16	µg/Kg-dry	1	7/8/2016 04:23
Bis(2-chloroethoxy)methane	U		7.7	79	µg/Kg-dry	1	7/8/2016 04:23
Bis(2-chloroethyl)ether	U		23	79	µg/Kg-dry	1	7/8/2016 04:23
Bis(2-chloroisopropyl)ether	U		19	79	µg/Kg-dry	1	7/8/2016 04:23

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (5-6 ft)
Collection Date: 6/28/2016 02:16 PM

Work Order: 1607017
Lab ID: 1607017-39
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	79	µg/Kg-dry	1	7/8/2016 04:23
Butyl benzyl phthalate	U		14	79	µg/Kg-dry	1	7/8/2016 04:23
Caprolactam	U		27	79	µg/Kg-dry	1	7/8/2016 04:23
Carbazole	51	J	8.6	79	µg/Kg-dry	1	7/8/2016 04:23
Chrysene	41		13	16	µg/Kg-dry	1	7/8/2016 04:23
Dibenzo(a,h)anthracene	U		8.6	16	µg/Kg-dry	1	7/8/2016 04:23
Dibenzofuran	U		12	79	µg/Kg-dry	1	7/8/2016 04:23
Diethyl phthalate	U		12	79	µg/Kg-dry	1	7/8/2016 04:23
Dimethyl phthalate	U		16	79	µg/Kg-dry	1	7/8/2016 04:23
Di-n-butyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 04:23
Di-n-octyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 04:23
Fluoranthene	120		7.7	16	µg/Kg-dry	1	7/8/2016 04:23
Fluorene	U		12	16	µg/Kg-dry	1	7/8/2016 04:23
Hexachlorobenzene	U		23	79	µg/Kg-dry	1	7/8/2016 04:23
Hexachlorobutadiene	U		43	79	µg/Kg-dry	1	7/8/2016 04:23
Hexachlorocyclopentadiene	U		27	79	µg/Kg-dry	1	7/8/2016 04:23
Hexachloroethane	U		33	79	µg/Kg-dry	1	7/8/2016 04:23
Indeno(1,2,3-cd)pyrene	65		11	16	µg/Kg-dry	1	7/8/2016 04:23
Isophorone	U		16	400	µg/Kg-dry	1	7/8/2016 04:23
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 04:23
Nitrobenzene	U		27	400	µg/Kg-dry	1	7/8/2016 04:23
N-Nitrosodi-n-propylamine	U		13	79	µg/Kg-dry	1	7/8/2016 04:23
N-Nitrosodiphenylamine	U		7.7	79	µg/Kg-dry	1	7/8/2016 04:23
Pentachlorophenol	U		29	79	µg/Kg-dry	1	7/8/2016 04:23
Phenanthrene	69		7.4	16	µg/Kg-dry	1	7/8/2016 04:23
Phenol	U		20	79	µg/Kg-dry	1	7/8/2016 04:23
Pyrene	81		2.9	16	µg/Kg-dry	1	7/8/2016 04:23
Surr: 2,4,6-Tribromophenol	70.5			34-140	%REC	1	7/8/2016 04:23
Surr: 2-Fluorobiphenyl	65.6			12-100	%REC	1	7/8/2016 04:23
Surr: 2-Fluorophenol	81.6			33-117	%REC	1	7/8/2016 04:23
Surr: 4-Terphenyl-d14	96.9			25-137	%REC	1	7/8/2016 04:23
Surr: Nitrobenzene-d5	65.7			37-107	%REC	1	7/8/2016 04:23
Surr: Phenol-d6	80.0			40-106	%REC	1	7/8/2016 04:23
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (5-6 ft)
Collection Date: 6/28/2016 03:10 PM

Work Order: 1607017
Lab ID: 1607017-40
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	U		13	81	µg/Kg-dry	1	7/8/2016 04:46
2,4,5-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 04:46
2,4,6-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 04:46
2,4-Dichlorophenol	U		17	81	µg/Kg-dry	1	7/8/2016 04:46
2,4-Dimethylphenol	U		17	81	µg/Kg-dry	1	7/8/2016 04:46
2,4-Dinitrophenol	U		44	81	µg/Kg-dry	1	7/8/2016 04:46
2,4-Dinitrotoluene	U		21	81	µg/Kg-dry	1	7/8/2016 04:46
2,6-Dinitrotoluene	U		13	81	µg/Kg-dry	1	7/8/2016 04:46
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 04:46
2-Chlorophenol	U		26	81	µg/Kg-dry	1	7/8/2016 04:46
2-Methylnaphthalene	U		8.3	16	µg/Kg-dry	1	7/8/2016 04:46
2-Methylphenol	U		22	81	µg/Kg-dry	1	7/8/2016 04:46
2-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 04:46
2-Nitrophenol	U		23	81	µg/Kg-dry	1	7/8/2016 04:46
3&4-Methylphenol	U		16	81	µg/Kg-dry	1	7/8/2016 04:46
3,3'-Dichlorobenzidine	U		12	410	µg/Kg-dry	1	7/8/2016 04:46
3-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 04:46
4,6-Dinitro-2-methylphenol	U		20	81	µg/Kg-dry	1	7/8/2016 04:46
4-Bromophenyl phenyl ether	U		22	81	µg/Kg-dry	1	7/8/2016 04:46
4-Chloro-3-methylphenol	U		23	81	µg/Kg-dry	1	7/8/2016 04:46
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 04:46
4-Chlorophenyl phenyl ether	U		23	81	µg/Kg-dry	1	7/8/2016 04:46
4-Nitroaniline	U		130	410	µg/Kg-dry	1	7/8/2016 04:46
4-Nitrophenol	U		73	81	µg/Kg-dry	1	7/8/2016 04:46
Acenaphthene	42		12	16	µg/Kg-dry	1	7/8/2016 04:46
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 04:46
Acetophenone	U		13	81	µg/Kg-dry	1	7/8/2016 04:46
Anthracene	94		11	16	µg/Kg-dry	1	7/8/2016 04:46
Atrazine	U		13	81	µg/Kg-dry	1	7/8/2016 04:46
Benzaldehyde	U		130	160	µg/Kg-dry	1	7/8/2016 04:46
Benzo(a)anthracene	390		14	16	µg/Kg-dry	1	7/8/2016 04:46
Benzo(a)pyrene	370		10	16	µg/Kg-dry	1	7/8/2016 04:46
Benzo(b)fluoranthene	530		12	16	µg/Kg-dry	1	7/8/2016 04:46
Benzo(g,h,i)perylene	230		13	16	µg/Kg-dry	1	7/8/2016 04:46
Benzo(k)fluoranthene	180		12	16	µg/Kg-dry	1	7/8/2016 04:46
Bis(2-chloroethoxy)methane	U		7.8	81	µg/Kg-dry	1	7/8/2016 04:46
Bis(2-chloroethyl)ether	U		23	81	µg/Kg-dry	1	7/8/2016 04:46
Bis(2-chloroisopropyl)ether	U		19	81	µg/Kg-dry	1	7/8/2016 04:46

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (5-6 ft)
Collection Date: 6/28/2016 03:10 PM

Work Order: 1607017
Lab ID: 1607017-40
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 04:46
Butyl benzyl phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 04:46
Caprolactam	U		28	81	µg/Kg-dry	1	7/8/2016 04:46
Carbazole	98		8.8	81	µg/Kg-dry	1	7/8/2016 04:46
Chrysene	390		13	16	µg/Kg-dry	1	7/8/2016 04:46
Dibenzo(a,h)anthracene	93		8.8	16	µg/Kg-dry	1	7/8/2016 04:46
Dibenzofuran	U		12	81	µg/Kg-dry	1	7/8/2016 04:46
Diethyl phthalate	U		12	81	µg/Kg-dry	1	7/8/2016 04:46
Dimethyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 04:46
Di-n-butyl phthalate	U		15	81	µg/Kg-dry	1	7/8/2016 04:46
Di-n-octyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 04:46
Fluoranthene	760		7.8	16	µg/Kg-dry	1	7/8/2016 04:46
Fluorene	61		12	16	µg/Kg-dry	1	7/8/2016 04:46
Hexachlorobenzene	U		24	81	µg/Kg-dry	1	7/8/2016 04:46
Hexachlorobutadiene	U		44	81	µg/Kg-dry	1	7/8/2016 04:46
Hexachlorocyclopentadiene	U		28	81	µg/Kg-dry	1	7/8/2016 04:46
Hexachloroethane	U		34	81	µg/Kg-dry	1	7/8/2016 04:46
Indeno(1,2,3-cd)pyrene	270		11	16	µg/Kg-dry	1	7/8/2016 04:46
Isophorone	U		16	410	µg/Kg-dry	1	7/8/2016 04:46
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 04:46
Nitrobenzene	U		27	410	µg/Kg-dry	1	7/8/2016 04:46
N-Nitrosodi-n-propylamine	U		13	81	µg/Kg-dry	1	7/8/2016 04:46
N-Nitrosodiphenylamine	U		7.8	81	µg/Kg-dry	1	7/8/2016 04:46
Pentachlorophenol	U		30	81	µg/Kg-dry	1	7/8/2016 04:46
Phenanthrene	420		7.6	16	µg/Kg-dry	1	7/8/2016 04:46
Phenol	U		20	81	µg/Kg-dry	1	7/8/2016 04:46
Pyrene	720		3.0	16	µg/Kg-dry	1	7/8/2016 04:46
Surr: 2,4,6-Tribromophenol	72.1			34-140	%REC	1	7/8/2016 04:46
Surr: 2-Fluorobiphenyl	66.6			12-100	%REC	1	7/8/2016 04:46
Surr: 2-Fluorophenol	84.4			33-117	%REC	1	7/8/2016 04:46
Surr: 4-Terphenyl-d14	89.0			25-137	%REC	1	7/8/2016 04:46
Surr: Nitrobenzene-d5	66.7			37-107	%REC	1	7/8/2016 04:46
Surr: Phenol-d6	84.6			40-106	%REC	1	7/8/2016 04:46
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	20		0.025	0.050	% of sample	1	7/6/2016 14:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (5-6 ft)
Collection Date: 6/28/2016 02:52 PM

Work Order: 1607017
Lab ID: 1607017-41
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D	Prep: SW3546 / 7/7/16		Analyst: JF	
1,1'-Biphenyl	U		14	85	µg/Kg-dry	1	7/8/2016 05:10
2,4,5-Trichlorophenol	U		23	85	µg/Kg-dry	1	7/8/2016 05:10
2,4,6-Trichlorophenol	U		23	85	µg/Kg-dry	1	7/8/2016 05:10
2,4-Dichlorophenol	U		18	85	µg/Kg-dry	1	7/8/2016 05:10
2,4-Dimethylphenol	U		18	85	µg/Kg-dry	1	7/8/2016 05:10
2,4-Dinitrophenol	U		46	85	µg/Kg-dry	1	7/8/2016 05:10
2,4-Dinitrotoluene	U		22	85	µg/Kg-dry	1	7/8/2016 05:10
2,6-Dinitrotoluene	U		14	85	µg/Kg-dry	1	7/8/2016 05:10
2-Chloronaphthalene	U		12	17	µg/Kg-dry	1	7/8/2016 05:10
2-Chlorophenol	U		27	85	µg/Kg-dry	1	7/8/2016 05:10
2-Methylnaphthalene	U		8.7	17	µg/Kg-dry	1	7/8/2016 05:10
2-Methylphenol	U		23	85	µg/Kg-dry	1	7/8/2016 05:10
2-Nitroaniline	U		20	85	µg/Kg-dry	1	7/8/2016 05:10
2-Nitrophenol	U		24	85	µg/Kg-dry	1	7/8/2016 05:10
3&4-Methylphenol	U		17	85	µg/Kg-dry	1	7/8/2016 05:10
3,3'-Dichlorobenzidine	U		13	430	µg/Kg-dry	1	7/8/2016 05:10
3-Nitroaniline	U		20	85	µg/Kg-dry	1	7/8/2016 05:10
4,6-Dinitro-2-methylphenol	U		22	85	µg/Kg-dry	1	7/8/2016 05:10
4-Bromophenyl phenyl ether	U		23	85	µg/Kg-dry	1	7/8/2016 05:10
4-Chloro-3-methylphenol	U		24	85	µg/Kg-dry	1	7/8/2016 05:10
4-Chloroaniline	U		14	170	µg/Kg-dry	1	7/8/2016 05:10
4-Chlorophenyl phenyl ether	U		24	85	µg/Kg-dry	1	7/8/2016 05:10
4-Nitroaniline	U		130	430	µg/Kg-dry	1	7/8/2016 05:10
4-Nitrophenol	U		77	85	µg/Kg-dry	1	7/8/2016 05:10
Acenaphthene	U		12	17	µg/Kg-dry	1	7/8/2016 05:10
Acenaphthylene	U		15	17	µg/Kg-dry	1	7/8/2016 05:10
Acetophenone	U		13	85	µg/Kg-dry	1	7/8/2016 05:10
Anthracene	21		12	17	µg/Kg-dry	1	7/8/2016 05:10
Atrazine	U		14	85	µg/Kg-dry	1	7/8/2016 05:10
Benzaldehyde	U		130	170	µg/Kg-dry	1	7/8/2016 05:10
Benzo(a)anthracene	140		15	17	µg/Kg-dry	1	7/8/2016 05:10
Benzo(a)pyrene	150		11	17	µg/Kg-dry	1	7/8/2016 05:10
Benzo(b)fluoranthene	180		13	17	µg/Kg-dry	1	7/8/2016 05:10
Benzo(g,h,i)perylene	89		13	17	µg/Kg-dry	1	7/8/2016 05:10
Benzo(k)fluoranthene	87		13	17	µg/Kg-dry	1	7/8/2016 05:10
Bis(2-chloroethoxy)methane	U		8.2	85	µg/Kg-dry	1	7/8/2016 05:10
Bis(2-chloroethyl)ether	U		24	85	µg/Kg-dry	1	7/8/2016 05:10
Bis(2-chloroisopropyl)ether	U		20	85	µg/Kg-dry	1	7/8/2016 05:10

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (5-6 ft)
Collection Date: 6/28/2016 02:52 PM

Work Order: 1607017
Lab ID: 1607017-41
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		15	85	µg/Kg-dry	1	7/8/2016 05:10
Butyl benzyl phthalate	U		15	85	µg/Kg-dry	1	7/8/2016 05:10
Caprolactam	U		29	85	µg/Kg-dry	1	7/8/2016 05:10
Carbazole	64	J	9.3	85	µg/Kg-dry	1	7/8/2016 05:10
Chrysene	130		14	17	µg/Kg-dry	1	7/8/2016 05:10
Dibenzo(a,h)anthracene	58		9.3	17	µg/Kg-dry	1	7/8/2016 05:10
Dibenzofuran	U		13	85	µg/Kg-dry	1	7/8/2016 05:10
Diethyl phthalate	U		13	85	µg/Kg-dry	1	7/8/2016 05:10
Dimethyl phthalate	U		17	85	µg/Kg-dry	1	7/8/2016 05:10
Di-n-butyl phthalate	U		16	85	µg/Kg-dry	1	7/8/2016 05:10
Di-n-octyl phthalate	U		16	85	µg/Kg-dry	1	7/8/2016 05:10
Fluoranthene	220		8.2	17	µg/Kg-dry	1	7/8/2016 05:10
Fluorene	U		12	17	µg/Kg-dry	1	7/8/2016 05:10
Hexachlorobenzene	U		25	85	µg/Kg-dry	1	7/8/2016 05:10
Hexachlorobutadiene	U		47	85	µg/Kg-dry	1	7/8/2016 05:10
Hexachlorocyclopentadiene	U		29	85	µg/Kg-dry	1	7/8/2016 05:10
Hexachloroethane	U		36	85	µg/Kg-dry	1	7/8/2016 05:10
Indeno(1,2,3-cd)pyrene	120		12	17	µg/Kg-dry	1	7/8/2016 05:10
Isophorone	U		17	430	µg/Kg-dry	1	7/8/2016 05:10
Naphthalene	U		11	17	µg/Kg-dry	1	7/8/2016 05:10
Nitrobenzene	U		29	430	µg/Kg-dry	1	7/8/2016 05:10
N-Nitrosodi-n-propylamine	U		14	85	µg/Kg-dry	1	7/8/2016 05:10
N-Nitrosodiphenylamine	U		8.2	85	µg/Kg-dry	1	7/8/2016 05:10
Pentachlorophenol	U		32	85	µg/Kg-dry	1	7/8/2016 05:10
Phenanthrene	130		8.0	17	µg/Kg-dry	1	7/8/2016 05:10
Phenol	U		21	85	µg/Kg-dry	1	7/8/2016 05:10
Pyrene	210		3.1	17	µg/Kg-dry	1	7/8/2016 05:10
Surr: 2,4,6-Tribromophenol	66.6			34-140	%REC	1	7/8/2016 05:10
Surr: 2-Fluorobiphenyl	62.3			12-100	%REC	1	7/8/2016 05:10
Surr: 2-Fluorophenol	78.8			33-117	%REC	1	7/8/2016 05:10
Surr: 4-Terphenyl-d14	91.8			25-137	%REC	1	7/8/2016 05:10
Surr: Nitrobenzene-d5	63.6			37-107	%REC	1	7/8/2016 05:10
Surr: Phenol-d6	77.0			40-106	%REC	1	7/8/2016 05:10
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	23		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-51 (7-8 ft)
Collection Date: 6/27/2016 04:34 PM

Work Order: 1607017
Lab ID: 1607017-42
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.055		0.0028	0.017	mg/Kg-dry	1	7/8/2016 14:57
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	11		0.11	0.43	mg/Kg-dry	1	7/9/2016 23:43
Barium	130		0.17	0.43	mg/Kg-dry	1	7/9/2016 23:43
Cadmium	0.11	J	0.041	0.86	mg/Kg-dry	1	7/9/2016 23:43
Chromium	19		0.024	0.43	mg/Kg-dry	1	7/9/2016 23:43
Lead	51		0.091	0.43	mg/Kg-dry	1	7/9/2016 23:43
Selenium	U		0.24	0.86	mg/Kg-dry	1	7/9/2016 23:43
Silver	U		0.053	0.43	mg/Kg-dry	1	7/9/2016 23:43
MOISTURE							
			Method: SW3550C				Analyst: LW
Moisture	20		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-52 (7-8 ft)
Collection Date: 6/27/2016 04:58 PM

Work Order: 1607017
Lab ID: 1607017-43
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.027		0.0026	0.016	mg/Kg-dry	1	7/8/2016 15:00
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	5.6		0.11	0.41	mg/Kg-dry	1	7/9/2016 23:49
Barium	130		0.16	0.41	mg/Kg-dry	1	7/9/2016 23:49
Cadmium	U		0.039	0.82	mg/Kg-dry	1	7/9/2016 23:49
Chromium	14		0.023	0.41	mg/Kg-dry	1	7/9/2016 23:49
Lead	13		0.087	0.41	mg/Kg-dry	1	7/9/2016 23:49
Selenium	U		0.23	0.82	mg/Kg-dry	1	7/9/2016 23:49
Silver	U		0.051	0.41	mg/Kg-dry	1	7/9/2016 23:49
MOISTURE							
			Method: SW3550C				Analyst: LW
Moisture	17		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-53 (7-8 ft)
Collection Date: 6/28/2016 12:07 PM

Work Order: 1607017
Lab ID: 1607017-44
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.029		0.0027	0.016	mg/Kg-dry	1	7/8/2016 15:06
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	6.5		0.11	0.43	mg/Kg-dry	1	7/9/2016 23:54
Barium	110		0.17	0.43	mg/Kg-dry	1	7/9/2016 23:54
Cadmium	U		0.041	0.85	mg/Kg-dry	1	7/9/2016 23:54
Chromium	19		0.024	0.43	mg/Kg-dry	1	7/9/2016 23:54
Lead	10		0.090	0.43	mg/Kg-dry	1	7/9/2016 23:54
Selenium	U		0.24	0.85	mg/Kg-dry	1	7/9/2016 23:54
Silver	U		0.053	0.43	mg/Kg-dry	1	7/9/2016 23:54
MOISTURE							
			Method: SW3550C				Analyst: LW
Moisture	19		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-54 (7-8 ft)
Collection Date: 6/28/2016 12:19 PM

Work Order: 1607017
Lab ID: 1607017-45
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.036		0.0028	0.017	mg/Kg-dry	1	7/8/2016 15:08
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	7.5		0.11	0.43	mg/Kg-dry	1	7/9/2016 23:59
Barium	140		0.17	0.43	mg/Kg-dry	1	7/9/2016 23:59
Cadmium	U		0.041	0.85	mg/Kg-dry	1	7/9/2016 23:59
Chromium	15		0.024	0.43	mg/Kg-dry	1	7/9/2016 23:59
Lead	15		0.090	0.43	mg/Kg-dry	1	7/9/2016 23:59
Selenium	U		0.24	0.85	mg/Kg-dry	1	7/9/2016 23:59
Silver	U		0.053	0.43	mg/Kg-dry	1	7/9/2016 23:59
MOISTURE							
			Method: SW3550C				Analyst: LW
Moisture	19		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 13-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Sample ID:** B-55 (7-8 ft)**Collection Date:** 6/28/2016 01:43 PM**Work Order:** 1607017**Lab ID:** 1607017-46**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
MERCURY BY CVAA			Method: SW7471B		Prep: SW7471 / 7/8/16		Analyst: LR
Mercury	0.021		0.0025	0.015	mg/Kg-dry	1	7/8/2016 15:11
<hr/>							
METALS ANALYSIS BY ICP			Method: SW846 6010C		Prep: SW3050B / 7/6/16		Analyst: JEC
Arsenic	6.2		0.11	0.41	mg/Kg-dry	1	7/10/2016 00:05
Barium	160		0.17	0.41	mg/Kg-dry	1	7/10/2016 00:05
Cadmium	U		0.040	0.83	mg/Kg-dry	1	7/10/2016 00:05
Chromium	11		0.023	0.41	mg/Kg-dry	1	7/10/2016 00:05
Lead	20		0.088	0.41	mg/Kg-dry	1	7/10/2016 00:05
Selenium	U		0.23	0.83	mg/Kg-dry	1	7/10/2016 00:05
Silver	U		0.051	0.41	mg/Kg-dry	1	7/10/2016 00:05
<hr/>							
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	17		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (7-8 ft)
Collection Date: 6/28/2016 02:33 PM

Work Order: 1607017
Lab ID: 1607017-47
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	46	J	13	79	µg/Kg-dry	1	7/8/2016 05:33
2,4,5-Trichlorophenol	U		22	79	µg/Kg-dry	1	7/8/2016 05:33
2,4,6-Trichlorophenol	U		21	79	µg/Kg-dry	1	7/8/2016 05:33
2,4-Dichlorophenol	U		17	79	µg/Kg-dry	1	7/8/2016 05:33
2,4-Dimethylphenol	U		16	79	µg/Kg-dry	1	7/8/2016 05:33
2,4-Dinitrophenol	U		43	79	µg/Kg-dry	1	7/8/2016 05:33
2,4-Dinitrotoluene	U		21	79	µg/Kg-dry	1	7/8/2016 05:33
2,6-Dinitrotoluene	U		13	79	µg/Kg-dry	1	7/8/2016 05:33
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 05:33
2-Chlorophenol	U		25	79	µg/Kg-dry	1	7/8/2016 05:33
2-Methylnaphthalene	U		8.1	16	µg/Kg-dry	1	7/8/2016 05:33
2-Methylphenol	U		21	79	µg/Kg-dry	1	7/8/2016 05:33
2-Nitroaniline	U		18	79	µg/Kg-dry	1	7/8/2016 05:33
2-Nitrophenol	U		23	79	µg/Kg-dry	1	7/8/2016 05:33
3&4-Methylphenol	U		16	79	µg/Kg-dry	1	7/8/2016 05:33
3,3'-Dichlorobenzidine	U		12	400	µg/Kg-dry	1	7/8/2016 05:33
3-Nitroaniline	U		18	79	µg/Kg-dry	1	7/8/2016 05:33
4,6-Dinitro-2-methylphenol	U		20	79	µg/Kg-dry	1	7/8/2016 05:33
4-Bromophenyl phenyl ether	U		21	79	µg/Kg-dry	1	7/8/2016 05:33
4-Chloro-3-methylphenol	U		23	79	µg/Kg-dry	1	7/8/2016 05:33
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/8/2016 05:33
4-Chlorophenyl phenyl ether	U		22	79	µg/Kg-dry	1	7/8/2016 05:33
4-Nitroaniline	U		120	400	µg/Kg-dry	1	7/8/2016 05:33
4-Nitrophenol	U		71	79	µg/Kg-dry	1	7/8/2016 05:33
Acenaphthene	110		11	16	µg/Kg-dry	1	7/8/2016 05:33
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 05:33
Acetophenone	U		12	79	µg/Kg-dry	1	7/8/2016 05:33
Anthracene	460		11	16	µg/Kg-dry	1	7/8/2016 05:33
Atrazine	U		13	79	µg/Kg-dry	1	7/8/2016 05:33
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 05:33
Benzo(a)anthracene	2,800		14	16	µg/Kg-dry	1	7/8/2016 05:33
Benzo(a)pyrene	2,600		9.7	16	µg/Kg-dry	1	7/8/2016 05:33
Benzo(b)fluoranthene	3,700		12	16	µg/Kg-dry	1	7/8/2016 05:33
Benzo(g,h,i)perylene	1,800		12	16	µg/Kg-dry	1	7/8/2016 05:33
Benzo(k)fluoranthene	1,200		12	16	µg/Kg-dry	1	7/8/2016 05:33
Bis(2-chloroethoxy)methane	U		7.6	79	µg/Kg-dry	1	7/8/2016 05:33
Bis(2-chloroethyl)ether	U		22	79	µg/Kg-dry	1	7/8/2016 05:33
Bis(2-chloroisopropyl)ether	U		19	79	µg/Kg-dry	1	7/8/2016 05:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-56 (7-8 ft)
Collection Date: 6/28/2016 02:33 PM

Work Order: 1607017
Lab ID: 1607017-47
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	79	µg/Kg-dry	1	7/8/2016 05:33
Butyl benzyl phthalate	U		13	79	µg/Kg-dry	1	7/8/2016 05:33
Caprolactam	U		27	79	µg/Kg-dry	1	7/8/2016 05:33
Carbazole	440		8.6	79	µg/Kg-dry	1	7/8/2016 05:33
Chrysene	3,100		13	16	µg/Kg-dry	1	7/8/2016 05:33
Dibenzo(a,h)anthracene	520		8.6	16	µg/Kg-dry	1	7/8/2016 05:33
Dibenzofuran	37	J	12	79	µg/Kg-dry	1	7/8/2016 05:33
Diethyl phthalate	U		12	79	µg/Kg-dry	1	7/8/2016 05:33
Dimethyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 05:33
Di-n-butyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 05:33
Di-n-octyl phthalate	U		15	79	µg/Kg-dry	1	7/8/2016 05:33
Fluoranthene	4,600		38	79	µg/Kg-dry	5	7/8/2016 15:57
Fluorene	100		12	16	µg/Kg-dry	1	7/8/2016 05:33
Hexachlorobenzene	U		23	79	µg/Kg-dry	1	7/8/2016 05:33
Hexachlorobutadiene	U		43	79	µg/Kg-dry	1	7/8/2016 05:33
Hexachlorocyclopentadiene	U		27	79	µg/Kg-dry	1	7/8/2016 05:33
Hexachloroethane	U		33	79	µg/Kg-dry	1	7/8/2016 05:33
Indeno(1,2,3-cd)pyrene	2,000		11	16	µg/Kg-dry	1	7/8/2016 05:33
Isophorone	U		16	400	µg/Kg-dry	1	7/8/2016 05:33
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 05:33
Nitrobenzene	U		27	400	µg/Kg-dry	1	7/8/2016 05:33
N-Nitrosodi-n-propylamine	U		13	79	µg/Kg-dry	1	7/8/2016 05:33
N-Nitrosodiphenylamine	U		7.6	79	µg/Kg-dry	1	7/8/2016 05:33
Pentachlorophenol	U		29	79	µg/Kg-dry	1	7/8/2016 05:33
Phenanthrene	2,200		7.4	16	µg/Kg-dry	1	7/8/2016 05:33
Phenol	U		20	79	µg/Kg-dry	1	7/8/2016 05:33
Pyrene	4,100		14	79	µg/Kg-dry	5	7/8/2016 15:57
Surr: 2,4,6-Tribromophenol	67.1			34-140	%REC	1	7/8/2016 05:33
Surr: 2-Fluorobiphenyl	61.1			12-100	%REC	1	7/8/2016 05:33
Surr: 2-Fluorophenol	78.6			33-117	%REC	1	7/8/2016 05:33
Surr: 4-Terphenyl-d14	89.3			25-137	%REC	1	7/8/2016 05:33
Surr: Nitrobenzene-d5	62.4			37-107	%REC	1	7/8/2016 05:33
Surr: Phenol-d6	83.7			40-106	%REC	1	7/8/2016 05:33
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	18		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (7-8 ft)
Collection Date: 6/28/2016 02:08 PM

Work Order: 1607017
Lab ID: 1607017-48
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D	Prep: SW3546 / 7/7/16		Analyst: JF	
1,1'-Biphenyl	U		13	77	µg/Kg-dry	1	7/8/2016 05:57
2,4,5-Trichlorophenol	U		21	77	µg/Kg-dry	1	7/8/2016 05:57
2,4,6-Trichlorophenol	U		21	77	µg/Kg-dry	1	7/8/2016 05:57
2,4-Dichlorophenol	U		16	77	µg/Kg-dry	1	7/8/2016 05:57
2,4-Dimethylphenol	U		16	77	µg/Kg-dry	1	7/8/2016 05:57
2,4-Dinitrophenol	U		42	77	µg/Kg-dry	1	7/8/2016 05:57
2,4-Dinitrotoluene	U		20	77	µg/Kg-dry	1	7/8/2016 05:57
2,6-Dinitrotoluene	U		13	77	µg/Kg-dry	1	7/8/2016 05:57
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 05:57
2-Chlorophenol	U		25	77	µg/Kg-dry	1	7/8/2016 05:57
2-Methylnaphthalene	U		7.9	16	µg/Kg-dry	1	7/8/2016 05:57
2-Methylphenol	U		21	77	µg/Kg-dry	1	7/8/2016 05:57
2-Nitroaniline	U		18	77	µg/Kg-dry	1	7/8/2016 05:57
2-Nitrophenol	U		22	77	µg/Kg-dry	1	7/8/2016 05:57
3&4-Methylphenol	U		16	77	µg/Kg-dry	1	7/8/2016 05:57
3,3'-Dichlorobenzidine	U		12	390	µg/Kg-dry	1	7/8/2016 05:57
3-Nitroaniline	U		18	77	µg/Kg-dry	1	7/8/2016 05:57
4,6-Dinitro-2-methylphenol	U		20	77	µg/Kg-dry	1	7/8/2016 05:57
4-Bromophenyl phenyl ether	U		21	77	µg/Kg-dry	1	7/8/2016 05:57
4-Chloro-3-methylphenol	U		22	77	µg/Kg-dry	1	7/8/2016 05:57
4-Chloroaniline	U		12	160	µg/Kg-dry	1	7/8/2016 05:57
4-Chlorophenyl phenyl ether	U		22	77	µg/Kg-dry	1	7/8/2016 05:57
4-Nitroaniline	U		120	390	µg/Kg-dry	1	7/8/2016 05:57
4-Nitrophenol	U		70	77	µg/Kg-dry	1	7/8/2016 05:57
Acenaphthene	22		11	16	µg/Kg-dry	1	7/8/2016 05:57
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 05:57
Acetophenone	U		12	77	µg/Kg-dry	1	7/8/2016 05:57
Anthracene	86		11	16	µg/Kg-dry	1	7/8/2016 05:57
Atrazine	U		12	77	µg/Kg-dry	1	7/8/2016 05:57
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 05:57
Benzo(a)anthracene	470		13	16	µg/Kg-dry	1	7/8/2016 05:57
Benzo(a)pyrene	440		9.6	16	µg/Kg-dry	1	7/8/2016 05:57
Benzo(b)fluoranthene	650		12	16	µg/Kg-dry	1	7/8/2016 05:57
Benzo(g,h,i)perylene	320		12	16	µg/Kg-dry	1	7/8/2016 05:57
Benzo(k)fluoranthene	230		12	16	µg/Kg-dry	1	7/8/2016 05:57
Bis(2-chloroethoxy)methane	U		7.5	77	µg/Kg-dry	1	7/8/2016 05:57
Bis(2-chloroethyl)ether	U		22	77	µg/Kg-dry	1	7/8/2016 05:57
Bis(2-chloroisopropyl)ether	U		18	77	µg/Kg-dry	1	7/8/2016 05:57

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-57 (7-8 ft)
Collection Date: 6/28/2016 02:08 PM

Work Order: 1607017
Lab ID: 1607017-48
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	77	µg/Kg-dry	1	7/8/2016 05:57
Butyl benzyl phthalate	U		13	77	µg/Kg-dry	1	7/8/2016 05:57
Caprolactam	U		27	77	µg/Kg-dry	1	7/8/2016 05:57
Carbazole	90		8.4	77	µg/Kg-dry	1	7/8/2016 05:57
Chrysene	490		13	16	µg/Kg-dry	1	7/8/2016 05:57
Dibenzo(a,h)anthracene	110		8.4	16	µg/Kg-dry	1	7/8/2016 05:57
Dibenzofuran	U		11	77	µg/Kg-dry	1	7/8/2016 05:57
Diethyl phthalate	U		12	77	µg/Kg-dry	1	7/8/2016 05:57
Dimethyl phthalate	U		15	77	µg/Kg-dry	1	7/8/2016 05:57
Di-n-butyl phthalate	U		14	77	µg/Kg-dry	1	7/8/2016 05:57
Di-n-octyl phthalate	U		15	77	µg/Kg-dry	1	7/8/2016 05:57
Fluoranthene	790		7.5	16	µg/Kg-dry	1	7/8/2016 05:57
Fluorene	50		11	16	µg/Kg-dry	1	7/8/2016 05:57
Hexachlorobenzene	U		23	77	µg/Kg-dry	1	7/8/2016 05:57
Hexachlorobutadiene	U		42	77	µg/Kg-dry	1	7/8/2016 05:57
Hexachlorocyclopentadiene	U		27	77	µg/Kg-dry	1	7/8/2016 05:57
Hexachloroethane	U		32	77	µg/Kg-dry	1	7/8/2016 05:57
Indeno(1,2,3-cd)pyrene	380		11	16	µg/Kg-dry	1	7/8/2016 05:57
Isophorone	U		15	390	µg/Kg-dry	1	7/8/2016 05:57
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 05:57
Nitrobenzene	U		26	390	µg/Kg-dry	1	7/8/2016 05:57
N-Nitrosodi-n-propylamine	U		13	77	µg/Kg-dry	1	7/8/2016 05:57
N-Nitrosodiphenylamine	U		7.5	77	µg/Kg-dry	1	7/8/2016 05:57
Pentachlorophenol	U		29	77	µg/Kg-dry	1	7/8/2016 05:57
Phenanthrene	340		7.2	16	µg/Kg-dry	1	7/8/2016 05:57
Phenol	U		19	77	µg/Kg-dry	1	7/8/2016 05:57
Pyrene	890		2.8	16	µg/Kg-dry	1	7/8/2016 05:57
Surr: 2,4,6-Tribromophenol	71.0			34-140	%REC	1	7/8/2016 05:57
Surr: 2-Fluorobiphenyl	64.3			12-100	%REC	1	7/8/2016 05:57
Surr: 2-Fluorophenol	83.9			33-117	%REC	1	7/8/2016 05:57
Surr: 4-Terphenyl-d14	95.8			25-137	%REC	1	7/8/2016 05:57
Surr: Nitrobenzene-d5	66.9			37-107	%REC	1	7/8/2016 05:57
Surr: Phenol-d6	82.1			40-106	%REC	1	7/8/2016 05:57
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	18		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (7-8 ft)
Collection Date: 6/28/2016 02:19 PM

Work Order: 1607017
Lab ID: 1607017-49
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	U		13	78	µg/Kg-dry	1	7/8/2016 06:20
2,4,5-Trichlorophenol	U		21	78	µg/Kg-dry	1	7/8/2016 06:20
2,4,6-Trichlorophenol	U		21	78	µg/Kg-dry	1	7/8/2016 06:20
2,4-Dichlorophenol	U		16	78	µg/Kg-dry	1	7/8/2016 06:20
2,4-Dimethylphenol	U		16	78	µg/Kg-dry	1	7/8/2016 06:20
2,4-Dinitrophenol	U		42	78	µg/Kg-dry	1	7/8/2016 06:20
2,4-Dinitrotoluene	U		20	78	µg/Kg-dry	1	7/8/2016 06:20
2,6-Dinitrotoluene	U		13	78	µg/Kg-dry	1	7/8/2016 06:20
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 06:20
2-Chlorophenol	U		25	78	µg/Kg-dry	1	7/8/2016 06:20
2-Methylnaphthalene	U		8.0	16	µg/Kg-dry	1	7/8/2016 06:20
2-Methylphenol	U		21	78	µg/Kg-dry	1	7/8/2016 06:20
2-Nitroaniline	U		18	78	µg/Kg-dry	1	7/8/2016 06:20
2-Nitrophenol	U		22	78	µg/Kg-dry	1	7/8/2016 06:20
3&4-Methylphenol	U		16	78	µg/Kg-dry	1	7/8/2016 06:20
3,3'-Dichlorobenzidine	U		12	390	µg/Kg-dry	1	7/8/2016 06:20
3-Nitroaniline	U		18	78	µg/Kg-dry	1	7/8/2016 06:20
4,6-Dinitro-2-methylphenol	U		20	78	µg/Kg-dry	1	7/8/2016 06:20
4-Bromophenyl phenyl ether	U		21	78	µg/Kg-dry	1	7/8/2016 06:20
4-Chloro-3-methylphenol	U		22	78	µg/Kg-dry	1	7/8/2016 06:20
4-Chloroaniline	U		12	160	µg/Kg-dry	1	7/8/2016 06:20
4-Chlorophenyl phenyl ether	U		22	78	µg/Kg-dry	1	7/8/2016 06:20
4-Nitroaniline	U		120	390	µg/Kg-dry	1	7/8/2016 06:20
4-Nitrophenol	U		70	78	µg/Kg-dry	1	7/8/2016 06:20
Acenaphthene	U		11	16	µg/Kg-dry	1	7/8/2016 06:20
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 06:20
Acetophenone	U		12	78	µg/Kg-dry	1	7/8/2016 06:20
Anthracene	U		11	16	µg/Kg-dry	1	7/8/2016 06:20
Atrazine	U		12	78	µg/Kg-dry	1	7/8/2016 06:20
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/8/2016 06:20
Benzo(a)anthracene	45		14	16	µg/Kg-dry	1	7/8/2016 06:20
Benzo(a)pyrene	U		9.6	16	µg/Kg-dry	1	7/8/2016 06:20
Benzo(b)fluoranthene	U		12	16	µg/Kg-dry	1	7/8/2016 06:20
Benzo(g,h,i)perylene	U		12	16	µg/Kg-dry	1	7/8/2016 06:20
Benzo(k)fluoranthene	U		12	16	µg/Kg-dry	1	7/8/2016 06:20
Bis(2-chloroethoxy)methane	U		7.5	78	µg/Kg-dry	1	7/8/2016 06:20
Bis(2-chloroethyl)ether	U		22	78	µg/Kg-dry	1	7/8/2016 06:20
Bis(2-chloroisopropyl)ether	U		18	78	µg/Kg-dry	1	7/8/2016 06:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-58 (7-8 ft)
Collection Date: 6/28/2016 02:19 PM

Work Order: 1607017
Lab ID: 1607017-49
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	78	µg/Kg-dry	1	7/8/2016 06:20
Butyl benzyl phthalate	U		13	78	µg/Kg-dry	1	7/8/2016 06:20
Caprolactam	U		27	78	µg/Kg-dry	1	7/8/2016 06:20
Carbazole	U		8.5	78	µg/Kg-dry	1	7/8/2016 06:20
Chrysene	20		13	16	µg/Kg-dry	1	7/8/2016 06:20
Dibenzo(a,h)anthracene	U		8.5	16	µg/Kg-dry	1	7/8/2016 06:20
Dibenzofuran	U		12	78	µg/Kg-dry	1	7/8/2016 06:20
Diethyl phthalate	U		12	78	µg/Kg-dry	1	7/8/2016 06:20
Dimethyl phthalate	U		15	78	µg/Kg-dry	1	7/8/2016 06:20
Di-n-butyl phthalate	U		14	78	µg/Kg-dry	1	7/8/2016 06:20
Di-n-octyl phthalate	U		15	78	µg/Kg-dry	1	7/8/2016 06:20
Fluoranthene	87		7.5	16	µg/Kg-dry	1	7/8/2016 06:20
Fluorene	U		11	16	µg/Kg-dry	1	7/8/2016 06:20
Hexachlorobenzene	U		23	78	µg/Kg-dry	1	7/8/2016 06:20
Hexachlorobutadiene	U		43	78	µg/Kg-dry	1	7/8/2016 06:20
Hexachlorocyclopentadiene	U		27	78	µg/Kg-dry	1	7/8/2016 06:20
Hexachloroethane	U		32	78	µg/Kg-dry	1	7/8/2016 06:20
Indeno(1,2,3-cd)pyrene	U		11	16	µg/Kg-dry	1	7/8/2016 06:20
Isophorone	U		15	390	µg/Kg-dry	1	7/8/2016 06:20
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 06:20
Nitrobenzene	U		26	390	µg/Kg-dry	1	7/8/2016 06:20
N-Nitrosodi-n-propylamine	U		13	78	µg/Kg-dry	1	7/8/2016 06:20
N-Nitrosodiphenylamine	U		7.5	78	µg/Kg-dry	1	7/8/2016 06:20
Pentachlorophenol	U		29	78	µg/Kg-dry	1	7/8/2016 06:20
Phenanthrene	U		7.3	16	µg/Kg-dry	1	7/8/2016 06:20
Phenol	U		19	78	µg/Kg-dry	1	7/8/2016 06:20
Pyrene	43		2.8	16	µg/Kg-dry	1	7/8/2016 06:20
Surr: 2,4,6-Tribromophenol	78.2			34-140	%REC	1	7/8/2016 06:20
Surr: 2-Fluorobiphenyl	72.1			12-100	%REC	1	7/8/2016 06:20
Surr: 2-Fluorophenol	87.7			33-117	%REC	1	7/8/2016 06:20
Surr: 4-Terphenyl-d14	97.9			25-137	%REC	1	7/8/2016 06:20
Surr: Nitrobenzene-d5	71.2			37-107	%REC	1	7/8/2016 06:20
Surr: Phenol-d6	85.0			40-106	%REC	1	7/8/2016 06:20
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	20		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (7-8 ft)
Collection Date: 6/28/2016 03:13 PM

Work Order: 1607017
Lab ID: 1607017-50
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: JF
1,1'-Biphenyl	U		13	81	µg/Kg-dry	1	7/8/2016 06:43
2,4,5-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 06:43
2,4,6-Trichlorophenol	U		22	81	µg/Kg-dry	1	7/8/2016 06:43
2,4-Dichlorophenol	U		17	81	µg/Kg-dry	1	7/8/2016 06:43
2,4-Dimethylphenol	U		17	81	µg/Kg-dry	1	7/8/2016 06:43
2,4-Dinitrophenol	U		44	81	µg/Kg-dry	1	7/8/2016 06:43
2,4-Dinitrotoluene	U		21	81	µg/Kg-dry	1	7/8/2016 06:43
2,6-Dinitrotoluene	U		14	81	µg/Kg-dry	1	7/8/2016 06:43
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/8/2016 06:43
2-Chlorophenol	U		26	81	µg/Kg-dry	1	7/8/2016 06:43
2-Methylnaphthalene	U		8.4	16	µg/Kg-dry	1	7/8/2016 06:43
2-Methylphenol	U		22	81	µg/Kg-dry	1	7/8/2016 06:43
2-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 06:43
2-Nitrophenol	U		23	81	µg/Kg-dry	1	7/8/2016 06:43
3&4-Methylphenol	U		17	81	µg/Kg-dry	1	7/8/2016 06:43
3,3'-Dichlorobenzidine	U		12	410	µg/Kg-dry	1	7/8/2016 06:43
3-Nitroaniline	U		19	81	µg/Kg-dry	1	7/8/2016 06:43
4,6-Dinitro-2-methylphenol	U		21	81	µg/Kg-dry	1	7/8/2016 06:43
4-Bromophenyl phenyl ether	U		22	81	µg/Kg-dry	1	7/8/2016 06:43
4-Chloro-3-methylphenol	U		23	81	µg/Kg-dry	1	7/8/2016 06:43
4-Chloroaniline	U		13	170	µg/Kg-dry	1	7/8/2016 06:43
4-Chlorophenyl phenyl ether	U		23	81	µg/Kg-dry	1	7/8/2016 06:43
4-Nitroaniline	U		130	410	µg/Kg-dry	1	7/8/2016 06:43
4-Nitrophenol	U		73	81	µg/Kg-dry	1	7/8/2016 06:43
Acenaphthene	U		12	16	µg/Kg-dry	1	7/8/2016 06:43
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/8/2016 06:43
Acetophenone	U		13	81	µg/Kg-dry	1	7/8/2016 06:43
Anthracene	34		12	16	µg/Kg-dry	1	7/8/2016 06:43
Atrazine	U		13	81	µg/Kg-dry	1	7/8/2016 06:43
Benzaldehyde	U		130	170	µg/Kg-dry	1	7/8/2016 06:43
Benzo(a)anthracene	220		14	16	µg/Kg-dry	1	7/8/2016 06:43
Benzo(a)pyrene	230		10	16	µg/Kg-dry	1	7/8/2016 06:43
Benzo(b)fluoranthene	320		12	16	µg/Kg-dry	1	7/8/2016 06:43
Benzo(g,h,i)perylene	160		13	16	µg/Kg-dry	1	7/8/2016 06:43
Benzo(k)fluoranthene	130		12	16	µg/Kg-dry	1	7/8/2016 06:43
Bis(2-chloroethoxy)methane	U		7.9	81	µg/Kg-dry	1	7/8/2016 06:43
Bis(2-chloroethyl)ether	U		23	81	µg/Kg-dry	1	7/8/2016 06:43
Bis(2-chloroisopropyl)ether	U		19	81	µg/Kg-dry	1	7/8/2016 06:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-59 (7-8 ft)
Collection Date: 6/28/2016 03:13 PM

Work Order: 1607017
Lab ID: 1607017-50
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 06:43
Butyl benzyl phthalate	U		14	81	µg/Kg-dry	1	7/8/2016 06:43
Caprolactam	U		28	81	µg/Kg-dry	1	7/8/2016 06:43
Carbazole	62	J	8.9	81	µg/Kg-dry	1	7/8/2016 06:43
Chrysene	220		13	16	µg/Kg-dry	1	7/8/2016 06:43
Dibenzo(a,h)anthracene	70		8.9	16	µg/Kg-dry	1	7/8/2016 06:43
Dibenzofuran	U		12	81	µg/Kg-dry	1	7/8/2016 06:43
Diethyl phthalate	U		13	81	µg/Kg-dry	1	7/8/2016 06:43
Dimethyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 06:43
Di-n-butyl phthalate	U		15	81	µg/Kg-dry	1	7/8/2016 06:43
Di-n-octyl phthalate	U		16	81	µg/Kg-dry	1	7/8/2016 06:43
Fluoranthene	370		7.9	16	µg/Kg-dry	1	7/8/2016 06:43
Fluorene	U		12	16	µg/Kg-dry	1	7/8/2016 06:43
Hexachlorobenzene	U		24	81	µg/Kg-dry	1	7/8/2016 06:43
Hexachlorobutadiene	U		45	81	µg/Kg-dry	1	7/8/2016 06:43
Hexachlorocyclopentadiene	U		28	81	µg/Kg-dry	1	7/8/2016 06:43
Hexachloroethane	U		34	81	µg/Kg-dry	1	7/8/2016 06:43
Indeno(1,2,3-cd)pyrene	200		11	16	µg/Kg-dry	1	7/8/2016 06:43
Isophorone	U		16	410	µg/Kg-dry	1	7/8/2016 06:43
Naphthalene	U		10	16	µg/Kg-dry	1	7/8/2016 06:43
Nitrobenzene	U		28	410	µg/Kg-dry	1	7/8/2016 06:43
N-Nitrosodi-n-propylamine	U		14	81	µg/Kg-dry	1	7/8/2016 06:43
N-Nitrosodiphenylamine	U		7.9	81	µg/Kg-dry	1	7/8/2016 06:43
Pentachlorophenol	U		30	81	µg/Kg-dry	1	7/8/2016 06:43
Phenanthrene	160		7.6	16	µg/Kg-dry	1	7/8/2016 06:43
Phenol	U		20	81	µg/Kg-dry	1	7/8/2016 06:43
Pyrene	420		3.0	16	µg/Kg-dry	1	7/8/2016 06:43
Surr: 2,4,6-Tribromophenol	73.5			34-140	%REC	1	7/8/2016 06:43
Surr: 2-Fluorobiphenyl	66.3			12-100	%REC	1	7/8/2016 06:43
Surr: 2-Fluorophenol	83.2			33-117	%REC	1	7/8/2016 06:43
Surr: 4-Terphenyl-d14	105			25-137	%REC	1	7/8/2016 06:43
Surr: Nitrobenzene-d5	66.5			37-107	%REC	1	7/8/2016 06:43
Surr: Phenol-d6	86.8			40-106	%REC	1	7/8/2016 06:43
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	19		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (7-8 ft)
Collection Date: 6/28/2016 02:54 PM

Work Order: 1607017
Lab ID: 1607017-51
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
SEMI-VOLATILE ORGANIC COMPOUNDS			Method: SW846 8270D		Prep: SW3546 / 7/7/16		Analyst: RM
1,1'-Biphenyl	U		13	79	µg/Kg-dry	1	7/7/2016 18:00
2,4,5-Trichlorophenol	U		22	79	µg/Kg-dry	1	7/7/2016 18:00
2,4,6-Trichlorophenol	U		21	79	µg/Kg-dry	1	7/7/2016 18:00
2,4-Dichlorophenol	U		17	79	µg/Kg-dry	1	7/7/2016 18:00
2,4-Dimethylphenol	U		16	79	µg/Kg-dry	1	7/7/2016 18:00
2,4-Dinitrophenol	U		43	79	µg/Kg-dry	1	7/7/2016 18:00
2,4-Dinitrotoluene	U		21	79	µg/Kg-dry	1	7/7/2016 18:00
2,6-Dinitrotoluene	U		13	79	µg/Kg-dry	1	7/7/2016 18:00
2-Chloronaphthalene	U		11	16	µg/Kg-dry	1	7/7/2016 18:00
2-Chlorophenol	U		25	79	µg/Kg-dry	1	7/7/2016 18:00
2-Methylnaphthalene	15	J	8.1	16	µg/Kg-dry	1	7/7/2016 18:00
2-Methylphenol	U		22	79	µg/Kg-dry	1	7/7/2016 18:00
2-Nitroaniline	U		18	79	µg/Kg-dry	1	7/7/2016 18:00
2-Nitrophenol	U		23	79	µg/Kg-dry	1	7/7/2016 18:00
3&4-Methylphenol	U		16	79	µg/Kg-dry	1	7/7/2016 18:00
3,3'-Dichlorobenzidine	U		12	400	µg/Kg-dry	1	7/7/2016 18:00
3-Nitroaniline	U		18	79	µg/Kg-dry	1	7/7/2016 18:00
4,6-Dinitro-2-methylphenol	U		20	79	µg/Kg-dry	1	7/7/2016 18:00
4-Bromophenyl phenyl ether	U		21	79	µg/Kg-dry	1	7/7/2016 18:00
4-Chloro-3-methylphenol	U		23	79	µg/Kg-dry	1	7/7/2016 18:00
4-Chloroaniline	U		13	160	µg/Kg-dry	1	7/7/2016 18:00
4-Chlorophenyl phenyl ether	U		22	79	µg/Kg-dry	1	7/7/2016 18:00
4-Nitroaniline	U		120	400	µg/Kg-dry	1	7/7/2016 18:00
4-Nitrophenol	U		72	79	µg/Kg-dry	1	7/7/2016 18:00
Acenaphthene	U		12	16	µg/Kg-dry	1	7/7/2016 18:00
Acenaphthylene	U		14	16	µg/Kg-dry	1	7/7/2016 18:00
Acetophenone	U		13	79	µg/Kg-dry	1	7/7/2016 18:00
Anthracene	29		11	16	µg/Kg-dry	1	7/7/2016 18:00
Atrazine	U		13	79	µg/Kg-dry	1	7/7/2016 18:00
Benzaldehyde	U		120	160	µg/Kg-dry	1	7/7/2016 18:00
Benzo(a)anthracene	190		14	16	µg/Kg-dry	1	7/7/2016 18:00
Benzo(a)pyrene	200		9.8	16	µg/Kg-dry	1	7/7/2016 18:00
Benzo(b)fluoranthene	230		12	16	µg/Kg-dry	1	7/7/2016 18:00
Benzo(g,h,i)perylene	160		12	16	µg/Kg-dry	1	7/7/2016 18:00
Benzo(k)fluoranthene	89		12	16	µg/Kg-dry	1	7/7/2016 18:00
Bis(2-chloroethoxy)methane	U		7.7	79	µg/Kg-dry	1	7/7/2016 18:00
Bis(2-chloroethyl)ether	U		23	79	µg/Kg-dry	1	7/7/2016 18:00
Bis(2-chloroisopropyl)ether	U		19	79	µg/Kg-dry	1	7/7/2016 18:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: B-60 (7-8 ft)
Collection Date: 6/28/2016 02:54 PM

Work Order: 1607017
Lab ID: 1607017-51
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bis(2-ethylhexyl)phthalate	U		14	79	µg/Kg-dry	1	7/7/2016 18:00
Butyl benzyl phthalate	U		14	79	µg/Kg-dry	1	7/7/2016 18:00
Caprolactam	U		27	79	µg/Kg-dry	1	7/7/2016 18:00
Carbazole	40	J	8.6	79	µg/Kg-dry	1	7/7/2016 18:00
Chrysene	230		13	16	µg/Kg-dry	1	7/7/2016 18:00
Dibenzo(a,h)anthracene	58		8.6	16	µg/Kg-dry	1	7/7/2016 18:00
Dibenzofuran	U		12	79	µg/Kg-dry	1	7/7/2016 18:00
Diethyl phthalate	U		12	79	µg/Kg-dry	1	7/7/2016 18:00
Dimethyl phthalate	U		16	79	µg/Kg-dry	1	7/7/2016 18:00
Di-n-butyl phthalate	U		15	79	µg/Kg-dry	1	7/7/2016 18:00
Di-n-octyl phthalate	U		15	79	µg/Kg-dry	1	7/7/2016 18:00
Fluoranthene	350		7.7	16	µg/Kg-dry	1	7/7/2016 18:00
Fluorene	U		12	16	µg/Kg-dry	1	7/7/2016 18:00
Hexachlorobenzene	U		23	79	µg/Kg-dry	1	7/7/2016 18:00
Hexachlorobutadiene	U		43	79	µg/Kg-dry	1	7/7/2016 18:00
Hexachlorocyclopentadiene	U		27	79	µg/Kg-dry	1	7/7/2016 18:00
Hexachloroethane	U		33	79	µg/Kg-dry	1	7/7/2016 18:00
Indeno(1,2,3-cd)pyrene	190		11	16	µg/Kg-dry	1	7/7/2016 18:00
Isophorone	U		16	400	µg/Kg-dry	1	7/7/2016 18:00
Naphthalene	11	J	10	16	µg/Kg-dry	1	7/7/2016 18:00
Nitrobenzene	U		27	400	µg/Kg-dry	1	7/7/2016 18:00
N-Nitrosodi-n-propylamine	U		13	79	µg/Kg-dry	1	7/7/2016 18:00
N-Nitrosodiphenylamine	U		7.7	79	µg/Kg-dry	1	7/7/2016 18:00
Pentachlorophenol	U		30	79	µg/Kg-dry	1	7/7/2016 18:00
Phenanthrene	140		7.4	16	µg/Kg-dry	1	7/7/2016 18:00
Phenol	U		20	79	µg/Kg-dry	1	7/7/2016 18:00
Pyrene	250		2.9	16	µg/Kg-dry	1	7/7/2016 18:00
Surr: 2,4,6-Tribromophenol	66.7			34-140	%REC	1	7/7/2016 18:00
Surr: 2-Fluorobiphenyl	68.2			12-100	%REC	1	7/7/2016 18:00
Surr: 2-Fluorophenol	82.8			33-117	%REC	1	7/7/2016 18:00
Surr: 4-Terphenyl-d14	70.7			25-137	%REC	1	7/7/2016 18:00
Surr: Nitrobenzene-d5	74.2			37-107	%REC	1	7/7/2016 18:00
Surr: Phenol-d6	78.4			40-106	%REC	1	7/7/2016 18:00
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	18		0.025	0.050	% of sample	1	7/7/2016 12:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Rinsate
Collection Date: 6/28/2016 04:45 PM

Work Order: 1607017
Lab ID: 1607017-52
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2			Prep: SW3511 / 7/1/16	Analyst: IT
DRO (C10-C20)	0.87		0.023	0.10	mg/L	1	7/1/2016 21:32
ORO (C20-C34)	0.20		0.026	0.10	mg/L	1	7/1/2016 21:32
Surr: 4-Terphenyl-d14	76.8			31-176	%REC	1	7/1/2016 21:32
GASOLINE RANGE ORGANICS BY GC-FID/PID							
			Method: OA-1				Analyst: IT
GRO (C6-C10)	U		17	100	µg/L	1	7/7/2016 05:32
Surr: a,a,a-Trifluorotoluene	93.0			80-120	%REC	1	7/7/2016 05:32
MERCURY BY CVAA (DISSOLVED)							
			Method: SW7470A			Prep: SW7470 / 7/7/16	Analyst: LR
Mercury	U		0.000019	0.00020	mg/L	1	7/7/2016 18:09
METALS BY ICP-MS (DISSOLVED)							
			Method: SW6020A			Prep: SW3005A / 7/6/16	Analyst: ML
Arsenic	0.0030	J	0.00087	0.0050	mg/L	1	7/7/2016 02:03
Barium	0.10		0.0022	0.0050	mg/L	1	7/7/2016 02:03
Cadmium	0.00058	J	0.000050	0.0020	mg/L	1	7/7/2016 02:03
Chromium	0.0048	J	0.00065	0.0050	mg/L	1	7/7/2016 02:03
Lead	0.020		0.00033	0.0050	mg/L	1	7/7/2016 02:03
Selenium	U		0.00090	0.0050	mg/L	1	7/7/2016 02:03
Silver	U		0.000050	0.0050	mg/L	1	7/7/2016 02:03
VOLATILE ORGANIC COMPOUNDS							
			Method: SW8260B				Analyst: BJB
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	7/11/2016 12:12
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	7/11/2016 12:12
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	7/11/2016 12:12
1,1,2-Trichlorotrifluoroethane	U		0.42	1.0	µg/L	1	7/11/2016 12:12
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	7/11/2016 12:12
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	7/11/2016 12:12
1,2,4-Trichlorobenzene	U		0.21	1.0	µg/L	1	7/11/2016 12:12
1,2-Dibromo-3-chloropropane	U		0.97	1.0	µg/L	1	7/11/2016 12:12
1,2-Dibromoethane	U		0.98	1.0	µg/L	1	7/11/2016 12:12
1,2-Dichlorobenzene	U		0.22	1.0	µg/L	1	7/11/2016 12:12
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	7/11/2016 12:12
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	7/11/2016 12:12
1,3-Dichlorobenzene	U		0.29	1.0	µg/L	1	7/11/2016 12:12
1,4-Dichlorobenzene	U		0.21	1.0	µg/L	1	7/11/2016 12:12
2-Butanone	U		0.58	5.0	µg/L	1	7/11/2016 12:12
2-Hexanone	U		0.13	5.0	µg/L	1	7/11/2016 12:12
4-Methyl-2-pentanone	U		0.11	1.0	µg/L	1	7/11/2016 12:12
Acetone	7.9	J	0.92	10	µg/L	1	7/11/2016 12:12
Benzene	U		0.30	1.0	µg/L	1	7/11/2016 12:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Rinsate
Collection Date: 6/28/2016 04:45 PM

Work Order: 1607017
Lab ID: 1607017-52
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Bromodichloromethane	U		0.23	1.0	µg/L	1	7/11/2016 12:12
Bromoform	U		0.77	1.0	µg/L	1	7/11/2016 12:12
Bromomethane	U		0.38	1.0	µg/L	1	7/11/2016 12:12
Carbon disulfide	U		0.23	1.0	µg/L	1	7/11/2016 12:12
Carbon tetrachloride	U		0.31	1.0	µg/L	1	7/11/2016 12:12
Chlorobenzene	U		0.27	1.0	µg/L	1	7/11/2016 12:12
Chloroethane	U		0.29	1.0	µg/L	1	7/11/2016 12:12
Chloroform	U		0.26	1.0	µg/L	1	7/11/2016 12:12
Chloromethane	U		0.17	1.0	µg/L	1	7/11/2016 12:12
cis-1,2-Dichloroethene	U		0.25	1.0	µg/L	1	7/11/2016 12:12
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	7/11/2016 12:12
Cyclohexane	U		0.22	1.0	µg/L	1	7/11/2016 12:12
Dibromochloromethane	U		0.38	1.0	µg/L	1	7/11/2016 12:12
Dichlorodifluoromethane	U		0.13	1.0	µg/L	1	7/11/2016 12:12
Ethylbenzene	U		0.40	1.0	µg/L	1	7/11/2016 12:12
Isopropylbenzene	U		0.31	1.0	µg/L	1	7/11/2016 12:12
m,p-Xylene	U		0.98	2.0	µg/L	1	7/11/2016 12:12
Methyl acetate	U		0.23	2.0	µg/L	1	7/11/2016 12:12
Methyl tert-butyl ether	U		0.12	1.0	µg/L	1	7/11/2016 12:12
Methylcyclohexane	U		0.27	1.0	µg/L	1	7/11/2016 12:12
Methylene chloride	U		0.56	5.0	µg/L	1	7/11/2016 12:12
o-Xylene	U		0.35	1.0	µg/L	1	7/11/2016 12:12
Styrene	U		0.24	1.0	µg/L	1	7/11/2016 12:12
Tetrachloroethene	U		0.27	1.0	µg/L	1	7/11/2016 12:12
Toluene	0.61	J	0.37	1.0	µg/L	1	7/11/2016 12:12
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	7/11/2016 12:12
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	7/11/2016 12:12
Trichloroethene	U		0.30	1.0	µg/L	1	7/11/2016 12:12
Trichlorofluoromethane	U		0.20	1.0	µg/L	1	7/11/2016 12:12
Vinyl chloride	U		0.20	1.0	µg/L	1	7/11/2016 12:12
Xylenes, Total	U		1.3	3.0	µg/L	1	7/11/2016 12:12
Surr: 1,2-Dichloroethane-d4	104			75-120	%REC	1	7/11/2016 12:12
Surr: 4-Bromofluorobenzene	92.4			80-110	%REC	1	7/11/2016 12:12
Surr: Dibromofluoromethane	96.5			85-115	%REC	1	7/11/2016 12:12
Surr: Toluene-d8	96.0			85-110	%REC	1	7/11/2016 12:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Trip Blank - Soil
Collection Date: 6/27/2016

Work Order: 1607017
Lab ID: 1607017-53
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			Method: SW8260B			Analyst: LSY	
1,1,1-Trichloroethane	U		0.15	5.0	µg/Kg	1	7/10/2016 17:43
1,1,2,2-Tetrachloroethane	U		0.12	5.0	µg/Kg	1	7/10/2016 17:43
1,1,2-Trichloroethane	U		0.62	5.0	µg/Kg	1	7/10/2016 17:43
1,1,2-Trichlorotrifluoroethane	U		0.18	5.0	µg/Kg	1	7/10/2016 17:43
1,1-Dichloroethane	U		0.13	5.0	µg/Kg	1	7/10/2016 17:43
1,1-Dichloroethene	U		0.17	5.0	µg/Kg	1	7/10/2016 17:43
1,2,4-Trichlorobenzene	U		0.14	5.0	µg/Kg	1	7/10/2016 17:43
1,2-Dibromo-3-chloropropane	U		0.52	5.0	µg/Kg	1	7/10/2016 17:43
1,2-Dibromoethane	U		0.15	5.0	µg/Kg	1	7/10/2016 17:43
1,2-Dichlorobenzene	U		0.088	5.0	µg/Kg	1	7/10/2016 17:43
1,2-Dichloroethane	U		0.15	5.0	µg/Kg	1	7/10/2016 17:43
1,2-Dichloropropane	U		0.36	5.0	µg/Kg	1	7/10/2016 17:43
1,3-Dichlorobenzene	U		0.083	5.0	µg/Kg	1	7/10/2016 17:43
1,4-Dichlorobenzene	U		0.17	5.0	µg/Kg	1	7/10/2016 17:43
2-Butanone	U		0.85	10	µg/Kg	1	7/10/2016 17:43
2-Hexanone	U		0.67	5.0	µg/Kg	1	7/10/2016 17:43
4-Methyl-2-pentanone	U		0.18	5.0	µg/Kg	1	7/10/2016 17:43
Acetone	4.1	J	1.5	10	µg/Kg	1	7/10/2016 17:43
Benzene	U		0.097	5.0	µg/Kg	1	7/10/2016 17:43
Bromodichloromethane	U		0.11	5.0	µg/Kg	1	7/10/2016 17:43
Bromoform	U		0.15	5.0	µg/Kg	1	7/10/2016 17:43
Bromomethane	U		0.31	10	µg/Kg	1	7/10/2016 17:43
Carbon disulfide	U		0.19	5.0	µg/Kg	1	7/10/2016 17:43
Carbon tetrachloride	U		0.24	5.0	µg/Kg	1	7/10/2016 17:43
Chlorobenzene	U		0.16	5.0	µg/Kg	1	7/10/2016 17:43
Chloroethane	U		0.52	5.0	µg/Kg	1	7/10/2016 17:43
Chloroform	U		0.20	5.0	µg/Kg	1	7/10/2016 17:43
Chloromethane	U		0.26	10	µg/Kg	1	7/10/2016 17:43
cis-1,2-Dichloroethene	U		0.12	5.0	µg/Kg	1	7/10/2016 17:43
cis-1,3-Dichloropropene	U		0.12	5.0	µg/Kg	1	7/10/2016 17:43
Cyclohexane	U		0.17	5.0	µg/Kg	1	7/10/2016 17:43
Dibromochloromethane	U		0.15	5.0	µg/Kg	1	7/10/2016 17:43
Dichlorodifluoromethane	U		0.25	10	µg/Kg	1	7/10/2016 17:43
Ethylbenzene	U		0.12	5.0	µg/Kg	1	7/10/2016 17:43
Isopropylbenzene	U		0.15	5.0	µg/Kg	1	7/10/2016 17:43
m,p-Xylene	U		0.37	2.5	µg/Kg	1	7/10/2016 17:43
Methyl acetate	U		0.45	10	µg/Kg	1	7/10/2016 17:43
Methyl tert-butyl ether	U		0.18	5.0	µg/Kg	1	7/10/2016 17:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Trip Blank - Soil
Collection Date: 6/27/2016

Work Order: 1607017
Lab ID: 1607017-53
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methylcyclohexane	U		0.22	10	µg/Kg	1	7/10/2016 17:43
Methylene chloride	U		0.14	5.0	µg/Kg	1	7/10/2016 17:43
o-Xylene	U		0.18	2.5	µg/Kg	1	7/10/2016 17:43
Styrene	U		0.30	5.0	µg/Kg	1	7/10/2016 17:43
Tetrachloroethene	U		0.22	5.0	µg/Kg	1	7/10/2016 17:43
Toluene	0.41	J	0.12	5.0	µg/Kg	1	7/10/2016 17:43
trans-1,2-Dichloroethene	U		0.23	5.0	µg/Kg	1	7/10/2016 17:43
trans-1,3-Dichloropropene	U		0.16	10	µg/Kg	1	7/10/2016 17:43
Trichloroethene	U		0.19	5.0	µg/Kg	1	7/10/2016 17:43
Trichlorofluoromethane	U		0.27	5.0	µg/Kg	1	7/10/2016 17:43
Vinyl chloride	U		0.17	5.0	µg/Kg	1	7/10/2016 17:43
Xylenes, Total	U		0.54	5.0	µg/Kg	1	7/10/2016 17:43
Surr: 1,2-Dichloroethane-d4	100			70-120	%REC	1	7/10/2016 17:43
Surr: 4-Bromofluorobenzene	96.6			75-120	%REC	1	7/10/2016 17:43
Surr: Dibromofluoromethane	96.4			85-115	%REC	1	7/10/2016 17:43
Surr: Toluene-d8	97.8			85-120	%REC	1	7/10/2016 17:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Trip Blank - Water
Collection Date: 6/28/2016

Work Order: 1607017
Lab ID: 1607017-54
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			Method: SW8260B			Analyst: BJB	
1,1,1-Trichloroethane	U		0.36	1.0	µg/L	1	7/10/2016 12:33
1,1,2,2-Tetrachloroethane	U		0.19	1.0	µg/L	1	7/10/2016 12:33
1,1,2-Trichloroethane	U		0.40	1.0	µg/L	1	7/10/2016 12:33
1,1,2-Trichlorotrifluoroethane	U		0.42	1.0	µg/L	1	7/10/2016 12:33
1,1-Dichloroethane	U		0.31	1.0	µg/L	1	7/10/2016 12:33
1,1-Dichloroethene	U		0.28	1.0	µg/L	1	7/10/2016 12:33
1,2,4-Trichlorobenzene	U		0.21	1.0	µg/L	1	7/10/2016 12:33
1,2-Dibromo-3-chloropropane	U		0.97	1.0	µg/L	1	7/10/2016 12:33
1,2-Dibromoethane	U		0.98	1.0	µg/L	1	7/10/2016 12:33
1,2-Dichlorobenzene	U		0.22	1.0	µg/L	1	7/10/2016 12:33
1,2-Dichloroethane	U		0.17	1.0	µg/L	1	7/10/2016 12:33
1,2-Dichloropropane	U		0.25	1.0	µg/L	1	7/10/2016 12:33
1,3-Dichlorobenzene	U		0.29	1.0	µg/L	1	7/10/2016 12:33
1,4-Dichlorobenzene	U		0.21	1.0	µg/L	1	7/10/2016 12:33
2-Butanone	U		0.58	5.0	µg/L	1	7/10/2016 12:33
2-Hexanone	U		0.13	5.0	µg/L	1	7/10/2016 12:33
4-Methyl-2-pentanone	U		0.11	1.0	µg/L	1	7/10/2016 12:33
Acetone	U		0.92	10	µg/L	1	7/10/2016 12:33
Benzene	U		0.30	1.0	µg/L	1	7/10/2016 12:33
Bromodichloromethane	U		0.23	1.0	µg/L	1	7/10/2016 12:33
Bromoform	U		0.77	1.0	µg/L	1	7/10/2016 12:33
Bromomethane	U		0.38	1.0	µg/L	1	7/10/2016 12:33
Carbon disulfide	U		0.23	1.0	µg/L	1	7/10/2016 12:33
Carbon tetrachloride	U		0.31	1.0	µg/L	1	7/10/2016 12:33
Chlorobenzene	U		0.27	1.0	µg/L	1	7/10/2016 12:33
Chloroethane	U		0.29	1.0	µg/L	1	7/10/2016 12:33
Chloroform	0.93	J	0.26	1.0	µg/L	1	7/10/2016 12:33
Chloromethane	U		0.17	1.0	µg/L	1	7/10/2016 12:33
cis-1,2-Dichloroethene	U		0.25	1.0	µg/L	1	7/10/2016 12:33
cis-1,3-Dichloropropene	U		0.39	1.0	µg/L	1	7/10/2016 12:33
Cyclohexane	U		0.22	1.0	µg/L	1	7/10/2016 12:33
Dibromochloromethane	U		0.38	1.0	µg/L	1	7/10/2016 12:33
Dichlorodifluoromethane	U		0.13	1.0	µg/L	1	7/10/2016 12:33
Ethylbenzene	U		0.40	1.0	µg/L	1	7/10/2016 12:33
Isopropylbenzene	U		0.31	1.0	µg/L	1	7/10/2016 12:33
m,p-Xylene	U		0.98	2.0	µg/L	1	7/10/2016 12:33
Methyl acetate	U		0.23	2.0	µg/L	1	7/10/2016 12:33
Methyl tert-butyl ether	U		0.12	1.0	µg/L	1	7/10/2016 12:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Trip Blank - Water
Collection Date: 6/28/2016

Work Order: 1607017
Lab ID: 1607017-54
Matrix: WATER

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Methylcyclohexane	U		0.27	1.0	µg/L	1	7/10/2016 12:33
Methylene chloride	U		0.56	5.0	µg/L	1	7/10/2016 12:33
o-Xylene	U		0.35	1.0	µg/L	1	7/10/2016 12:33
Styrene	U		0.24	1.0	µg/L	1	7/10/2016 12:33
Tetrachloroethene	U		0.27	1.0	µg/L	1	7/10/2016 12:33
Toluene	U		0.37	1.0	µg/L	1	7/10/2016 12:33
trans-1,2-Dichloroethene	U		0.28	1.0	µg/L	1	7/10/2016 12:33
trans-1,3-Dichloropropene	U		0.82	1.0	µg/L	1	7/10/2016 12:33
Trichloroethene	U		0.30	1.0	µg/L	1	7/10/2016 12:33
Trichlorofluoromethane	U		0.20	1.0	µg/L	1	7/10/2016 12:33
Vinyl chloride	U		0.20	1.0	µg/L	1	7/10/2016 12:33
Xylenes, Total	U		1.3	3.0	µg/L	1	7/10/2016 12:33
Surr: 1,2-Dichloroethane-d4	94.9			75-120	%REC	1	7/10/2016 12:33
Surr: 4-Bromofluorobenzene	95.4			80-110	%REC	1	7/10/2016 12:33
Surr: Dibromofluoromethane	96.6			85-115	%REC	1	7/10/2016 12:33
Surr: Toluene-d8	87.8			85-110	%REC	1	7/10/2016 12:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg	Micrograms per Kilogram
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter

Client: Tetra Tech

Work Order: 1607017

Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88129

Instrument ID GC8

Method: OA-2

MBLK		Sample ID: DBLKW1-88129-88129				Units: mg/L		Analysis Date: 7/1/2016 06:32 PM		
Client ID:		Run ID: GC8_160701C				SeqNo: 3905769		Prep Date: 7/1/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C20)

U 0.10

ORO (C20-C34)

U 0.10

Surr: 4-Terphenyl-d14

0.144 0 0.1143 0 126 31-176 0

LCS		Sample ID: DLC SW1-88129-88129				Units: mg/L		Analysis Date: 7/1/2016 07:02 PM		
Client ID:		Run ID: GC8_160701C				SeqNo: 3905770		Prep Date: 7/1/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C20)

6.769 0.10 11.43 0 59.2 35-95 0

ORO (C20-C34)

7.8 0.10 11.43 0 68.3 44-77 0

Surr: 4-Terphenyl-d14

0.1434 0 0.1143 0 125 31-176 0

MS		Sample ID: 16061787-02E MS				Units: mg/L		Analysis Date: 7/1/2016 07:32 PM		
Client ID:		Run ID: GC8_160701C				SeqNo: 3905771		Prep Date: 7/1/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C20)

7.314 0.10 11.43 0 64 29-96 0

ORO (C20-C34)

7.659 0.10 11.43 0 67 41-84 0

Surr: 4-Terphenyl-d14

0.1196 0 0.1143 0 105 31-176 0

MSD		Sample ID: 16061787-02E MSD				Units: mg/L		Analysis Date: 7/1/2016 08:02 PM		
Client ID:		Run ID: GC8_160701C				SeqNo: 3905772		Prep Date: 7/1/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C20)

7.286 0.10 11.43 0 63.8 29-96 7.314 0.377 30

ORO (C20-C34)

7.675 0.10 11.43 0 67.2 41-84 7.659 0.217 30

Surr: 4-Terphenyl-d14

0.1162 0 0.1143 0 102 31-176 0.1196 2.95 30

The following samples were analyzed in this batch:

1607017-31B 1607017-52B

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88236** Instrument ID **GC8** Method: **OA-2**

MBLK		Sample ID: DBLKS1-88236-88236				Units: mg/Kg		Analysis Date: 7/6/2016 05:12 PM		
Client ID:		Run ID: GC8_160706A				SeqNo: 3909985		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	U	8.3								
ORO (C20-C34)	U	8.3								
<i>Surr: 4-Terphenyl-d14</i>	2.253	0	3.333	0	67.6	39-133	0			

LCS		Sample ID: DLCSS1-88236-88236				Units: mg/Kg		Analysis Date: 7/6/2016 05:42 PM		
Client ID:		Run ID: GC8_160706A				SeqNo: 3909986		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	278.3	8.3	333.3	0	83.5	61-109	0			
ORO (C20-C34)	297.1	8.3	333.3	0	89.1	61-119	0			
<i>Surr: 4-Terphenyl-d14</i>	1.957	0	3.333	0	58.7	39-133	0			

MS		Sample ID: 1607017-11B MS				Units: mg/Kg		Analysis Date: 7/6/2016 06:12 PM		
Client ID: B-61 (4'-5')		Run ID: GC8_160706A				SeqNo: 3909987		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	262.7	7.9	315.3	10.54	80	48-110	0			
ORO (C20-C34)	299.4	7.9	315.3	11.49	91.3	39-140	0			
<i>Surr: 4-Terphenyl-d14</i>	1.881	0	3.153	0	59.6	39-133	0			

MSD		Sample ID: 1607017-11B MSD				Units: mg/Kg		Analysis Date: 7/6/2016 06:42 PM		
Client ID: B-61 (4'-5')		Run ID: GC8_160706A				SeqNo: 3909988		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	281.8	8.1	322.4	10.54	84.1	48-110	262.7	7	30	
ORO (C20-C34)	305	8.1	322.4	11.49	91	39-140	299.4	1.84	30	
<i>Surr: 4-Terphenyl-d14</i>	2.098	0	3.224	0	65.1	39-133	1.881	10.9	30	

The following samples were analyzed in this batch:

1607017-11B	1607017-12B	1607017-13B
1607017-14B	1607017-15B	1607017-26B
1607017-27B	1607017-28B	1607017-29B
1607017-30B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88233** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-88233-88233				Units: µg/Kg-dry		Analysis Date: 7/6/2016 12:09 PM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909164		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) U 2,500

MBLK		Sample ID: MBLK-88233-88233				Units: µg/Kg		Analysis Date: 7/7/2016 08:01 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910576		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) U 2,500

Surr: a,a,a-Trifluorotoluene 940.5 0 1000 0 94 80-120 0

LCS		Sample ID: LCS-88233-88233				Units: µg/Kg-dry		Analysis Date: 7/6/2016 11:44 AM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909171		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 467100 2,500 500000 0 93.4 70-130 0

LCS		Sample ID: LCS-88233-88233				Units: µg/Kg		Analysis Date: 7/7/2016 07:36 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910575		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 537400 2,500 500000 0 107 80-120 0

Surr: a,a,a-Trifluorotoluene 951.5 0 1000 0 95.2 80-120 0

MS		Sample ID: 1607139-01A MS				Units: µg/Kg-dry		Analysis Date: 7/6/2016 02:14 PM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909169		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 618100 3,500 704800 0 87.7 70-130 0

MS		Sample ID: 1607017-11A MS				Units: µg/Kg		Analysis Date: 7/7/2016 10:55 AM		
Client ID: B-61 (4'-5')		Run ID: GC9_160706B				SeqNo: 3910583		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 746500 3,500 690500 0 108 80-120 0

Surr: a,a,a-Trifluorotoluene 1317 0 1381 0 95.4 80-120 0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88233** Instrument ID **GC9** Method: **SW8015D**

MSD		Sample ID: 1607139-01A MSD				Units: µg/Kg-dry		Analysis Date: 7/6/2016 02:37 PM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909170		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	625600	3,500	704800	0	88.8	70-130	618100	1.22	30	

MSD		Sample ID: 1607017-11A MSD				Units: µg/Kg		Analysis Date: 7/7/2016 11:20 AM		
Client ID: B-61 (4'-5')		Run ID: GC9_160706B				SeqNo: 3910584		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	761600	3,500	690500	0	110	80-120	746500	2.01	20	
<i>Surr: a,a,a-Trifluorotoluene</i>	<i>1279</i>	<i>0</i>	<i>1381</i>	<i>0</i>	<i>92.6</i>	<i>80-120</i>	<i>1317</i>	<i>2.93</i>		

The following samples were analyzed in this batch:

1607017-11A	1607017-12A	1607017-13A
1607017-14A	1607017-15A	1607017-26A
1607017-27A	1607017-28A	1607017-29A
1607017-30A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191000** Instrument ID **GC9** Method: **OA-1**

MBLK		Sample ID: IBLKW1-160705-R191000				Units: µg/L		Analysis Date: 7/7/2016 04:42 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910435		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	U	100								
Surr: a,a,a-Trifluorotoluene	18.73	0	20	0	93.6	80-120	0			

LCS		Sample ID: ILCSW1-160705-R191000				Units: µg/L		Analysis Date: 7/7/2016 04:17 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910434		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	10410	100	10000	0	104	80-120	0			
Surr: a,a,a-Trifluorotoluene	18.1	0	20	0	90.5	80-120	0			

MS		Sample ID: 1607017-31A MS				Units: µg/L		Analysis Date: 7/7/2016 05:56 AM		
Client ID: B-61 GW		Run ID: GC9_160706B				SeqNo: 3910438		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	10360	100	10000	0	104	80-120	0			
Surr: a,a,a-Trifluorotoluene	19.07	0	20	0	95.4	80-120	0			

MSD		Sample ID: 1607017-31A MSD				Units: µg/L		Analysis Date: 7/7/2016 06:21 AM		
Client ID: B-61 GW		Run ID: GC9_160706B				SeqNo: 3910439		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	9972	100	10000	0	99.7	80-120	10360	3.83	20	
Surr: a,a,a-Trifluorotoluene	18.72	0	20	0	93.6	80-120	19.07	1.85		

The following samples were analyzed in this batch:

1607017-31A	1607017-52A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88298** Instrument ID **HG1** Method: **SW7470A**

MBLK		Sample ID: MBLK-88298-88298				Units: mg/L		Analysis Date: 7/7/2016 04:01 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911329		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.00020

LCS		Sample ID: LCS-88298-88298				Units: mg/L		Analysis Date: 7/7/2016 04:03 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911330		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00213 0.00020 0.002 0 106 80-120 0

MS		Sample ID: 16061821-01AMS				Units: mg/L		Analysis Date: 7/7/2016 04:08 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911332		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.0222 0.0020 0.02 -0.00028 112 75-125 0

MSD		Sample ID: 16061821-01AMSD				Units: mg/L		Analysis Date: 7/7/2016 04:10 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911333		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.0212 0.0020 0.02 -0.00028 107 75-125 0.0222 4.61 20

The following samples were analyzed in this batch:

1607017-31C 1607017-52C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88312** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-88312-88312				Units: mg/Kg		Analysis Date: 7/7/2016 07:33 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3912239		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-88312-88312				Units: mg/Kg		Analysis Date: 7/7/2016 07:36 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3912240		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1875 0.020 0.1665 0 113 80-120 0

MS		Sample ID: 1607017-16AMS				Units: mg/Kg		Analysis Date: 7/7/2016 08:09 PM		
Client ID: B-51 (3-4 ft)		Run ID: HG1_160707A				SeqNo: 3912255		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1443 0.013 0.1072 0.03631 101 75-125 0

MSD		Sample ID: 1607017-16AMSD				Units: mg/Kg		Analysis Date: 7/7/2016 08:11 PM		
Client ID: B-51 (3-4 ft)		Run ID: HG1_160707A				SeqNo: 3912256		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1459 0.013 0.1075 0.03631 102 75-125 0.1443 1.06 35

The following samples were analyzed in this batch:

1607017-01A	1607017-02A	1607017-03A
1607017-04A	1607017-05A	1607017-11B
1607017-12B	1607017-13B	1607017-14B
1607017-15B	1607017-16A	1607017-17A
1607017-18A	1607017-19A	1607017-20A
1607017-26B	1607017-27B	1607017-28B
1607017-29B	1607017-30B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88363** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-88363-88363				Units: mg/Kg		Analysis Date: 7/8/2016 02:35 PM		
Client ID:		Run ID: HG1_160708A				SeqNo: 3913536		Prep Date: 7/8/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-88363-88363				Units: mg/Kg		Analysis Date: 7/8/2016 02:37 PM		
Client ID:		Run ID: HG1_160708A				SeqNo: 3913537		Prep Date: 7/8/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1833 0.020 0.1665 0 110 80-120 0

MS		Sample ID: 1607017-43AMS				Units: mg/Kg		Analysis Date: 7/8/2016 03:02 PM		
Client ID: B-52 (7-8 ft)		Run ID: HG1_160708A				SeqNo: 3913548		Prep Date: 7/8/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1419 0.013 0.1066 0.02258 112 75-125 0

MSD		Sample ID: 1607017-43AMSD				Units: mg/Kg		Analysis Date: 7/8/2016 03:04 PM		
Client ID: B-52 (7-8 ft)		Run ID: HG1_160708A				SeqNo: 3913549		Prep Date: 7/8/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1372 0.013 0.1058 0.02258 108 75-125 0.1419 3.41 35

The following samples were analyzed in this batch:

1607017-32A	1607017-33A	1607017-34A
1607017-35A	1607017-36A	1607017-42A
1607017-43A	1607017-44A	1607017-45A
1607017-46A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88230** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: MBLK-88230-88230				Units: mg/Kg		Analysis Date: 7/9/2016 07:23 PM				
Client ID:		Run ID: ICP2_160709A		SeqNo: 3915218		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.04831	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS Sample ID: LCS-88230-88230				Units: mg/Kg		Analysis Date: 7/9/2016 07:29 PM				
Client ID:		Run ID: ICP2_160709A		SeqNo: 3915220		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.596	0.25	5	0	112	80-120	0			
Barium	5.869	0.25	5	0	117	80-120	0			
Cadmium	5.812	0.50	5	0	116	80-120	0			
Chromium	6.081	0.25	5	0	122	80-120	0			S
Lead	6.097	0.25	5	0	122	80-120	0			S
Selenium	5.38	0.50	5	0	108	80-120	0			
Silver	5.892	0.25	5	0	118	80-120	0			

LCS Sample ID: LCS-88230-88230				Units: mg/Kg		Analysis Date: 7/11/2016 12:59 PM				
Client ID:		Run ID: ICP2_160711A		SeqNo: 3918551		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	5.606	0.25	5	0	112	80-120	0			
Lead	5.926	0.25	5	0	119	80-120	0			

MS Sample ID: 1607017-20AMS				Units: mg/Kg		Analysis Date: 7/9/2016 09:20 PM				
Client ID: B-55 (3-4 ft)		Run ID: ICP2_160709A		SeqNo: 3915240		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	16.88	0.37	7.331	7.486	128	75-125	0			S
Barium	275.1	0.37	7.331	288.6	-184	75-125	0			SO
Cadmium	10.65	0.73	7.331	1.189	129	75-125	0			S
Chromium	26.89	0.37	7.331	14.41	170	75-125	0			S
Lead	409.8	0.37	7.331	328.8	1100	75-125	0			SO
Selenium	8.922	0.73	7.331	0.7087	112	75-125	0			
Silver	8.784	0.37	7.331	0.06547	119	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88230** Instrument ID **ICP2** Method: **SW846 6010C**

MSD					Sample ID: 1607017-20AMSD		Units: mg/Kg		Analysis Date: 7/9/2016 09:26 PM		
Client ID: B-55 (3-4 ft)			Run ID: ICP2_160709A			SeqNo: 3915241		Prep Date: 7/6/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	18.49	0.37	7.375	7.486	149	75-125	16.88	9.06	20	S	
Barium	572.7	0.37	7.375	288.6	3850	75-125	275.1	70.2	20	SRO	
Cadmium	11.34	0.74	7.375	1.189	138	75-125	10.65	6.33	20	S	
Chromium	26.61	0.37	7.375	14.41	165	75-125	26.89	1.04	20	S	
Lead	400.9	0.37	7.375	328.8	977	75-125	409.8	2.19	20	SO	
Selenium	9.899	0.74	7.375	0.7087	125	75-125	8.922	10.4	20		
Silver	9.421	0.37	7.375	0.06547	127	75-125	8.784	7.01	20	S	

The following samples were analyzed in this batch:

1607017-01A	1607017-02A	1607017-03A
1607017-04A	1607017-05A	1607017-11B
1607017-12B	1607017-13B	1607017-14B
1607017-15B	1607017-16A	1607017-17A
1607017-18A	1607017-19A	1607017-20A
1607017-26B	1607017-27B	1607017-28B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88240** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-88240-88240				Units: mg/Kg		Analysis Date: 7/9/2016 10:31 PM		
Client ID:		Run ID: ICP2_160709A				SeqNo: 3915323		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.03941	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS		Sample ID: LCS-88240-88240				Units: mg/Kg		Analysis Date: 7/11/2016 01:05 PM		
Client ID:		Run ID: ICP2_160711A				SeqNo: 3918552		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.661	0.25	5	0	113	80-120	0			
Barium	5.651	0.25	5	0	113	80-120	0			
Cadmium	5.9	0.50	5	0	118	80-120	0			
Chromium	5.584	0.25	5	0	112	80-120	0			
Lead	5.919	0.25	5	0	118	80-120	0			
Selenium	5.31	0.50	5	0	106	80-120	0			
Silver	5.587	0.25	5	0	112	80-120	0			

MS		Sample ID: 1607029-01AMS				Units: mg/Kg		Analysis Date: 7/11/2016 09:54 PM		
Client ID:		Run ID: ICP2_160711C				SeqNo: 3918922		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	18.29	0.41	8.21	8.5	119	75-125	0			
Barium	401.2	0.41	8.21	402	-9.96	75-125	0			SO
Cadmium	10.45	0.82	8.21	0.2527	124	75-125	0			
Chromium	49.98	0.41	8.21	42.03	96.8	75-125	0			O
Lead	25.47	0.41	8.21	19.09	77.8	75-125	0			
Selenium	9.489	0.82	8.21	0	116	75-125	0			
Silver	9.001	0.41	8.21	0	110	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88240** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 1607029-01AMSD				Units: mg/Kg		Analysis Date: 7/11/2016 10:00 PM		
Client ID:		Run ID: ICP2_160711C				SeqNo: 3918923		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	18.5	0.41	8.143	8.5	123	75-125	18.29	1.15	20	
Barium	398.3	0.41	8.143	402	-45.1	75-125	401.2	0.714	20	SO
Cadmium	10.5	0.81	8.143	0.2527	126	75-125	10.45	0.472	20	S
Chromium	50.33	0.41	8.143	42.03	102	75-125	49.98	0.693	20	O
Lead	25.37	0.41	8.143	19.09	77.1	75-125	25.47	0.407	20	
Selenium	9.728	0.81	8.143	0	119	75-125	9.489	2.48	20	
Silver	9.161	0.41	8.143	0	112	75-125	9.001	1.76	20	

The following samples were analyzed in this batch:

1607017-29B	1607017-30B	1607017-32A
1607017-33A	1607017-34A	1607017-35A
1607017-36A	1607017-42A	1607017-43A
1607017-44A	1607017-45A	1607017-46A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88217** Instrument ID **ICPMS1** Method: **SW6020A**

MBLK		Sample ID: MBLK-88217-88217				Units: mg/L		Analysis Date: 7/6/2016 11:11 PM		
Client ID:		Run ID: ICPMS1_160706A				SeqNo: 3909615		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Chromium	U	0.0050								
Lead	U	0.0050								
Selenium	U	0.0050								
Silver	U	0.0050								

LCS		Sample ID: LCS-88217-88217				Units: mg/L		Analysis Date: 7/6/2016 11:17 PM		
Client ID:		Run ID: ICPMS1_160706A				SeqNo: 3909616		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1021	0.0050	0.1	0	102	80-120	0			
Barium	0.103	0.0050	0.1	0	103	80-120	0			
Cadmium	0.1008	0.0020	0.1	0	101	80-120	0			
Chromium	0.09785	0.0050	0.1	0	97.8	80-120	0			
Lead	0.09948	0.0050	0.1	0	99.5	80-120	0			
Selenium	0.09748	0.0050	0.1	0	97.5	80-120	0			
Silver	0.09825	0.0050	0.1	0	98.2	80-120	0			

MS		Sample ID: 1607013-03AMS				Units: mg/L		Analysis Date: 7/7/2016 01:25 AM		
Client ID:		Run ID: ICPMS1_160706A				SeqNo: 3909636		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1022	0.0050	0.1	0.003909	98.3	75-125	0			
Barium	0.1843	0.0050	0.1	0.08524	99.1	75-125	0			
Cadmium	0.09734	0.0020	0.1	0.00002977	97.3	75-125	0			
Chromium	0.09359	0.0050	0.1	0.0002216	93.4	75-125	0			
Lead	0.09726	0.0050	0.1	0.0001623	97.1	75-125	0			
Selenium	0.09273	0.0050	0.1	0.001131	91.6	75-125	0			
Silver	0.09364	0.0050	0.1	-8.646E-06	93.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88217** Instrument ID **ICPMS1** Method: **SW6020A**

MSD		Sample ID: 1607013-03AMSD				Units: mg/L		Analysis Date: 7/7/2016 01:50 AM		
Client ID:		Run ID: ICPMS1_160706A				SeqNo: 3909640		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1063	0.0050	0.1	0.003909	102	75-125	0.1022	3.93	20	
Barium	0.1928	0.0050	0.1	0.08524	108	75-125	0.1843	4.51	20	
Cadmium	0.1014	0.0020	0.1	0.00002977	101	75-125	0.09734	4.09	20	
Chromium	0.09879	0.0050	0.1	0.0002216	98.6	75-125	0.09359	5.41	20	
Lead	0.101	0.0050	0.1	0.0001623	101	75-125	0.09726	3.77	20	
Selenium	0.09805	0.0050	0.1	0.001131	96.9	75-125	0.09273	5.58	20	
Silver	0.09828	0.0050	0.1	-8.646E-06	98.3	75-125	0.09364	4.84	20	

The following samples were analyzed in this batch:

1607017-31C 1607017-52C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88235** Instrument ID **SVMS8** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-88235-88235				Units: µg/Kg		Analysis Date: 7/7/2016 12:04 AM		
Client ID:		Run ID: SVMS8_160706A				SeqNo: 3910662		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	66								
2,4,5-Trichlorophenol	U	66								
2,4,6-Trichlorophenol	U	66								
2,4-Dichlorophenol	U	66								
2,4-Dimethylphenol	U	66								
2,4-Dinitrophenol	U	66								
2,4-Dinitrotoluene	U	66								
2,6-Dinitrotoluene	U	66								
2-Chloronaphthalene	U	13								
2-Chlorophenol	U	66								
2-Methylnaphthalene	U	13								
2-Methylphenol	U	66								
2-Nitroaniline	U	66								
2-Nitrophenol	U	66								
3,3'-Dichlorobenzidine	U	330								
3-Nitroaniline	U	66								
4,6-Dinitro-2-methylphenol	U	66								
4-Bromophenyl phenyl ether	U	66								
4-Chloro-3-methylphenol	U	66								
4-Chloroaniline	U	130								
4-Chlorophenyl phenyl ether	U	66								
4-Nitroaniline	U	330								
4-Nitrophenol	U	66								
Acenaphthene	U	13								
Acenaphthylene	U	13								
Acetophenone	U	66								
Anthracene	U	13								
Atrazine	U	66								
Benzaldehyde	U	130								
Benzo(a)anthracene	U	13								
Benzo(a)pyrene	U	13								
Benzo(b)fluoranthene	U	13								
Benzo(g,h,i)perylene	U	13								
Benzo(k)fluoranthene	U	13								
Bis(2-chloroethoxy)methane	U	66								
Bis(2-chloroethyl)ether	U	66								
Bis(2-chloroisopropyl)ether	U	66								
Bis(2-ethylhexyl)phthalate	U	66								
Butyl benzyl phthalate	U	66								
Caprolactam	U	66								
Carbazole	U	66								
Chrysene	U	13								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88235		Instrument ID SVMS8		Method: SW846 8270D				
Dibenzo(a,h)anthracene	U	13						
Dibenzofuran	U	66						
Diethyl phthalate	U	66						
Dimethyl phthalate	U	66						
Di-n-butyl phthalate	U	66						
Di-n-octyl phthalate	U	66						
Fluoranthene	U	13						
Fluorene	U	13						
Hexachlorobenzene	U	66						
Hexachlorobutadiene	U	66						
Hexachlorocyclopentadiene	U	66						
Hexachloroethane	U	66						
Indeno(1,2,3-cd)pyrene	U	13						
Isophorone	U	330						
Naphthalene	U	13						
Nitrobenzene	U	330						
N-Nitrosodi-n-propylamine	U	66						
N-Nitrosodiphenylamine	U	66						
Pentachlorophenol	U	66						
Phenanthrene	U	13						
Phenol	U	66						
Pyrene	U	13						
<i>Surr: 2,4,6-Tribromophenol</i>	<i>2723</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>81.7</i>	<i>34-140</i>	<i>0</i>	
<i>Surr: 2-Fluorobiphenyl</i>	<i>2397</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>71.9</i>	<i>12-100</i>	<i>0</i>	
<i>Surr: 2-Fluorophenol</i>	<i>2598</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>77.9</i>	<i>33-117</i>	<i>0</i>	
<i>Surr: 4-Terphenyl-d14</i>	<i>2953</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>88.6</i>	<i>25-137</i>	<i>0</i>	
<i>Surr: Nitrobenzene-d5</i>	<i>2510</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>75.3</i>	<i>37-107</i>	<i>0</i>	
<i>Surr: Phenol-d6</i>	<i>2612</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>78.4</i>	<i>40-106</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88235** Instrument ID **SVMS8** Method: **SW846 8270D**

LCS				Sample ID: SLCSS1-88235-88235			Units: µg/Kg		Analysis Date: 7/7/2016 12:25 AM	
Client ID:				Run ID: SVMS8_160706A			SeqNo: 3910663		Prep Date: 7/6/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	1055	66	1333	0	79.1	30-120	0			
2,4,5-Trichlorophenol	957.3	66	1333	0	71.8	50-110	0			
2,4,6-Trichlorophenol	954	66	1333	0	71.5	45-110	0			
2,4-Dichlorophenol	1062	66	1333	0	79.6	45-110	0			
2,4-Dimethylphenol	1059	66	1333	0	79.4	30-105	0			
2,4-Dinitrophenol	572.7	66	1333	0	42.9	15-130	0			
2,4-Dinitrotoluene	1040	66	1333	0	78	50-115	0			
2,6-Dinitrotoluene	969.3	66	1333	0	72.7	50-110	0			
2-Chloronaphthalene	926	13	1333	0	69.4	45-105	0			
2-Chlorophenol	1063	66	1333	0	79.7	45-105	0			
2-Methylnaphthalene	1037	13	1333	0	77.7	45-105	0			
2-Methylphenol	1039	66	1333	0	77.9	40-105	0			
2-Nitroaniline	1028	66	1333	0	77.1	45-120	0			
2-Nitrophenol	1107	66	1333	0	83	40-110	0			
3,3'-Dichlorobenzidine	1032	330	1333	0	77.4	30-120	0			
3-Nitroaniline	574.7	66	1333	0	43.1	25-150	0			
4,6-Dinitro-2-methylphenol	1054	66	1333	0	79	40-130	0			
4-Bromophenyl phenyl ether	1171	66	1333	0	87.8	45-115	0			
4-Chloro-3-methylphenol	1123	66	1333	0	84.2	45-115	0			
4-Chloroaniline	1119	130	1333	0	83.9	15-110	0			
4-Chlorophenyl phenyl ether	996.7	66	1333	0	74.7	45-110	0			
4-Nitroaniline	565.3	330	1333	0	42.4	35-150	0			
4-Nitrophenol	1121	66	1333	0	84.1	15-140	0			
Acenaphthene	915.3	13	1333	0	68.6	45-110	0			
Acenaphthylene	956	13	1333	0	71.7	45-105	0			
Acetophenone	1030	66	1333	0	77.2	30-120	0			
Anthracene	1205	13	1333	0	90.4	55-105	0			
Atrazine	1256	66	1333	0	94.2	30-120	0			
Benzaldehyde	189.3	130	1333	0	14.2	30-120	0			S
Benzo(a)anthracene	1166	13	1333	0	87.4	50-110	0			
Benzo(a)pyrene	1155	13	1333	0	86.6	50-110	0			
Benzo(b)fluoranthene	1143	13	1333	0	85.7	45-115	0			
Benzo(g,h,i)perylene	1157	13	1333	0	86.7	40-125	0			
Benzo(k)fluoranthene	1133	13	1333	0	85	45-115	0			
Bis(2-chloroethoxy)methane	982.7	66	1333	0	73.7	45-110	0			
Bis(2-chloroethyl)ether	938.7	66	1333	0	70.4	40-105	0			
Bis(2-chloroisopropyl)ether	915.3	66	1333	0	68.6	20-115	0			
Bis(2-ethylhexyl)phthalate	1144	66	1333	0	85.8	45-125	0			
Butyl benzyl phthalate	1187	66	1333	0	89	50-125	0			
Caprolactam	955.3	66	1333	0	71.6	30-120	0			
Carbazole	1219	66	1333	0	91.4	50-150	0			
Chrysene	1203	13	1333	0	90.2	55-110	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88235		Instrument ID SVMS8		Method: SW846 8270D			
Dibenzo(a,h)anthracene	1192	13	1333	0	89.4	40-125	0
Dibenzofuran	946.7	66	1333	0	71	50-105	0
Diethyl phthalate	1044	66	1333	0	78.3	50-115	0
Dimethyl phthalate	994	66	1333	0	74.5	50-110	0
Di-n-butyl phthalate	1163	66	1333	0	87.2	55-110	0
Di-n-octyl phthalate	1167	66	1333	0	87.5	40-130	0
Fluoranthene	1289	13	1333	0	96.7	55-115	0
Fluorene	1014	13	1333	0	76	50-110	0
Hexachlorobenzene	1192	66	1333	0	89.4	45-120	0
Hexachlorobutadiene	1057	66	1333	0	79.3	40-115	0
Hexachlorocyclopentadiene	1085	66	1333	0	81.3	40-115	0
Hexachloroethane	960.7	66	1333	0	72	35-110	0
Indeno(1,2,3-cd)pyrene	1193	13	1333	0	89.5	40-120	0
Isophorone	1027	330	1333	0	77	45-110	0
Naphthalene	988	13	1333	0	74.1	40-105	0
Nitrobenzene	1064	330	1333	0	79.8	40-115	0
N-Nitrosodi-n-propylamine	1033	66	1333	0	77.4	40-115	0
N-Nitrosodiphenylamine	1133	66	1333	0	85	50-115	0
Pentachlorophenol	1108	66	1333	0	83.1	25-120	0
Phenanthrene	1098	13	1333	0	82.3	50-110	0
Phenol	1049	66	1333	0	78.6	40-100	0
Pyrene	1159	13	1333	0	86.9	45-125	0
<i>Surr: 2,4,6-Tribromophenol</i>	3031	0	3333	0	90.9	34-140	0
<i>Surr: 2-Fluorobiphenyl</i>	2419	0	3333	0	72.6	12-100	0
<i>Surr: 2-Fluorophenol</i>	2567	0	3333	0	77	33-117	0
<i>Surr: 4-Terphenyl-d14</i>	2934	0	3333	0	88	25-137	0
<i>Surr: Nitrobenzene-d5</i>	2733	0	3333	0	82	37-107	0
<i>Surr: Phenol-d6</i>	2688	0	3333	0	80.6	40-106	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88235** Instrument ID **SVMS8** Method: **SW846 8270D**

MS				Sample ID: 1607017-06A MS			Units: µg/Kg		Analysis Date: 7/7/2016 03:58 AM	
Client ID: B-56 (1-2 ft)				Run ID: SVMS8_160706A			SeqNo: 3910671		Prep Date: 7/6/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	885.4	65	1309	0	67.6	30-120	0			
2,4,5-Trichlorophenol	800.9	65	1309	0	61.2	50-110	0			
2,4,6-Trichlorophenol	812.7	65	1309	0	62.1	45-110	0			
2,4-Dichlorophenol	1006	65	1309	0	76.9	45-110	0			
2,4-Dimethylphenol	759.7	65	1309	0	58	30-105	0			
2,4-Dinitrophenol	383.5	65	1309	0	29.3	15-130	0			
2,4-Dinitrotoluene	858.5	65	1309	0	65.6	50-115	0			
2,6-Dinitrotoluene	799	65	1309	0	61	50-110	0			
2-Chloronaphthalene	784.6	13	1309	0	59.9	45-105	0			
2-Chlorophenol	1010	65	1309	0	77.2	45-105	0			
2-Methylnaphthalene	907.6	13	1309	0	69.3	45-105	0			
2-Methylphenol	901.7	65	1309	0	68.9	40-105	0			
2-Nitroaniline	882.1	65	1309	0	67.4	45-120	0			
2-Nitrophenol	1021	65	1309	0	78	40-110	0			
3,3'-Dichlorobenzidine	840.2	330	1309	0	64.2	30-120	0			
3-Nitroaniline	560.8	65	1309	0	42.8	25-150	0			
4,6-Dinitro-2-methylphenol	838.2	65	1309	0	64	40-130	0			
4-Bromophenyl phenyl ether	975.7	65	1309	0	74.5	45-115	0			
4-Chloro-3-methylphenol	997.3	65	1309	0	76.2	45-115	0			
4-Chloroaniline	924.6	130	1309	0	70.6	15-110	0			
4-Chlorophenyl phenyl ether	809.4	65	1309	0	61.8	45-110	0			
4-Nitroaniline	754.5	330	1309	0	57.6	35-150	0			
4-Nitrophenol	983.5	65	1309	0	75.1	15-140	0			
Acenaphthene	748.6	13	1309	11.95	56.3	45-110	0			
Acenaphthylene	818	13	1309	0	62.5	45-105	0			
Acetophenone	872.3	65	1309	0	66.6	30-120	0			
Anthracene	1004	13	1309	42.75	73.5	55-105	0			
Atrazine	994	65	1309	0	75.9	30-120	0			
Benzaldehyde	248	130	1309	0	18.9	30-120	0			S
Benzo(a)anthracene	1112	13	1309	205.6	69.3	50-110	0			
Benzo(a)pyrene	1111	13	1309	211.9	68.7	50-110	0			
Benzo(b)fluoranthene	1099	13	1309	269.1	63.4	45-115	0			
Benzo(g,h,i)perylene	1122	13	1309	159.1	73.6	40-125	0			
Benzo(k)fluoranthene	984.2	13	1309	92.42	68.1	45-115	0			
Bis(2-chloroethoxy)methane	847.4	65	1309	0	64.7	45-110	0			
Bis(2-chloroethyl)ether	892.6	65	1309	0	68.2	40-105	0			
Bis(2-chloroisopropyl)ether	783.9	65	1309	0	59.9	20-115	0			
Bis(2-ethylhexyl)phthalate	1070	65	1309	0	81.7	45-125	0			
Butyl benzyl phthalate	1069	65	1309	0	81.6	50-125	0			
Caprolactam	819.3	65	1309	0	62.6	30-120	0			
Carbazole	979.6	65	1309	32.69	72.3	50-150	0			
Chrysene	1149	13	1309	251.5	68.6	55-110	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88235		Instrument ID SVMS8		Method: SW846 8270D			
Dibenzo(a,h)anthracene	1103	13	1309	47.78	80.6	40-125	0
Dibenzofuran	788.5	65	1309	0	60.2	50-105	0
Diethyl phthalate	819.9	65	1309	0	62.6	50-115	0
Dimethyl phthalate	815.3	65	1309	0	62.3	50-110	0
Di-n-butyl phthalate	927.2	65	1309	0	70.8	55-110	0
Di-n-octyl phthalate	1157	65	1309	0	88.4	40-130	0
Fluoranthene	1321	13	1309	398	70.5	55-115	0
Fluorene	819.9	13	1309	8.802	62	50-110	0
Hexachlorobenzene	961.9	65	1309	0	73.5	45-120	0
Hexachlorobutadiene	900.4	65	1309	0	68.8	40-115	0
Hexachlorocyclopentadiene	441.7	65	1309	0	33.7	40-115	0
Hexachloroethane	879.5	65	1309	0	67.2	35-110	0
Indeno(1,2,3-cd)pyrene	1194	13	1309	179.8	77.5	40-120	0
Isophorone	852	330	1309	0	65.1	45-110	0
Naphthalene	869	13	1309	0	66.4	40-105	0
Nitrobenzene	903.7	330	1309	0	69	40-115	0
N-Nitrosodi-n-propylamine	869.7	65	1309	0	66.4	40-115	0
N-Nitrosodiphenylamine	940.3	65	1309	0	71.8	50-115	0
Pentachlorophenol	685.1	65	1309	0	52.3	25-120	0
Phenanthrene	1024	13	1309	209.4	62.2	50-110	0
Phenol	955.4	65	1309	0	73	40-100	0
Pyrene	1286	13	1309	375.4	69.6	45-125	0
<i>Surr: 2,4,6-Tribromophenol</i>	<i>2684</i>	<i>0</i>	<i>3272</i>	<i>0</i>	<i>82</i>	<i>34-140</i>	<i>0</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>2029</i>	<i>0</i>	<i>3272</i>	<i>0</i>	<i>62</i>	<i>12-100</i>	<i>0</i>
<i>Surr: 2-Fluorophenol</i>	<i>2498</i>	<i>0</i>	<i>3272</i>	<i>0</i>	<i>76.4</i>	<i>33-117</i>	<i>0</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>2511</i>	<i>0</i>	<i>3272</i>	<i>0</i>	<i>76.7</i>	<i>25-137</i>	<i>0</i>
<i>Surr: Nitrobenzene-d5</i>	<i>2377</i>	<i>0</i>	<i>3272</i>	<i>0</i>	<i>72.6</i>	<i>37-107</i>	<i>0</i>
<i>Surr: Phenol-d6</i>	<i>2557</i>	<i>0</i>	<i>3272</i>	<i>0</i>	<i>78.1</i>	<i>40-106</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88235 Instrument ID SVMS8 Method: SW846 8270D

MSD				Sample ID: 1607017-06A MSD			Units: µg/Kg		Analysis Date: 7/7/2016 04:19 AM		
Client ID: B-56 (1-2 ft)			Run ID: SVMS8_160706A			SeqNo: 3910672		Prep Date: 7/6/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1`-Biphenyl	1020	65	1319	0	77.3	30-120	885.4	14.1	30		
2,4,5-Trichlorophenol	879.3	65	1319	0	66.6	50-110	800.9	9.33	30		
2,4,6-Trichlorophenol	901.7	65	1319	0	68.3	45-110	812.7	10.4	30		
2,4-Dichlorophenol	1088	65	1319	0	82.5	45-110	1006	7.83	30		
2,4-Dimethylphenol	851.6	65	1319	0	64.5	30-105	759.7	11.4	30		
2,4-Dinitrophenol	396.4	65	1319	0	30	15-130	383.5	3.33	30		
2,4-Dinitrotoluene	996.7	65	1319	0	75.5	50-115	858.5	14.9	30		
2,6-Dinitrotoluene	928.8	65	1319	0	70.4	50-110	799	15	30		
2-Chloronaphthalene	909	13	1319	0	68.9	45-105	784.6	14.7	30		
2-Chlorophenol	1150	65	1319	0	87.2	45-105	1010	13	30		
2-Methylnaphthalene	1028	13	1319	0	77.9	45-105	907.6	12.5	30		
2-Methylphenol	1015	65	1319	0	76.9	40-105	901.7	11.8	30		
2-Nitroaniline	968.3	65	1319	0	73.4	45-120	882.1	9.32	30		
2-Nitrophenol	1170	65	1319	0	88.7	40-110	1021	13.6	30		
3,3´-Dichlorobenzidine	961.1	330	1319	0	72.8	30-120	840.2	13.4	30		
3-Nitroaniline	593	65	1319	0	44.9	25-110	560.8	5.58	30		
4,6-Dinitro-2-methylphenol	967	65	1319	0	73.3	40-130	838.2	14.3	30		
4-Bromophenyl phenyl ether	1156	65	1319	0	87.6	45-115	975.7	16.9	30		
4-Chloro-3-methylphenol	1102	65	1319	0	83.5	45-115	997.3	9.94	30		
4-Chloroaniline	1059	130	1319	0	80.2	15-110	924.6	13.5	30		
4-Chlorophenyl phenyl ether	917.5	65	1319	0	69.5	45-110	809.4	12.5	30		
4-Nitroaniline	727.6	330	1319	0	55.1	35-150	754.5	3.63	30		
4-Nitrophenol	1164	65	1319	0	88.2	15-140	983.5	16.8	30		
Acenaphthene	846.3	13	1319	11.95	63.2	45-110	748.6	12.3	30		
Acenaphthylene	945.3	13	1319	0	71.6	45-105	818	14.4	30		
Acetophenone	996	65	1319	0	75.5	30-120	872.3	13.2	30		
Anthracene	1179	13	1319	42.75	86.2	55-105	1004	16	30		
Atrazine	1128	65	1319	0	85.5	30-120	994	12.6	30		
Benzaldehyde	240.8	130	1319	0	18.2	30-120	248	2.96	30	S	
Benzo(a)anthracene	1292	13	1319	205.6	82.4	50-110	1112	15	30		
Benzo(a)pyrene	1255	13	1319	211.9	79	50-110	1111	12.1	30		
Benzo(b)fluoranthene	1274	13	1319	269.1	76.2	45-115	1099	14.8	30		
Benzo(g,h,i)perylene	1299	13	1319	159.1	86.4	40-125	1122	14.6	30		
Benzo(k)fluoranthene	1144	13	1319	92.42	79.7	45-115	984.2	15.1	30		
Bis(2-chloroethoxy)methane	973	65	1319	0	73.7	45-110	847.4	13.8	30		
Bis(2-chloroethyl)ether	994.7	65	1319	0	75.4	40-105	892.6	10.8	30		
Bis(2-chloroisopropyl)ether	947.9	65	1319	0	71.8	20-115	783.9	18.9	30		
Bis(2-ethylhexyl)phthalate	1255	65	1319	0	95.1	45-125	1070	15.9	30		
Butyl benzyl phthalate	1271	65	1319	0	96.3	50-125	1069	17.3	30		
Caprolactam	933.4	65	1319	0	70.7	30-120	819.3	13	30		
Carbazole	1154	65	1319	32.69	85	50-150	979.6	16.3	30		
Chrysene	1330	13	1319	251.5	81.8	55-110	1149	14.6	30		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88235			Instrument ID SVMS8			Method: SW846 8270D			
Dibenzo(a,h)anthracene	1319	13	1319	47.78	96.3	40-125	1103	17.8	30
Dibenzofuran	898.4	65	1319	0	68.1	50-105	788.5	13	30
Diethyl phthalate	945.9	65	1319	0	71.7	50-115	819.9	14.3	30
Dimethyl phthalate	950.5	65	1319	0	72	50-110	815.3	15.3	30
Di-n-butyl phthalate	1121	65	1319	0	84.9	55-110	927.2	18.9	30
Di-n-octyl phthalate	1359	65	1319	0	103	40-130	1157	16.1	30
Fluoranthene	1531	13	1319	398	85.9	55-115	1321	14.7	30
Fluorene	935.4	13	1319	8.802	70.2	50-110	819.9	13.2	30
Hexachlorobenzene	1201	65	1319	0	91	45-120	961.9	22.1	30
Hexachlorobutadiene	1055	65	1319	0	80	40-115	900.4	15.9	30
Hexachlorocyclopentadiene	558	65	1319	0	42.3	40-115	441.7	23.3	30
Hexachloroethane	979.6	65	1319	0	74.2	35-110	879.5	10.8	30
Indeno(1,2,3-cd)pyrene	1388	13	1319	179.8	91.6	40-120	1194	15.1	30
Isophorone	992.7	330	1319	0	75.2	45-110	852	15.3	30
Naphthalene	1002	13	1319	0	75.9	40-105	869	14.2	30
Nitrobenzene	994.1	330	1319	0	75.3	40-115	903.7	9.53	30
N-Nitrosodi-n-propylamine	974.3	65	1319	0	73.8	40-115	869.7	11.3	30
N-Nitrosodiphenylamine	1111	65	1319	0	84.2	50-115	940.3	16.6	30
Pentachlorophenol	815.3	65	1319	0	61.8	25-120	685.1	17.4	30
Phenanthrene	1215	13	1319	209.4	76.2	50-110	1024	17.1	30
Phenol	1061	65	1319	0	80.4	40-100	955.4	10.5	30
Pyrene	1509	13	1319	375.4	85.9	45-125	1286	15.9	30
<i>Surr: 2,4,6-Tribromophenol</i>	<i>3087</i>	<i>0</i>	<i>3298</i>	<i>0</i>	<i>93.6</i>	<i>34-140</i>	<i>2684</i>	<i>14</i>	<i>40</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>2340</i>	<i>0</i>	<i>3298</i>	<i>0</i>	<i>70.9</i>	<i>12-100</i>	<i>2029</i>	<i>14.2</i>	<i>40</i>
<i>Surr: 2-Fluorophenol</i>	<i>2658</i>	<i>0</i>	<i>3298</i>	<i>0</i>	<i>80.6</i>	<i>33-117</i>	<i>2498</i>	<i>6.18</i>	<i>40</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>3041</i>	<i>0</i>	<i>3298</i>	<i>0</i>	<i>92.2</i>	<i>25-137</i>	<i>2511</i>	<i>19.1</i>	<i>40</i>
<i>Surr: Nitrobenzene-d5</i>	<i>2633</i>	<i>0</i>	<i>3298</i>	<i>0</i>	<i>79.8</i>	<i>37-107</i>	<i>2377</i>	<i>10.2</i>	<i>40</i>
<i>Surr: Phenol-d6</i>	<i>2699</i>	<i>0</i>	<i>3298</i>	<i>0</i>	<i>81.8</i>	<i>40-106</i>	<i>2557</i>	<i>5.43</i>	<i>40</i>

The following samples were analyzed in this batch:

1607017-06A	1607017-07A	1607017-08A
1607017-09A	1607017-10A	1607017-21A
1607017-22A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88284** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-88284-88284				Units: µg/Kg		Analysis Date: 7/7/2016 05:28 PM		
Client ID:		Run ID: SVMS5_160707A				SeqNo: 3912600		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	66								
2,4,5-Trichlorophenol	U	66								
2,4,6-Trichlorophenol	U	66								
2,4-Dichlorophenol	U	66								
2,4-Dimethylphenol	U	66								
2,4-Dinitrophenol	U	66								
2,4-Dinitrotoluene	U	66								
2,6-Dinitrotoluene	U	66								
2-Chloronaphthalene	U	13								
2-Chlorophenol	U	66								
2-Methylnaphthalene	U	13								
2-Methylphenol	U	66								
2-Nitroaniline	U	66								
2-Nitrophenol	U	66								
3,3'-Dichlorobenzidine	U	330								
3-Nitroaniline	U	66								
4,6-Dinitro-2-methylphenol	U	66								
4-Bromophenyl phenyl ether	U	66								
4-Chloro-3-methylphenol	U	66								
4-Chloroaniline	U	130								
4-Chlorophenyl phenyl ether	U	66								
4-Nitroaniline	U	330								
4-Nitrophenol	U	66								
Acenaphthene	U	13								
Acenaphthylene	U	13								
Acetophenone	U	66								
Anthracene	U	13								
Atrazine	U	66								
Benzaldehyde	U	130								
Benzo(a)anthracene	U	13								
Benzo(a)pyrene	U	13								
Benzo(b)fluoranthene	U	13								
Benzo(g,h,i)perylene	U	13								
Benzo(k)fluoranthene	U	13								
Bis(2-chloroethoxy)methane	U	66								
Bis(2-chloroethyl)ether	U	66								
Bis(2-chloroisopropyl)ether	U	66								
Bis(2-ethylhexyl)phthalate	U	66								
Butyl benzyl phthalate	U	66								
Caprolactam	U	66								
Carbazole	U	66								
Chrysene	U	13								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88284		Instrument ID SVMS5		Method: SW846 8270D				
Dibenzo(a,h)anthracene	U	13						
Dibenzofuran	U	66						
Diethyl phthalate	U	66						
Dimethyl phthalate	U	66						
Di-n-butyl phthalate	U	66						
Di-n-octyl phthalate	U	66						
Fluoranthene	U	13						
Fluorene	U	13						
Hexachlorobenzene	U	66						
Hexachlorobutadiene	U	66						
Hexachlorocyclopentadiene	U	66						
Hexachloroethane	U	66						
Indeno(1,2,3-cd)pyrene	U	13						
Isophorone	U	330						
Naphthalene	U	13						
Nitrobenzene	U	330						
N-Nitrosodi-n-propylamine	U	66						
N-Nitrosodiphenylamine	U	66						
Pentachlorophenol	U	66						
Phenanthrene	U	13						
Phenol	U	66						
Pyrene	U	13						
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1760</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>52.8</i>	<i>34-140</i>	<i>0</i>	
<i>Surr: 2-Fluorobiphenyl</i>	<i>1791</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>53.7</i>	<i>12-100</i>	<i>0</i>	
<i>Surr: 2-Fluorophenol</i>	<i>2145</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>64.3</i>	<i>33-117</i>	<i>0</i>	
<i>Surr: 4-Terphenyl-d14</i>	<i>2767</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>83</i>	<i>25-137</i>	<i>0</i>	
<i>Surr: Nitrobenzene-d5</i>	<i>1713</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>51.4</i>	<i>37-107</i>	<i>0</i>	
<i>Surr: Phenol-d6</i>	<i>2033</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>61</i>	<i>40-106</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88284** Instrument ID **SVMS5** Method: **SW846 8270D**

LCS				Sample ID: SLCSS1-88284-88284			Units: µg/Kg		Analysis Date: 7/7/2016 05:53 PM		
Client ID:			Run ID: SVMS5_160707A			SeqNo: 3912601		Prep Date: 7/7/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1`-Biphenyl	938.7	66	1333	0	70.4	30-120		0			
2,4,5-Trichlorophenol	908.7	66	1333	0	68.1	50-110		0			
2,4,6-Trichlorophenol	972	66	1333	0	72.9	45-110		0			
2,4-Dichlorophenol	962	66	1333	0	72.1	45-110		0			
2,4-Dimethylphenol	976.7	66	1333	0	73.2	30-105		0			
2,4-Dinitrophenol	548	66	1333	0	41.1	15-130		0			
2,4-Dinitrotoluene	1033	66	1333	0	77.4	50-115		0			
2,6-Dinitrotoluene	1033	66	1333	0	77.4	50-110		0			
2-Chloronaphthalene	992	13	1333	0	74.4	45-105		0			
2-Chlorophenol	1113	66	1333	0	83.4	45-105		0			
2-Methylnaphthalene	1031	13	1333	0	77.3	45-105		0			
2-Methylphenol	1141	66	1333	0	85.6	40-105		0			
2-Nitroaniline	929.3	66	1333	0	69.7	45-120		0			
2-Nitrophenol	1008	66	1333	0	75.6	40-110		0			
3,3`-Dichlorobenzidine	1209	330	1333	0	90.6	30-120		0			
3-Nitroaniline	696	66	1333	0	52.2	25-150		0			
4,6-Dinitro-2-methylphenol	838.7	66	1333	0	62.9	40-130		0			
4-Bromophenyl phenyl ether	977.3	66	1333	0	73.3	45-115		0			
4-Chloro-3-methylphenol	954	66	1333	0	71.5	45-115		0			
4-Chloroaniline	1159	130	1333	0	86.9	15-110		0			
4-Chlorophenyl phenyl ether	888	66	1333	0	66.6	45-110		0			
4-Nitroaniline	618.7	330	1333	0	46.4	35-150		0			
4-Nitrophenol	966	66	1333	0	72.4	15-140		0			
Acenaphthene	958.7	13	1333	0	71.9	45-110		0			
Acenaphthylene	1077	13	1333	0	80.7	45-105		0			
Acetophenone	1081	66	1333	0	81	30-120		0			
Anthracene	1168	13	1333	0	87.6	55-105		0			
Atrazine	1435	66	1333	0	108	30-120		0			
Benzaldehyde	492.7	130	1333	0	36.9	30-120		0			
Benzo(a)anthracene	1125	13	1333	0	84.4	50-110		0			
Benzo(a)pyrene	1033	13	1333	0	77.4	50-110		0			
Benzo(b)fluoranthene	1049	13	1333	0	78.6	45-115		0			
Benzo(g,h,i)perylene	999.3	13	1333	0	74.9	40-125		0			
Benzo(k)fluoranthene	1048	13	1333	0	78.6	45-115		0			
Bis(2-chloroethoxy)methane	1031	66	1333	0	77.3	45-110		0			
Bis(2-chloroethyl)ether	980	66	1333	0	73.5	40-105		0			
Bis(2-chloroisopropyl)ether	1365	66	1333	0	102	20-115		0			
Bis(2-ethylhexyl)phthalate	1196	66	1333	0	89.7	45-125		0			
Butyl benzyl phthalate	1158	66	1333	0	86.8	50-125		0			
Caprolactam	984	66	1333	0	73.8	30-120		0			
Carbazole	1095	66	1333	0	82.1	50-150		0			
Chrysene	1082	13	1333	0	81.1	55-110		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88284		Instrument ID SVMS5		Method: SW846 8270D			
Dibenzo(a,h)anthracene	996	13	1333	0	74.7	40-125	0
Dibenzofuran	998	66	1333	0	74.8	50-105	0
Diethyl phthalate	1082	66	1333	0	81.1	50-115	0
Dimethyl phthalate	968	66	1333	0	72.6	50-110	0
Di-n-butyl phthalate	1118	66	1333	0	83.8	55-110	0
Di-n-octyl phthalate	1173	66	1333	0	87.9	40-130	0
Fluoranthene	1031	13	1333	0	77.3	55-115	0
Fluorene	952	13	1333	0	71.4	50-110	0
Hexachlorobenzene	1025	66	1333	0	76.9	45-120	0
Hexachlorobutadiene	760	66	1333	0	57	40-115	0
Hexachlorocyclopentadiene	852	66	1333	0	63.9	40-115	0
Hexachloroethane	975.3	66	1333	0	73.1	35-110	0
Indeno(1,2,3-cd)pyrene	987.3	13	1333	0	74	40-120	0
Isophorone	982	330	1333	0	73.6	45-110	0
Naphthalene	866	13	1333	0	64.9	40-105	0
Nitrobenzene	1005	330	1333	0	75.3	40-115	0
N-Nitrosodi-n-propylamine	1035	66	1333	0	77.6	40-115	0
N-Nitrosodiphenylamine	1055	66	1333	0	79.1	50-115	0
Pentachlorophenol	943.3	66	1333	0	70.7	25-120	0
Phenanthrene	1039	13	1333	0	77.9	50-110	0
Phenol	1142	66	1333	0	85.6	40-100	0
Pyrene	1255	13	1333	0	94.1	45-125	0
<i>Surr: 2,4,6-Tribromophenol</i>	<i>2439</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>73.2</i>	<i>34-140</i>	<i>0</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>2166</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>65</i>	<i>12-100</i>	<i>0</i>
<i>Surr: 2-Fluorophenol</i>	<i>2476</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>74.3</i>	<i>33-117</i>	<i>0</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>2757</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>82.7</i>	<i>25-137</i>	<i>0</i>
<i>Surr: Nitrobenzene-d5</i>	<i>2208</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>66.2</i>	<i>37-107</i>	<i>0</i>
<i>Surr: Phenol-d6</i>	<i>2629</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>78.9</i>	<i>40-106</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88284** Instrument ID **SVMS5** Method: **SW846 8270D**

MS				Sample ID: 1607017-24A MS			Units: µg/Kg		Analysis Date: 7/7/2016 08:55 PM	
Client ID: B-59 (3-4 ft)				Run ID: SVMS5_160707A			SeqNo: 3912608		Prep Date: 7/7/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	847.9	64	1301	36.8	62.4	30-120	0			
2,4,5-Trichlorophenol	886.3	64	1301	0	68.1	50-110	0			
2,4,6-Trichlorophenol	917.5	64	1301	0	70.5	45-110	0			
2,4-Dichlorophenol	896.7	64	1301	0	68.9	45-110	0			
2,4-Dimethylphenol	818.6	64	1301	0	62.9	30-105	0			
2,4-Dinitrophenol	548.8	64	1301	0	42.2	15-130	0			
2,4-Dinitrotoluene	950.6	64	1301	0	73.1	50-115	0			
2,6-Dinitrotoluene	950.6	64	1301	0	73.1	50-110	0			
2-Chloronaphthalene	879.8	13	1301	0	67.6	45-105	0			
2-Chlorophenol	1035	64	1301	0	79.6	45-105	0			
2-Methylnaphthalene	918.8	13	1301	5.076	70.3	45-105	0			
2-Methylphenol	996.2	64	1301	0	76.6	40-105	0			
2-Nitroaniline	886.3	64	1301	0	68.1	45-120	0			
2-Nitrophenol	932.4	64	1301	0	71.7	40-110	0			
3,3'-Dichlorobenzidine	839.5	330	1301	0	64.5	30-120	0			
3-Nitroaniline	825.8	64	1301	0	63.5	25-150	0			
4,6-Dinitro-2-methylphenol	853.8	64	1301	0	65.6	40-130	0			
4-Bromophenyl phenyl ether	951.9	64	1301	0	73.2	45-115	0			
4-Chloro-3-methylphenol	918.1	64	1301	0	70.6	45-115	0			
4-Chloroaniline	1033	130	1301	0	79.4	15-110	0			
4-Chlorophenyl phenyl ether	831.7	64	1301	0	63.9	45-110	0			
4-Nitroaniline	853.1	330	1301	0	65.6	35-150	0			
4-Nitrophenol	996.2	64	1301	0	76.6	15-140	0			
Acenaphthene	924	13	1301	38.07	68.1	45-110	0			
Acenaphthylene	992.3	13	1301	0	76.3	45-105	0			
Acetophenone	970.2	64	1301	0	74.6	30-120	0			
Anthracene	1212	13	1301	90.11	86.3	55-105	0			
Atrazine	1423	64	1301	0	109	30-120	0			
Benzaldehyde	555.3	130	1301	0	42.7	30-120	0			
Benzo(a)anthracene	1512	13	1301	357.3	88.8	50-110	0			
Benzo(a)pyrene	1408	13	1301	328.7	83	50-110	0			
Benzo(b)fluoranthene	1575	13	1301	451.2	86.4	45-115	0			
Benzo(g,h,i)perylene	1278	13	1301	225.9	80.9	40-125	0			
Benzo(k)fluoranthene	1170	13	1301	168.8	77	45-115	0			
Bis(2-chloroethoxy)methane	900.6	64	1301	0	69.2	45-110	0			
Bis(2-chloroethyl)ether	723.1	64	1301	0	55.6	40-105	0			
Bis(2-chloroisopropyl)ether	1232	64	1301	0	94.7	20-115	0			
Bis(2-ethylhexyl)phthalate	1282	64	1301	0	98.6	45-125	0			
Butyl benzyl phthalate	1237	64	1301	0	95.1	50-125	0			
Caprolactam	925.9	64	1301	0	71.2	30-120	0			
Carbazole	1088	64	1301	77.42	77.7	50-150	0			
Chrysene	1462	13	1301	375.7	83.6	55-110	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88284		Instrument ID SVMS5		Method: SW846 8270D			
Dibenzo(a,h)anthracene	1055	13	1301	81.22	74.9	40-125	0
Dibenzofuran	915.5	64	1301	8.884	69.7	50-105	0
Diethyl phthalate	1017	64	1301	0	78.2	50-115	0
Dimethyl phthalate	882.4	64	1301	0	67.8	50-110	0
Di-n-butyl phthalate	1089	64	1301	0	83.7	55-110	0
Di-n-octyl phthalate	1313	64	1301	0	101	40-130	0
Fluoranthene	1760	13	1301	678.3	83.1	55-115	0
Fluorene	909.7	13	1301	52.03	65.9	50-110	0
Hexachlorobenzene	1016	64	1301	0	78.1	45-120	0
Hexachlorobutadiene	674.9	64	1301	0	51.9	40-115	0
Hexachlorocyclopentadiene	708.1	64	1301	0	54.4	40-115	0
Hexachloroethane	846.6	64	1301	0	65.1	35-110	0
Indeno(1,2,3-cd)pyrene	1313	13	1301	260.8	80.9	40-120	0
Isophorone	885	330	1301	0	68	45-110	0
Naphthalene	786.1	13	1301	0	60.4	40-105	0
Nitrobenzene	886.3	330	1301	0	68.1	40-115	0
N-Nitrosodi-n-propylamine	905.8	64	1301	0	69.6	40-115	0
N-Nitrosodiphenylamine	1023	64	1301	0	78.7	50-115	0
Pentachlorophenol	1128	64	1301	0	86.7	25-120	0
Phenanthrene	1351	13	1301	379.5	74.7	50-110	0
Phenol	1038	64	1301	0	79.8	40-100	0
Pyrene	2123	13	1301	734.2	107	45-125	0
Surr: 2,4,6-Tribromophenol	2475	0	3251	0	76.1	34-140	0
Surr: 2-Fluorobiphenyl	1938	0	3251	0	59.6	12-100	0
Surr: 2-Fluorophenol	2343	0	3251	0	72.1	33-117	0
Surr: 4-Terphenyl-d14	2826	0	3251	0	86.9	25-137	0
Surr: Nitrobenzene-d5	1988	0	3251	0	61.2	37-107	0
Surr: Phenol-d6	2393	0	3251	0	73.6	40-106	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88284** Instrument ID **SVMS5** Method: **SW846 8270D**

MSD				Sample ID: 1607017-24A MSD			Units: µg/Kg		Analysis Date: 7/7/2016 09:18 PM	
Client ID: B-59 (3-4 ft)				Run ID: SVMS5_160707A			SeqNo: 3912609		Prep Date: 7/7/2016	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	898.5	65	1305	36.8	66	30-120	847.9	5.79	30	
2,4,5-Trichlorophenol	965	65	1305	0	73.9	50-110	886.3	8.51	30	
2,4,6-Trichlorophenol	1001	65	1305	0	76.7	45-110	917.5	8.7	30	
2,4-Dichlorophenol	958.5	65	1305	0	73.4	45-110	896.7	6.67	30	
2,4-Dimethylphenol	845.6	65	1305	0	64.8	30-105	818.6	3.24	30	
2,4-Dinitrophenol	644.7	65	1305	0	49.4	15-130	548.8	16.1	30	
2,4-Dinitrotoluene	1030	65	1305	0	78.9	50-115	950.6	7.98	30	
2,6-Dinitrotoluene	1030	65	1305	0	78.9	50-110	950.6	7.98	30	
2-Chloronaphthalene	963.1	13	1305	0	73.8	45-105	879.8	9.04	30	
2-Chlorophenol	1126	65	1305	0	86.2	45-105	1035	8.36	30	
2-Methylnaphthalene	991.1	13	1305	5.076	75.6	45-105	918.8	7.58	30	
2-Methylphenol	1072	65	1305	0	82.1	40-105	996.2	7.34	30	
2-Nitroaniline	962.4	65	1305	0	73.7	45-120	886.3	8.24	30	
2-Nitrophenol	968.3	65	1305	0	74.2	40-110	932.4	3.77	30	
3,3'-Dichlorobenzidine	840.4	330	1305	0	64.4	30-120	839.5	0.113	30	
3-Nitroaniline	891.9	65	1305	0	68.3	25-110	825.8	7.7	30	
4,6-Dinitro-2-methylphenol	875	65	1305	0	67	40-130	853.8	2.46	30	
4-Bromophenyl phenyl ether	985.3	65	1305	0	75.5	45-115	951.9	3.44	30	
4-Chloro-3-methylphenol	982.6	65	1305	0	75.3	45-115	918.1	6.79	30	
4-Chloroaniline	1115	130	1305	0	85.4	15-110	1033	7.68	30	
4-Chlorophenyl phenyl ether	901.7	65	1305	0	69.1	45-110	831.7	8.09	30	
4-Nitroaniline	905.7	330	1305	0	69.4	35-150	853.1	5.97	30	
4-Nitrophenol	1096	65	1305	0	83.9	15-140	996.2	9.5	30	
Acenaphthene	985.3	13	1305	38.07	72.6	45-110	924	6.42	30	
Acenaphthylene	1063	13	1305	0	81.4	45-105	992.3	6.87	30	
Acetophenone	1030	65	1305	0	78.9	30-120	970.2	6.01	30	
Anthracene	1204	13	1305	90.11	85.4	55-105	1212	0.625	30	
Atrazine	1494	65	1305	0	114	30-120	1423	4.9	30	
Benzaldehyde	595.7	130	1305	0	45.6	30-120	555.3	7.02	30	
Benzo(a)anthracene	1368	13	1305	357.3	77.5	50-110	1512	10	30	
Benzo(a)pyrene	1281	13	1305	328.7	73	50-110	1408	9.39	30	
Benzo(b)fluoranthene	1435	13	1305	451.2	75.4	45-115	1575	9.31	30	
Benzo(g,h,i)perylene	1161	13	1305	225.9	71.6	40-125	1278	9.59	30	
Benzo(k)fluoranthene	1132	13	1305	168.8	73.8	45-115	1170	3.28	30	
Bis(2-chloroethoxy)methane	986.6	65	1305	0	75.6	45-110	900.6	9.11	30	
Bis(2-chloroethyl)ether	810.4	65	1305	0	62.1	40-105	723.1	11.4	30	
Bis(2-chloroisopropyl)ether	1280	65	1305	0	98.1	20-115	1232	3.87	30	
Bis(2-ethylhexyl)phthalate	1282	65	1305	0	98.2	45-125	1282	0.0104	30	
Butyl benzyl phthalate	1262	65	1305	0	96.7	50-125	1237	1.96	30	
Caprolactam	1036	65	1305	0	79.4	30-120	925.9	11.2	30	
Carbazole	1097	65	1305	77.42	78.2	50-150	1088	0.882	30	
Chrysene	1347	13	1305	375.7	74.5	55-110	1462	8.19	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88284		Instrument ID SVMS5		Method: SW846 8270D					
Dibenzo(a,h)anthracene	1027	13	1305	81.22	72.5	40-125	1055	2.72	30
Dibenzofuran	1005	65	1305	8.884	76.4	50-105	915.5	9.36	30
Diethyl phthalate	1081	65	1305	0	82.8	50-115	1017	6.12	30
Dimethyl phthalate	976.1	65	1305	0	74.8	50-110	882.4	10.1	30
Di-n-butyl phthalate	1106	65	1305	0	84.7	55-110	1089	1.53	30
Di-n-octyl phthalate	1386	65	1305	0	106	40-130	1313	5.36	30
Fluoranthene	1501	13	1305	678.3	63	55-115	1760	15.9	30
Fluorene	965	13	1305	52.03	70	50-110	909.7	5.9	30
Hexachlorobenzene	1035	65	1305	0	79.3	45-120	1016	1.87	30
Hexachlorobutadiene	749.7	65	1305	0	57.4	40-115	674.9	10.5	30
Hexachlorocyclopentadiene	726.9	65	1305	0	55.7	40-115	708.1	2.61	30
Hexachloroethane	920.7	65	1305	0	70.5	35-110	846.6	8.38	30
Indeno(1,2,3-cd)pyrene	1197	13	1305	260.8	71.7	40-120	1313	9.26	30
Isophorone	922.6	330	1305	0	70.7	45-110	885	4.16	30
Naphthalene	828.7	13	1305	0	63.5	40-105	786.1	5.27	30
Nitrobenzene	999	330	1305	0	76.5	40-115	886.3	12	30
N-Nitrosodi-n-propylamine	1000	65	1305	0	76.6	40-115	905.8	9.91	30
N-Nitrosodiphenylamine	1034	65	1305	0	79.2	50-115	1023	1.04	30
Pentachlorophenol	1166	65	1305	0	89.3	25-120	1128	3.3	30
Phenanthrene	1215	13	1305	379.5	64	50-110	1351	10.6	30
Phenol	1120	65	1305	0	85.8	40-100	1038	7.65	30
Pyrene	1852	13	1305	734.2	85.6	45-125	2123	13.6	30
<i>Surr: 2,4,6-Tribromophenol</i>	<i>2522</i>	<i>0</i>	<i>3262</i>	<i>0</i>	<i>77.3</i>	<i>34-140</i>	<i>2475</i>	<i>1.88</i>	<i>40</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>2114</i>	<i>0</i>	<i>3262</i>	<i>0</i>	<i>64.8</i>	<i>12-100</i>	<i>1938</i>	<i>8.7</i>	<i>40</i>
<i>Surr: 2-Fluorophenol</i>	<i>2571</i>	<i>0</i>	<i>3262</i>	<i>0</i>	<i>78.8</i>	<i>33-117</i>	<i>2343</i>	<i>9.28</i>	<i>40</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>2864</i>	<i>0</i>	<i>3262</i>	<i>0</i>	<i>87.8</i>	<i>25-137</i>	<i>2826</i>	<i>1.35</i>	<i>40</i>
<i>Surr: Nitrobenzene-d5</i>	<i>2134</i>	<i>0</i>	<i>3262</i>	<i>0</i>	<i>65.4</i>	<i>37-107</i>	<i>1988</i>	<i>7.05</i>	<i>40</i>
<i>Surr: Phenol-d6</i>	<i>2652</i>	<i>0</i>	<i>3262</i>	<i>0</i>	<i>81.3</i>	<i>40-106</i>	<i>2393</i>	<i>10.3</i>	<i>40</i>

The following samples were analyzed in this batch:

1607017-23A	1607017-24A	1607017-25A
1607017-37A	1607017-38A	1607017-39A
1607017-40A	1607017-41A	1607017-47A
1607017-48A	1607017-49A	1607017-50A
1607017-51A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88232** Instrument ID **VMS6** Method: **SW8260B**

MBLK		Sample ID: MBLK-88232-88232				Units: µg/Kg-dry		Analysis Date: 7/6/2016 12:41 PM		
Client ID:		Run ID: VMS6_160706A				SeqNo: 3909808		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	30								
1,1,2,2-Tetrachloroethane	U	30								
1,1,2-Trichloroethane	U	30								
1,1,2-Trichlorotrifluoroethane	U	30								
1,1-Dichloroethane	U	30								
1,1-Dichloroethene	U	30								
1,2,4-Trichlorobenzene	U	30								
1,2-Dibromo-3-chloropropane	U	30								
1,2-Dibromoethane	U	30								
1,2-Dichlorobenzene	U	30								
1,2-Dichloroethane	U	30								
1,2-Dichloropropane	U	30								
1,3-Dichlorobenzene	U	30								
1,4-Dichlorobenzene	U	30								
2-Butanone	U	200								
2-Hexanone	U	30								
4-Methyl-2-pentanone	U	30								
Acetone	U	100								
Benzene	U	30								
Bromodichloromethane	U	30								
Bromoform	U	30								
Bromomethane	U	75								
Carbon disulfide	U	30								
Carbon tetrachloride	U	30								
Chlorobenzene	U	30								
Chloroethane	U	100								
Chloroform	U	30								
Chloromethane	U	100								
cis-1,2-Dichloroethene	U	30								
cis-1,3-Dichloropropene	U	30								
Cyclohexane	U	30								
Dibromochloromethane	U	30								
Dichlorodifluoromethane	U	30								
Ethylbenzene	U	30								
Isopropylbenzene	U	30								
m,p-Xylene	U	60								
Methyl acetate	U	200								
Methyl tert-butyl ether	U	30								
Methylcyclohexane	U	30								
Methylene chloride	U	30								
o-Xylene	U	30								
Styrene	U	30								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88232		Instrument ID VMS6		Method: SW8260B			
Tetrachloroethene	U	30					
Toluene	U	30					
trans-1,2-Dichloroethene	U	30					
trans-1,3-Dichloropropene	U	30					
Trichloroethene	U	30					
Trichlorofluoromethane	U	30					
Vinyl chloride	U	30					
Xylenes, Total	U	90					
Surr: 1,2-Dichloroethane-d4	947	0	1000	0	94.7	70-130	0
Surr: 4-Bromofluorobenzene	968	0	1000	0	96.8	70-130	0
Surr: Dibromofluoromethane	956	0	1000	0	95.6	70-130	0
Surr: Toluene-d8	901.5	0	1000	0	90.2	70-130	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88232** Instrument ID **VMS6** Method: **SW8260B**

LCS				Sample ID: LCS-88232-88232			Units: µg/Kg-dry		Analysis Date: 7/6/2016 11:24 AM	
Client ID:				Run ID: VMS6_160706A			SeqNo: 3909807		Prep Date: 7/6/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	1061	30	1000	0	106	70-135	0			
1,1,2,2-Tetrachloroethane	1028	30	1000	0	103	55-130	0			
1,1,2-Trichloroethane	1064	30	1000	0	106	60-125	0			
1,1-Dichloroethane	1028	30	1000	0	103	75-125	0			
1,1-Dichloroethene	1050	30	1000	0	105	65-135	0			
1,2,4-Trichlorobenzene	1043	30	1000	0	104	65-130	0			
1,2-Dibromo-3-chloropropane	892.5	30	1000	0	89.2	40-135	0			
1,2-Dibromoethane	1108	30	1000	0	111	75-125	0			
1,2-Dichlorobenzene	1012	30	1000	0	101	75-120	0			
1,2-Dichloroethane	1089	30	1000	0	109	70-135	0			
1,2-Dichloropropane	1018	30	1000	0	102	70-120	0			
1,3-Dichlorobenzene	1042	30	1000	0	104	70-125	0			
1,4-Dichlorobenzene	1038	30	1000	0	104	70-125	0			
2-Butanone	902.5	200	1000	0	90.2	30-160	0			
2-Hexanone	874	30	1000	0	87.4	45-145	0			
4-Methyl-2-pentanone	1235	30	1000	0	124	74-176	0			
Acetone	927.5	100	1000	0	92.8	20-160	0			
Benzene	1088	30	1000	0	109	75-125	0			
Bromodichloromethane	1048	30	1000	0	105	70-130	0			
Bromoform	903	30	1000	0	90.3	55-135	0			
Bromomethane	1016	75	1000	0	102	30-160	0			
Carbon disulfide	963	30	1000	0	96.3	45-160	0			
Carbon tetrachloride	1042	30	1000	0	104	65-135	0			
Chlorobenzene	1058	30	1000	0	106	75-125	0			
Chloroethane	1032	100	1000	0	103	40-155	0			
Chloroform	991.5	30	1000	0	99.2	70-125	0			
Chloromethane	959.5	100	1000	0	96	50-130	0			
cis-1,2-Dichloroethene	1008	30	1000	0	101	65-125	0			
cis-1,3-Dichloropropene	1026	30	1000	0	103	70-125	0			
Dibromochloromethane	943.5	30	1000	0	94.4	65-135	0			
Dichlorodifluoromethane	813	30	1000	0	81.3	35-135	0			
Ethylbenzene	1018	30	1000	0	102	75-125	0			
Isopropylbenzene	984	30	1000	0	98.4	75-130	0			
m,p-Xylene	2060	60	2000	0	103	80-125	0			
Methyl tert-butyl ether	924	30	1000	0	92.4	75-125	0			
Methylene chloride	1020	30	1000	0	102	55-145	0			
o-Xylene	1000	30	1000	0	100	75-125	0			
Styrene	1032	30	1000	0	103	75-125	0			
Tetrachloroethene	1088	30	1000	0	109	64-140	0			
Toluene	1044	30	1000	0	104	70-125	0			
trans-1,2-Dichloroethene	1005	30	1000	0	100	65-135	0			
trans-1,3-Dichloropropene	884.5	30	1000	0	88.4	65-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88232	Instrument ID VMS6		Method: SW8260B				
Trichloroethene	1135	30	1000	0	114	75-125	0
Trichlorofluoromethane	928.5	30	1000	0	92.8	25-185	0
Vinyl chloride	956.5	30	1000	0	95.6	60-125	0
Xylenes, Total	3060	90	3000	0	102	75-125	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>942</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>94.2</i>	<i>70-130</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>1010</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>101</i>	<i>70-130</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>1002</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>100</i>	<i>70-130</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>943.5</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>94.4</i>	<i>70-130</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88232** Instrument ID **VMS6** Method: **SW8260B**

MS				Sample ID: 1607017-11A MS			Units: µg/Kg-dry		Analysis Date: 7/7/2016 01:45 AM	
Client ID: B-61 (4'-5')				Run ID: VMS5_160706A			SeqNo: 3909703		Prep Date: 7/6/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	892	30	1000	0	89.2	70-135	0			
1,1,2,2-Tetrachloroethane	885	30	1000	0	88.5	55-130	0			
1,1,2-Trichloroethane	969.5	30	1000	0	97	60-125	0			
1,1-Dichloroethane	893.5	30	1000	0	89.4	75-125	0			
1,1-Dichloroethene	889	30	1000	0	88.9	65-135	0			
1,2,4-Trichlorobenzene	985	30	1000	0	98.5	65-130	0			
1,2-Dibromo-3-chloropropane	771	30	1000	0	77.1	40-135	0			
1,2-Dibromoethane	1400	30	1000	0	140	75-125	0			S
1,2-Dichlorobenzene	966	30	1000	0	96.6	75-120	0			
1,2-Dichloroethane	966	30	1000	0	96.6	70-135	0			
1,2-Dichloropropane	926.5	30	1000	0	92.6	70-120	0			
1,3-Dichlorobenzene	963.5	30	1000	0	96.4	70-125	0			
1,4-Dichlorobenzene	959.5	30	1000	0	96	70-125	0			
2-Butanone	1392	200	1000	0	139	30-160	0			
2-Hexanone	1091	30	1000	0	109	45-145	0			
4-Methyl-2-pentanone	1092	30	1000	0	109	74-176	0			
Acetone	1766	100	1000	0	177	20-160	0			S
Benzene	922	30	1000	0	92.2	75-125	0			
Bromodichloromethane	898.5	30	1000	0	89.8	70-130	0			
Bromoform	817	30	1000	0	81.7	55-135	0			
Bromomethane	433.5	75	1000	0	43.4	30-160	0			
Carbon disulfide	748	30	1000	0	74.8	45-160	0			
Carbon tetrachloride	805.5	30	1000	0	80.6	65-135	0			
Chlorobenzene	937.5	30	1000	0	93.8	75-125	0			
Chloroethane	755.5	100	1000	0	75.6	40-155	0			
Chloroform	895	30	1000	0	89.5	70-125	0			
Chloromethane	730.5	100	1000	0	73	50-130	0			
cis-1,2-Dichloroethene	863.5	30	1000	0	86.4	65-125	0			
cis-1,3-Dichloropropene	885	30	1000	0	88.5	70-125	0			
Dibromochloromethane	868	30	1000	0	86.8	65-135	0			
Dichlorodifluoromethane	797	30	1000	0	79.7	35-135	0			
Ethylbenzene	908.5	30	1000	0	90.8	75-125	0			
Isopropylbenzene	959.5	30	1000	0	96	75-130	0			
m,p-Xylene	1861	60	2000	0	93	80-125	0			
Methyl tert-butyl ether	898	30	1000	0	89.8	75-125	0			
Methylene chloride	950	30	1000	0	95	55-145	0			
o-Xylene	903	30	1000	0	90.3	75-125	0			
Styrene	946.5	30	1000	0	94.6	75-125	0			
Tetrachloroethene	1616	30	1000	0	162	64-140	0			S
Toluene	904.5	30	1000	0	90.4	70-125	0			
trans-1,2-Dichloroethene	891.5	30	1000	0	89.2	65-135	0			
trans-1,3-Dichloropropene	836.5	30	1000	0	83.6	65-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88232		Instrument ID VMS6		Method: SW8260B			
Trichloroethene	982	30	1000	0	98.2	75-125	0
Trichlorofluoromethane	890	30	1000	0	89	25-185	0
Vinyl chloride	864	30	1000	0	86.4	60-125	0
Xylenes, Total	2764	90	3000	0	92.1	75-125	0
<i>Surr: 1,2-Dichloroethane-d4</i>	996	0	1000	0	99.6	70-130	0
<i>Surr: 4-Bromofluorobenzene</i>	995	0	1000	0	99.5	70-130	0
<i>Surr: Dibromofluoromethane</i>	999	0	1000	0	99.9	70-130	0
<i>Surr: Toluene-d8</i>	987.5	0	1000	0	98.8	70-130	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88232** Instrument ID **VMS6** Method: **SW8260B**

MSD				Sample ID: 1607017-11A MSD			Units: µg/Kg-dry		Analysis Date: 7/7/2016 02:11 AM		
Client ID: B-61 (4'-5')			Run ID: VMS5_160706A		SeqNo: 3909704		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	993	30	1000	0	99.3	70-135	892	10.7	30		
1,1,2,2-Tetrachloroethane	896.5	30	1000	0	89.6	55-130	885	1.29	30		
1,1,2-Trichloroethane	1030	30	1000	0	103	60-125	969.5	6	30		
1,1-Dichloroethane	994.5	30	1000	0	99.4	75-125	893.5	10.7	30		
1,1-Dichloroethene	999	30	1000	0	99.9	65-135	889	11.7	30		
1,2,4-Trichlorobenzene	1014	30	1000	0	101	65-130	985	2.95	30		
1,2-Dibromo-3-chloropropane	803.5	30	1000	0	80.4	40-135	771	4.13	30		
1,2-Dibromoethane	1456	30	1000	0	146	75-125	1400	3.92	30	S	
1,2-Dichlorobenzene	1018	30	1000	0	102	75-120	966	5.19	30		
1,2-Dichloroethane	1015	30	1000	0	102	70-135	966	4.95	30		
1,2-Dichloropropane	1004	30	1000	0	100	70-120	926.5	8.08	30		
1,3-Dichlorobenzene	1036	30	1000	0	104	70-125	963.5	7.25	30		
1,4-Dichlorobenzene	1022	30	1000	0	102	70-125	959.5	6.26	30		
2-Butanone	1363	200	1000	0	136	30-160	1392	2.11	30		
2-Hexanone	1096	30	1000	0	110	45-145	1091	0.457	30		
4-Methyl-2-pentanone	1094	30	1000	0	109	74-176	1092	0.274	30		
Acetone	1828	100	1000	0	183	20-160	1766	3.42	30	S	
Benzene	1026	30	1000	0	103	75-125	922	10.6	30		
Bromodichloromethane	989.5	30	1000	0	99	70-130	898.5	9.64	30		
Bromoform	869.5	30	1000	0	87	55-135	817	6.23	30		
Bromomethane	474.5	75	1000	0	47.4	30-160	433.5	9.03	30		
Carbon disulfide	855.5	30	1000	0	85.6	45-160	748	13.4	30		
Carbon tetrachloride	913.5	30	1000	0	91.4	65-135	805.5	12.6	30		
Chlorobenzene	1032	30	1000	0	103	75-125	937.5	9.55	30		
Chloroethane	847.5	100	1000	0	84.8	40-155	755.5	11.5	30		
Chloroform	971	30	1000	0	97.1	70-125	895	8.15	30		
Chloromethane	817	100	1000	0	81.7	50-130	730.5	11.2	30		
cis-1,2-Dichloroethene	953	30	1000	0	95.3	65-125	863.5	9.85	30		
cis-1,3-Dichloropropene	951	30	1000	0	95.1	70-125	885	7.19	30		
Dibromochloromethane	918	30	1000	0	91.8	65-135	868	5.6	30		
Dichlorodifluoromethane	909	30	1000	0	90.9	35-135	797	13.1	30		
Ethylbenzene	1027	30	1000	0	103	75-125	908.5	12.2	30		
Isopropylbenzene	1066	30	1000	0	107	75-130	959.5	10.5	30		
m,p-Xylene	2066	60	2000	0	103	80-125	1861	10.4	30		
Methyl tert-butyl ether	929.5	30	1000	0	93	75-125	898	3.45	30		
Methylene chloride	1010	30	1000	0	101	55-145	950	6.07	30		
o-Xylene	1002	30	1000	0	100	75-125	903	10.4	30		
Styrene	1050	30	1000	0	105	75-125	946.5	10.4	30		
Tetrachloroethene	1832	30	1000	0	183	64-140	1616	12.6	30	S	
Toluene	1000	30	1000	0	100	70-125	904.5	10	30		
trans-1,2-Dichloroethene	989.5	30	1000	0	99	65-135	891.5	10.4	30		
trans-1,3-Dichloropropene	897	30	1000	0	89.7	65-125	836.5	6.98	30		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88232		Instrument ID VMS6		Method: SW8260B					
Trichloroethene	1108	30	1000	0	111	75-125	982	12.1	30
Trichlorofluoromethane	1008	30	1000	0	101	25-185	890	12.4	30
Vinyl chloride	974.5	30	1000	0	97.4	60-125	864	12	30
Xylenes, Total	3068	90	3000	0	102	75-125	2764	10.4	30
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>1012</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>101</i>	<i>70-130</i>	<i>996</i>	<i>1.59</i>	<i>30</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>1021</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>102</i>	<i>70-130</i>	<i>995</i>	<i>2.58</i>	<i>30</i>
<i>Surr: Dibromofluoromethane</i>	<i>1004</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>100</i>	<i>70-130</i>	<i>999</i>	<i>0.499</i>	<i>30</i>
<i>Surr: Toluene-d8</i>	<i>987</i>	<i>0</i>	<i>1000</i>	<i>0</i>	<i>98.7</i>	<i>70-130</i>	<i>987.5</i>	<i>0.0506</i>	<i>30</i>

The following samples were analyzed in this batch:

1607017-11A	1607017-12A	1607017-13A
1607017-14A	1607017-15A	1607017-26A
1607017-27A	1607017-28A	1607017-29A
1607017-30A	1607017-53A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191185A** Instrument ID **VMS6** Method: **SW8260B**

MBLK		Sample ID: VLKW1-160710-R191185A				Units: µg/L		Analysis Date: 7/10/2016 11:41 AM		
Client ID:		Run ID: VMS6_160710A				SeqNo: 3915144		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								
o-Xylene	U	1.0								
Styrene	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191185A		Instrument ID VMS6		Method: SW8260B				
Tetrachloroethene	U	1.0						
Toluene	U	1.0						
trans-1,2-Dichloroethene	U	1.0						
trans-1,3-Dichloropropene	U	1.0						
Trichloroethene	U	1.0						
Trichlorofluoromethane	U	1.0						
Vinyl chloride	U	1.0						
Xylenes, Total	U	3.0						
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.13</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>95.6</i>	<i>75-120</i>	<i>0</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.45</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.2</i>	<i>80-110</i>	<i>0</i>	
<i>Surr: Dibromofluoromethane</i>	<i>19.78</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.9</i>	<i>85-115</i>	<i>0</i>	
<i>Surr: Toluene-d8</i>	<i>17.9</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>89.5</i>	<i>85-110</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191185A** Instrument ID **VMS6** Method: **SW8260B**

LCS		Sample ID: VLCSW1-160710-R191185A				Units: µg/L		Analysis Date: 7/10/2016 10:23 AM		
Client ID:		Run ID: VMS6_160710A				SeqNo: 3915143		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	24.08	1.0	20	0	120	75-130	0			
1,1,2,2-Tetrachloroethane	20.47	1.0	20	0	102	75-130	0			
1,1,2-Trichloroethane	21.01	1.0	20	0	105	75-125	0			
1,1-Dichloroethane	22.91	1.0	20	0	115	75-133	0			
1,1-Dichloroethene	23.62	1.0	20	0	118	70-145	0			
1,2,4-Trichlorobenzene	19.46	1.0	20	0	97.3	70-135	0			
1,2-Dibromo-3-chloropropane	16.58	1.0	20	0	82.9	60-130	0			
1,2-Dibromoethane	21.74	1.0	20	0	109	80-150	0			
1,2-Dichlorobenzene	19.25	1.0	20	0	96.2	70-130	0			
1,2-Dichloroethane	24.36	1.0	20	0	122	78-125	0			
1,2-Dichloropropane	23.69	1.0	20	0	118	75-125	0			
1,3-Dichlorobenzene	19.36	1.0	20	0	96.8	75-130	0			
1,4-Dichlorobenzene	19.1	1.0	20	0	95.5	75-130	0			
2-Butanone	16.9	5.0	20	0	84.5	55-150	0			
2-Hexanone	17.42	5.0	20	0	87.1	60-135	0			
4-Methyl-2-pentanone	24.59	1.0	20	0	123	77-178	0			
Acetone	18.78	10	20	0	93.9	60-160	0			
Benzene	23.82	1.0	20	0	119	85-125	0			
Bromodichloromethane	23.89	1.0	20	0	119	75-125	0			
Bromoform	18.77	1.0	20	0	93.8	60-125	0			
Bromomethane	21.48	1.0	20	0	107	30-185	0			
Carbon disulfide	20.75	1.0	20	0	104	60-165	0			
Carbon tetrachloride	23.48	1.0	20	0	117	65-140	0			
Chlorobenzene	21.01	1.0	20	0	105	80-120	0			
Chloroethane	24.95	1.0	20	0	125	50-140	0			
Chloroform	22.23	1.0	20	0	111	80-130	0			
Chloromethane	20.82	1.0	20	0	104	50-130	0			
cis-1,2-Dichloroethene	23.05	1.0	20	0	115	75-134	0			
cis-1,3-Dichloropropene	23.04	1.0	20	0	115	70-130	0			
Dibromochloromethane	18.95	1.0	20	0	94.8	60-115	0			
Dichlorodifluoromethane	16.56	1.0	20	0	82.8	20-120	0			
Ethylbenzene	20.46	1.0	20	0	102	85-125	0			
Isopropylbenzene	19.67	1.0	20	0	98.4	80-127	0			
m,p-Xylene	41.51	2.0	40	0	104	75-130	0			
Methyl tert-butyl ether	19.97	1.0	20	0	99.8	80-130	0			
Methylene chloride	23.27	5.0	20	0	116	75-140	0			
o-Xylene	20.13	1.0	20	0	101	80-125	0			
Styrene	20.4	1.0	20	0	102	85-125	0			
Tetrachloroethene	21.33	1.0	20	0	107	77-138	0			
Toluene	20.65	1.0	20	0	103	85-125	0			
trans-1,2-Dichloroethene	22.37	1.0	20	0	112	80-140	0			
trans-1,3-Dichloropropene	18.95	1.0	20	0	94.8	81-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191185A	Instrument ID VMS6			Method: SW8260B			
Trichloroethene	23.56	1.0	20	0	118	84-130	0
Trichlorofluoromethane	20.23	1.0	20	0	101	60-140	0
Vinyl chloride	21.7	1.0	20	0	108	50-136	0
Xylenes, Total	61.64	3.0	60	0	103	80-126	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>18.96</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>94.8</i>	<i>75-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>20.73</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>104</i>	<i>80-110</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.62</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.1</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>18.01</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>90</i>	<i>85-110</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191185A** Instrument ID **VMS6** Method: **SW8260B**

MS				Sample ID: 16061711-22A MS			Units: µg/L		Analysis Date: 7/10/2016 08:19 PM	
Client ID:				Run ID: VMS6_160710A			SeqNo: 3915158		Prep Date:	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	201.1	10	200	0	101	75-130	0			
1,1,2,2-Tetrachloroethane	190.7	10	200	0	95.4	75-130	0			
1,1,2-Trichloroethane	196.4	10	200	0	98.2	75-125	0			
1,1-Dichloroethane	196.2	10	200	0	98.1	75-133	0			
1,1-Dichloroethene	208.4	10	200	0	104	70-145	0			
1,2,4-Trichlorobenzene	184.6	10	200	0	92.3	70-135	0			
1,2-Dibromo-3-chloropropane	174.5	10	200	0	87.2	60-130	0			
1,2-Dibromoethane	199.6	10	200	0	99.8	80-150	0			
1,2-Dichlorobenzene	190.5	10	200	0	95.2	70-130	0			
1,2-Dichloroethane	205.1	10	200	0	103	78-125	0			
1,2-Dichloropropane	190.6	10	200	0	95.3	75-125	0			
1,3-Dichlorobenzene	193.2	10	200	0	96.6	75-130	0			
1,4-Dichlorobenzene	192.2	10	200	0	96.1	75-130	0			
2-Butanone	168.3	50	200	0	84.2	55-150	0			
2-Hexanone	167.6	50	200	0	83.8	60-135	0			
4-Methyl-2-pentanone	224.3	10	200	0	112	77-178	0			
Acetone	193.7	100	200	0	96.8	60-160	0			
Benzene	200.6	10	200	0	100	85-125	0			
Bromodichloromethane	193.2	10	200	0	96.6	75-125	0			
Bromoform	161.5	10	200	0	80.8	60-125	0			
Bromomethane	115.1	10	200	0	57.6	30-185	0			
Carbon disulfide	175.8	10	200	0	87.9	60-165	0			
Carbon tetrachloride	202.4	10	200	0	101	65-140	0			
Chlorobenzene	194.9	10	200	0	97.4	80-120	0			
Chloroethane	196.6	10	200	0	98.3	50-140	0			
Chloroform	187.2	10	200	0	93.6	80-130	0			
Chloromethane	107.9	10	200	0	54	50-130	0			
cis-1,2-Dichloroethene	190.5	10	200	0	95.2	75-134	0			
cis-1,3-Dichloropropene	179.5	10	200	0	89.8	70-130	0			
Dibromochloromethane	166.6	10	200	0	83.3	60-115	0			
Dichlorodifluoromethane	145.9	10	200	0	73	20-120	0			
Ethylbenzene	189.6	10	200	0	94.8	85-125	0			
Isopropylbenzene	184.2	10	200	0	92.1	80-127	0			
m,p-Xylene	382.3	20	400	0	95.6	75-130	0			
Methyl tert-butyl ether	170.8	10	200	0	85.4	80-130	0			
Methylene chloride	194.5	50	200	0	97.2	75-140	0			
o-Xylene	185.4	10	200	0	92.7	80-125	0			
Styrene	183.2	10	200	0	91.6	85-125	0			
Tetrachloroethene	205.5	10	200	2.54	101	77-138	0			
Toluene	194.7	10	200	0	97.4	85-125	0			
trans-1,2-Dichloroethene	197.2	10	200	0	98.6	80-140	0			
trans-1,3-Dichloropropene	160.7	10	200	0	80.4	81-123	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191185A	Instrument ID VMS6		Method: SW8260B				
Trichloroethene	205.9	10	200	0	103	84-130	0
Trichlorofluoromethane	180.6	10	200	0	90.3	60-140	0
Vinyl chloride	175.2	10	200	0	87.6	50-136	0
Xylenes, Total	567.7	30	600	0	94.6	80-126	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>198.9</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>99.4</i>	<i>75-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>198.6</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>99.3</i>	<i>80-110</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>202.6</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>101</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>191.8</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>95.9</i>	<i>85-110</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191185A** Instrument ID **VMS6** Method: **SW8260B**

MSD				Sample ID: 16061711-22A MSD			Units: µg/L		Analysis Date: 7/10/2016 08:45 PM	
Client ID:				Run ID: VMS6_160710A			SeqNo: 3915159		Prep Date:	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	191.6	10	200	0	95.8	75-130	201.1	4.84	30	
1,1,2,2-Tetrachloroethane	181.7	10	200	0	90.8	75-130	190.7	4.83	30	
1,1,2-Trichloroethane	188	10	200	0	94	75-125	196.4	4.37	30	
1,1-Dichloroethane	193.8	10	200	0	96.9	75-133	196.2	1.23	30	
1,1-Dichloroethene	198.9	10	200	0	99.4	70-145	208.4	4.66	30	
1,2,4-Trichlorobenzene	174.3	10	200	0	87.2	70-135	184.6	5.74	30	
1,2-Dibromo-3-chloropropane	151.6	10	200	0	75.8	60-130	174.5	14	30	
1,2-Dibromoethane	192.2	10	200	0	96.1	80-150	199.6	3.78	30	
1,2-Dichlorobenzene	180.9	10	200	0	90.4	70-130	190.5	5.17	30	
1,2-Dichloroethane	188.6	10	200	0	94.3	78-125	205.1	8.38	30	
1,2-Dichloropropane	186.3	10	200	0	93.2	75-125	190.6	2.28	30	
1,3-Dichlorobenzene	180.5	10	200	0	90.2	75-130	193.2	6.8	30	
1,4-Dichlorobenzene	178.3	10	200	0	89.2	75-130	192.2	7.5	30	
2-Butanone	148.8	50	200	0	74.4	55-150	168.3	12.3	30	
2-Hexanone	150.3	50	200	0	75.2	60-135	167.6	10.9	30	
4-Methyl-2-pentanone	219.3	10	200	0	110	77-178	224.3	2.25	30	
Acetone	185.8	100	200	0	92.9	60-160	193.7	4.16	30	
Benzene	197.6	10	200	0	98.8	85-125	200.6	1.51	30	
Bromodichloromethane	185	10	200	0	92.5	75-125	193.2	4.34	30	
Bromoform	154.9	10	200	0	77.4	60-125	161.5	4.17	30	
Bromomethane	108.1	10	200	0	54	30-185	115.1	6.27	30	
Carbon disulfide	168.6	10	200	0	84.3	60-165	175.8	4.18	30	
Carbon tetrachloride	196.9	10	200	0	98.4	65-140	202.4	2.75	30	
Chlorobenzene	185	10	200	0	92.5	80-120	194.9	5.21	30	
Chloroethane	201.2	10	200	0	101	50-140	196.6	2.31	30	
Chloroform	177.8	10	200	0	88.9	80-130	187.2	5.15	30	
Chloromethane	134.6	10	200	0	67.3	50-130	107.9	22	30	
cis-1,2-Dichloroethene	184.9	10	200	0	92.4	75-134	190.5	2.98	30	
cis-1,3-Dichloropropene	170.3	10	200	0	85.2	70-130	179.5	5.26	30	
Dibromochloromethane	160	10	200	0	80	60-115	166.6	4.04	30	
Dichlorodifluoromethane	145.2	10	200	0	72.6	20-120	145.9	0.481	30	
Ethylbenzene	185.5	10	200	0	92.8	85-125	189.6	2.19	30	
Isopropylbenzene	176.3	10	200	0	88.2	80-127	184.2	4.38	30	
m,p-Xylene	370	20	400	0	92.5	75-130	382.3	3.27	30	
Methyl tert-butyl ether	161.6	10	200	0	80.8	80-130	170.8	5.54	30	
Methylene chloride	191.7	50	200	0	95.8	75-140	194.5	1.45	30	
o-Xylene	177.2	10	200	0	88.6	80-125	185.4	4.52	30	
Styrene	181.8	10	200	0	90.9	85-125	183.2	0.767	30	
Tetrachloroethene	192.8	10	200	2.54	95.1	77-138	205.5	6.38	30	
Toluene	188.4	10	200	0	94.2	85-125	194.7	3.29	30	
trans-1,2-Dichloroethene	192.3	10	200	0	96.2	80-140	197.2	2.52	30	
trans-1,3-Dichloropropene	157.9	10	200	0	79	81-123	160.7	1.76	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191185A		Instrument ID VMS6		Method: SW8260B					
Trichloroethene	189.8	10	200	0	94.9	84-130	205.9	8.14	30
Trichlorofluoromethane	177.9	10	200	0	89	60-140	180.6	1.51	30
Vinyl chloride	172.3	10	200	0	86.2	50-136	175.2	1.67	30
Xylenes, Total	547.2	30	600	0	91.2	80-126	567.7	3.68	30
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>196.3</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>98.2</i>	<i>75-120</i>	<i>198.9</i>	<i>1.32</i>	<i>30</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>198.7</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>99.4</i>	<i>80-110</i>	<i>198.6</i>	<i>0.0503</i>	<i>30</i>
<i>Surr: Dibromofluoromethane</i>	<i>201.1</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>101</i>	<i>85-115</i>	<i>202.6</i>	<i>0.743</i>	<i>30</i>
<i>Surr: Toluene-d8</i>	<i>194.1</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>97</i>	<i>85-110</i>	<i>191.8</i>	<i>1.19</i>	<i>30</i>

The following samples were analyzed in this batch:

1607017-54A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191188** Instrument ID **VMS10** Method: **SW8260B**

MBLK		Sample ID: VLKS1-160710-R191188				Units: µg/Kg		Analysis Date: 7/10/2016 05:20 PM		
Client ID:		Run ID: VMS10_160710A				SeqNo: 3915104		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	U	5.0								
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	5.0								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	U	5.0								
o-Xylene	U	2.5								
Styrene	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191188		Instrument ID VMS10		Method: SW8260B				
Tetrachloroethene	U	5.0						
Toluene	U	5.0						
trans-1,2-Dichloroethene	U	5.0						
trans-1,3-Dichloropropene	U	5.0						
Trichloroethene	U	5.0						
Trichlorofluoromethane	U	5.0						
Vinyl chloride	U	5.0						
Xylenes, Total	U	5.0						
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>20.47</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>102</i>	<i>70-120</i>	<i>0</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.63</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.2</i>	<i>75-120</i>	<i>0</i>	
<i>Surr: Dibromofluoromethane</i>	<i>19.19</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>96</i>	<i>85-115</i>	<i>0</i>	
<i>Surr: Toluene-d8</i>	<i>19.65</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.2</i>	<i>85-120</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191188** Instrument ID **VMS10** Method: **SW8260B**

LCS		Sample ID: VLCSS4-160710-R191188				Units: µg/Kg		Analysis Date: 7/10/2016 04:32 PM		
Client ID:		Run ID: VMS10_160710A				SeqNo: 3915103		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	17.96	5.0	20	0	89.8	70-135	0			
1,1,2,2-Tetrachloroethane	18.92	5.0	20	0	94.6	55-130	0			
1,1,2-Trichloroethane	19.55	5.0	20	0	97.8	60-125	0			
1,1-Dichloroethane	19.26	5.0	20	0	96.3	75-125	0			
1,1-Dichloroethene	18.72	5.0	20	0	93.6	65-135	0			
1,2,4-Trichlorobenzene	17.08	5.0	20	0	85.4	65-130	0			
1,2-Dibromo-3-chloropropane	16.14	5.0	20	0	80.7	40-135	0			
1,2-Dibromoethane	21.19	5.0	20	0	106	70-125	0			
1,2-Dichlorobenzene	18.16	5.0	20	0	90.8	75-120	0			
1,2-Dichloroethane	17.95	5.0	20	0	89.8	70-135	0			
1,2-Dichloropropane	17.37	5.0	20	0	86.8	70-120	0			
1,3-Dichlorobenzene	18.26	5.0	20	0	91.3	70-125	0			
1,4-Dichlorobenzene	17.99	5.0	20	0	90	70-125	0			
2-Butanone	19.75	10	20	0	98.8	30-160	0			
2-Hexanone	19.17	5.0	20	0	95.8	45-145	0			
4-Methyl-2-pentanone	22.46	5.0	20	0	112	74-173	0			
Acetone	18.37	10	20	0	91.8	20-160	0			
Benzene	17.99	5.0	20	0	90	75-125	0			
Bromodichloromethane	17.63	5.0	20	0	88.2	70-130	0			
Bromoform	15.39	5.0	20	0	77	55-135	0			
Bromomethane	22.13	10	20	0	111	30-160	0			
Carbon disulfide	17.56	5.0	20	0	87.8	45-160	0			
Carbon tetrachloride	17.59	5.0	20	0	88	65-135	0			
Chlorobenzene	17.92	5.0	20	0	89.6	75-125	0			
Chloroethane	18.82	5.0	20	0	94.1	40-155	0			
Chloroform	17.14	5.0	20	0	85.7	70-125	0			
Chloromethane	18.01	10	20	0	90	50-130	0			
cis-1,2-Dichloroethene	17.85	5.0	20	0	89.2	65-125	0			
cis-1,3-Dichloropropene	16.64	5.0	20	0	83.2	70-125	0			
Dibromochloromethane	15.72	5.0	20	0	78.6	65-135	0			
Dichlorodifluoromethane	13.32	10	20	0	66.6	35-135	0			
Ethylbenzene	17.91	5.0	20	0	89.6	75-125	0			
Isopropylbenzene	18.25	5.0	20	0	91.2	75-130	0			
m,p-Xylene	35.28	2.5	40	0	88.2	80-125	0			
Methyl tert-butyl ether	16.49	5.0	20	0	82.4	75-125	0			
Methylene chloride	18.81	5.0	20	0	94	55-140	0			
o-Xylene	17.15	2.5	20	0	85.8	75-125	0			
Styrene	18.15	5.0	20	0	90.8	75-125	0			
Tetrachloroethene	19.38	5.0	20	0	96.9	65-140	0			
Toluene	17.93	5.0	20	0	89.6	70-125	0			
trans-1,2-Dichloroethene	19.34	5.0	20	0	96.7	65-135	0			
trans-1,3-Dichloropropene	16.46	5.0	20	0	82.3	65-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191188	Instrument ID VMS10		Method: SW8260B				
Trichloroethene	17.98	5.0	20	0	89.9	75-125	0
Trichlorofluoromethane	18	5.0	20	0	90	25-185	0
Vinyl chloride	19.03	5.0	20	0	95.2	60-125	0
Xylenes, Total	52.43	5.0	60	0	87.4	75-125	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.76</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.8</i>	<i>70-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.63</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.2</i>	<i>75-120</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.92</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>99.6</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>19.67</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.4</i>	<i>85-120</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191188** Instrument ID **VMS10** Method: **SW8260B**

MS				Sample ID: 1607017-11A MS			Units: µg/Kg		Analysis Date: 7/10/2016 08:53 PM	
Client ID: B-61 (4'-5')				Run ID: VMS10_160710A			SeqNo: 3915113		Prep Date:	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.23	5.0	20	0	91.2	70-135	0			
1,1,2,2-Tetrachloroethane	15.43	5.0	20	0	77.2	55-130	0			
1,1,2-Trichloroethane	17.08	5.0	20	0	85.4	60-125	0			
1,1-Dichloroethane	18.27	5.0	20	0	91.4	75-125	0			
1,1-Dichloroethene	18.56	5.0	20	0	92.8	65-135	0			
1,2,4-Trichlorobenzene	10.88	5.0	20	0	54.4	65-130	0			S
1,2-Dibromo-3-chloropropane	12.01	5.0	20	0	60	40-135	0			
1,2-Dibromoethane	17.19	5.0	20	0	86	44-112	0			
1,2-Dichlorobenzene	14.28	5.0	20	0	71.4	75-120	0			S
1,2-Dichloroethane	15.57	5.0	20	0	77.8	70-135	0			
1,2-Dichloropropane	16.38	5.0	20	0	81.9	70-120	0			
1,3-Dichlorobenzene	14.76	5.0	20	0	73.8	70-125	0			
1,4-Dichlorobenzene	14.06	5.0	20	0	70.3	70-125	0			
2-Butanone	19.56	10	20	7.878	58.4	30-160	0			
2-Hexanone	12.8	5.0	20	0	64	45-145	0			
4-Methyl-2-pentanone	14.82	5.0	20	0	74.1	74-173	0			
Acetone	30.11	10	20	44.37	-71.3	20-160	0			S
Benzene	17.54	5.0	20	0	87.7	75-125	0			
Bromodichloromethane	15.17	5.0	20	0	75.8	70-130	0			
Bromoform	11.97	5.0	20	0	59.8	55-135	0			
Bromomethane	19.37	10	20	0	96.8	30-160	0			
Carbon disulfide	14.8	5.0	20	0	74	45-160	0			
Carbon tetrachloride	17.48	5.0	20	0	87.4	65-135	0			
Chlorobenzene	16.23	5.0	20	0	81.2	75-125	0			
Chloroethane	17.24	5.0	20	0	86.2	40-155	0			
Chloroform	16.26	5.0	20	0	81.3	70-125	0			
Chloromethane	14.81	10	20	0	74	50-130	0			
cis-1,2-Dichloroethene	16.66	5.0	20	0	83.3	65-125	0			
cis-1,3-Dichloropropene	12.49	5.0	20	0	62.4	70-125	0			S
Dibromochloromethane	12.93	5.0	20	0	64.6	65-135	0			S
Dichlorodifluoromethane	14.68	10	20	0	73.4	35-135	0			
Ethylbenzene	17.5	5.0	20	0	87.5	75-125	0			
Isopropylbenzene	18.33	5.0	20	0	91.6	75-130	0			
m,p-Xylene	34.53	2.5	40	0	86.3	80-125	0			
Methyl tert-butyl ether	14.56	5.0	20	0	72.8	75-125	0			S
Methylene chloride	18.27	5.0	20	0	91.4	55-140	0			
o-Xylene	16.35	2.5	20	0	81.8	75-125	0			
Styrene	16.56	5.0	20	0	82.8	75-125	0			
Tetrachloroethene	27.58	5.0	20	0	138	65-140	0			
Toluene	17.31	5.0	20	0.1898	85.6	70-125	0			
trans-1,2-Dichloroethene	17.69	5.0	20	0	88.4	65-135	0			
trans-1,3-Dichloropropene	11.82	5.0	20	0	59.1	65-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191188	Instrument ID VMS10		Method: SW8260B				
Trichloroethene	18.36	5.0	20	0	91.8	75-125	0
Trichlorofluoromethane	18.87	5.0	20	0	94.4	25-185	0
Vinyl chloride	18.12	5.0	20	0	90.6	60-125	0
Xylenes, Total	50.88	5.0	60	0	84.8	75-125	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>20.02</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>100</i>	<i>70-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.26</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>96.3</i>	<i>75-120</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.54</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.7</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>19.54</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.7</i>	<i>85-120</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191188 Instrument ID VMS10 Method: SW8260B

MSD				Sample ID: 1607017-11A MSD			Units: µg/Kg		Analysis Date: 7/10/2016 09:17 PM		
Client ID: B-61 (4'-5')			Run ID: VMS10_160710A		SeqNo: 3915114		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	7.27	5.0	20	0	36.4	70-135	18.23	86	30	SR	
1,1,2,2-Tetrachloroethane	6.09	5.0	20	0	30.4	55-130	15.43	86.8	30	SR	
1,1,2-Trichloroethane	6.46	5.0	20	0	32.3	60-125	17.08	90.2	30	SR	
1,1-Dichloroethane	7.74	5.0	20	0	38.7	75-125	18.27	81	30	SR	
1,1-Dichloroethene	8.8	5.0	20	0	44	65-135	18.56	71.3	30	SR	
1,2,4-Trichlorobenzene	3.53	5.0	20	0	17.6	65-130	10.88	0	30	JS	
1,2-Dibromo-3-chloropropane	4.91	5.0	20	0	24.6	40-135	12.01	0	30	JS	
1,2-Dibromoethane	5.91	5.0	20	0	29.6	44-112	17.19	97.7	30	SR	
1,2-Dichlorobenzene	5.17	5.0	20	0	25.8	75-120	14.28	93.7	30	SR	
1,2-Dichloroethane	6.12	5.0	20	0	30.6	70-135	15.57	87.1	30	SR	
1,2-Dichloropropane	6.57	5.0	20	0	32.8	70-120	16.38	85.5	30	SR	
1,3-Dichlorobenzene	5.36	5.0	20	0	26.8	70-125	14.76	93.4	30	SR	
1,4-Dichlorobenzene	5.03	5.0	20	0	25.2	70-125	14.06	94.6	30	SR	
2-Butanone	7.87	10	20	7.878	-0.042	30-160	19.56	0	30	JS	
2-Hexanone	4.6	5.0	20	0	23	45-145	12.8	0	30	JS	
4-Methyl-2-pentanone	5.03	5.0	20	0	25.2	74-173	14.82	98.6	30	SR	
Acetone	13.25	10	20	44.37	-156	20-160	30.11	77.8	30	SR	
Benzene	7.28	5.0	20	0	36.4	75-125	17.54	82.7	30	SR	
Bromodichloromethane	5.87	5.0	20	0	29.4	70-130	15.17	88.4	30	SR	
Bromoform	4.62	5.0	20	0	23.1	55-135	11.97	0	30	JS	
Bromomethane	7.74	10	20	0	38.7	30-160	19.37	0	30	J	
Carbon disulfide	6.51	5.0	20	0	32.6	45-160	14.8	77.8	30	SR	
Carbon tetrachloride	7.05	5.0	20	0	35.2	65-135	17.48	85	30	SR	
Chlorobenzene	6.25	5.0	20	0	31.2	75-125	16.23	88.8	30	SR	
Chloroethane	8.36	5.0	20	0	41.8	40-155	17.24	69.4	30	R	
Chloroform	6.59	5.0	20	0	33	70-125	16.26	84.6	30	SR	
Chloromethane	7.11	10	20	0	35.6	50-130	14.81	0	30	JS	
cis-1,2-Dichloroethene	6.77	5.0	20	0	33.8	65-125	16.66	84.4	30	SR	
cis-1,3-Dichloropropene	3.67	5.0	20	0	18.4	70-125	12.49	0	30	JS	
Dibromochloromethane	4.76	5.0	20	0	23.8	65-135	12.93	0	30	JS	
Dichlorodifluoromethane	8.08	10	20	0	40.4	35-135	14.68	0	30	J	
Ethylbenzene	6.77	5.0	20	0	33.8	75-125	17.5	88.4	30	SR	
Isopropylbenzene	7.08	5.0	20	0	35.4	75-130	18.33	88.5	30	SR	
m,p-Xylene	13.39	2.5	40	0	33.5	80-125	34.53	88.2	30	SR	
Methyl tert-butyl ether	5.59	5.0	20	0	28	75-125	14.56	89	30	SR	
Methylene chloride	8.61	5.0	20	0	43	55-140	18.27	71.9	30	SR	
o-Xylene	6.33	2.5	20	0	31.6	75-125	16.35	88.4	30	SR	
Styrene	5.95	5.0	20	0	29.8	75-125	16.56	94.3	30	SR	
Tetrachloroethene	11.19	5.0	20	0	56	65-140	27.58	84.5	30	SR	
Toluene	6.99	5.0	20	0.1898	34	70-125	17.31	84.9	30	SR	
trans-1,2-Dichloroethene	7.21	5.0	20	0	36	65-135	17.69	84.2	30	SR	
trans-1,3-Dichloropropene	3.77	5.0	20	0	18.8	65-125	11.82	0	30	JS	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191188	Instrument ID VMS10			Method: SW8260B						
Trichloroethene	7.77	5.0	20	0	38.8	75-125	18.36	81.1	30	SR
Trichlorofluoromethane	9.11	5.0	20	0	45.6	25-185	18.87	69.8	30	R
Vinyl chloride	9.16	5.0	20	0	45.8	60-125	18.12	65.7	30	SR
Xylenes, Total	19.72	5.0	60	0	32.9	75-125	50.88	88.3	30	SR
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>20.29</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>101</i>	<i>70-120</i>	<i>20.02</i>	<i>1.34</i>	<i>30</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.22</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>96.1</i>	<i>75-120</i>	<i>19.26</i>	<i>0.208</i>	<i>30</i>	
<i>Surr: Dibromofluoromethane</i>	<i>19.49</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.4</i>	<i>85-115</i>	<i>19.54</i>	<i>0.256</i>	<i>30</i>	
<i>Surr: Toluene-d8</i>	<i>19.42</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.1</i>	<i>85-120</i>	<i>19.54</i>	<i>0.616</i>	<i>30</i>	

The following samples were analyzed in this batch:

1607017-11A	1607017-14A	1607017-15A
1607017-26A	1607017-28A	1607017-29A
1607017-30A	1607017-53A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191195A** Instrument ID **VMS6** Method: **SW8260B**

MBLK		Sample ID: VLKW2-160710-R191195A				Units: µg/L		Analysis Date: 7/10/2016 11:46 PM		
Client ID:		Run ID: VMS6_160710B				SeqNo: 3915602		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	1.0								
1,1,2,2-Tetrachloroethane	U	1.0								
1,1,2-Trichloroethane	U	1.0								
1,1,2-Trichlorotrifluoroethane	U	1.0								
1,1-Dichloroethane	U	1.0								
1,1-Dichloroethene	U	1.0								
1,2,4-Trichlorobenzene	U	1.0								
1,2-Dibromo-3-chloropropane	U	1.0								
1,2-Dibromoethane	U	1.0								
1,2-Dichlorobenzene	U	1.0								
1,2-Dichloroethane	U	1.0								
1,2-Dichloropropane	U	1.0								
1,3-Dichlorobenzene	U	1.0								
1,4-Dichlorobenzene	U	1.0								
2-Butanone	U	5.0								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	1.0								
Acetone	U	10								
Benzene	U	1.0								
Bromodichloromethane	U	1.0								
Bromoform	U	1.0								
Bromomethane	U	1.0								
Carbon disulfide	U	1.0								
Carbon tetrachloride	U	1.0								
Chlorobenzene	U	1.0								
Chloroethane	U	1.0								
Chloroform	U	1.0								
Chloromethane	U	1.0								
cis-1,2-Dichloroethene	U	1.0								
cis-1,3-Dichloropropene	U	1.0								
Cyclohexane	U	1.0								
Dibromochloromethane	U	1.0								
Dichlorodifluoromethane	U	1.0								
Ethylbenzene	U	1.0								
Isopropylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl acetate	U	2.0								
Methyl tert-butyl ether	U	1.0								
Methylcyclohexane	U	1.0								
Methylene chloride	U	5.0								
o-Xylene	U	1.0								
Styrene	U	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191195A		Instrument ID VMS6		Method: SW8260B				
Tetrachloroethene	U	1.0						
Toluene	U	1.0						
trans-1,2-Dichloroethene	U	1.0						
trans-1,3-Dichloropropene	U	1.0						
Trichloroethene	U	1.0						
Trichlorofluoromethane	U	1.0						
Vinyl chloride	U	1.0						
Xylenes, Total	U	3.0						
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.78</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.9</i>	<i>75-120</i>	<i>0</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>18.72</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>93.6</i>	<i>80-110</i>	<i>0</i>	
<i>Surr: Dibromofluoromethane</i>	<i>19.97</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>99.8</i>	<i>85-115</i>	<i>0</i>	
<i>Surr: Toluene-d8</i>	<i>19.78</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.9</i>	<i>85-110</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191195A** Instrument ID **VMS6** Method: **SW8260B**

LCS		Sample ID: VLCSW2-160710-R191195A				Units: µg/L		Analysis Date: 7/10/2016 10:54 PM		
Client ID:		Run ID: VMS6_160710B				SeqNo: 3915601		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	21.61	1.0	20	0	108	75-130	0			
1,1,2,2-Tetrachloroethane	21.83	1.0	20	0	109	75-130	0			
1,1,2-Trichloroethane	22.22	1.0	20	0	111	75-125	0			
1,1-Dichloroethane	21.9	1.0	20	0	110	75-133	0			
1,1-Dichloroethene	21.8	1.0	20	0	109	70-145	0			
1,2,4-Trichlorobenzene	20.37	1.0	20	0	102	70-135	0			
1,2-Dibromo-3-chloropropane	19.3	1.0	20	0	96.5	60-130	0			
1,2-Dibromoethane	23.06	1.0	20	0	115	80-150	0			
1,2-Dichlorobenzene	20.72	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	22.72	1.0	20	0	114	78-125	0			
1,2-Dichloropropane	21.65	1.0	20	0	108	75-125	0			
1,3-Dichlorobenzene	20.97	1.0	20	0	105	75-130	0			
1,4-Dichlorobenzene	21.07	1.0	20	0	105	75-130	0			
2-Butanone	18.15	5.0	20	0	90.8	55-150	0			
2-Hexanone	18.07	5.0	20	0	90.4	60-135	0			
4-Methyl-2-pentanone	24.54	1.0	20	0	123	77-178	0			
Acetone	22.27	10	20	0	111	60-160	0			
Benzene	22.21	1.0	20	0	111	85-125	0			
Bromodichloromethane	22.05	1.0	20	0	110	75-125	0			
Bromoform	19.65	1.0	20	0	98.2	60-125	0			
Bromomethane	16.39	1.0	20	0	82	30-185	0			
Carbon disulfide	19.71	1.0	20	0	98.6	60-165	0			
Carbon tetrachloride	21.72	1.0	20	0	109	65-140	0			
Chlorobenzene	21.63	1.0	20	0	108	80-120	0			
Chloroethane	22.78	1.0	20	0	114	50-140	0			
Chloroform	20.56	1.0	20	0	103	80-130	0			
Chloromethane	17.93	1.0	20	0	89.6	50-130	0			
cis-1,2-Dichloroethene	20.75	1.0	20	0	104	75-134	0			
cis-1,3-Dichloropropene	20.26	1.0	20	0	101	70-130	0			
Dibromochloromethane	19.85	1.0	20	0	99.2	60-115	0			
Dichlorodifluoromethane	15.63	1.0	20	0	78.2	20-120	0			
Ethylbenzene	20.8	1.0	20	0	104	85-125	0			
Isopropylbenzene	20.15	1.0	20	0	101	80-127	0			
m,p-Xylene	41.85	2.0	40	0	105	75-130	0			
Methyl tert-butyl ether	18.62	1.0	20	0	93.1	80-130	0			
Methylene chloride	21.35	5.0	20	0	107	75-140	0			
o-Xylene	20.31	1.0	20	0	102	80-125	0			
Styrene	20.67	1.0	20	0	103	85-125	0			
Tetrachloroethene	21.51	1.0	20	0	108	77-138	0			
Toluene	21.72	1.0	20	0	109	85-125	0			
trans-1,2-Dichloroethene	21.17	1.0	20	0	106	80-140	0			
trans-1,3-Dichloropropene	18.46	1.0	20	0	92.3	81-123	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191195A	Instrument ID VMS6			Method: SW8260B			
Trichloroethene	21.79	1.0	20	0	109	84-130	0
Trichlorofluoromethane	19.45	1.0	20	0	97.2	60-140	0
Vinyl chloride	19.32	1.0	20	0	96.6	50-136	0
Xylenes, Total	62.16	3.0	60	0	104	80-126	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>20.15</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>101</i>	<i>75-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>20</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>100</i>	<i>80-110</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>20.37</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>102</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>19.48</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.4</i>	<i>85-110</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191195A** Instrument ID **VMS6** Method: **SW8260B**

MS				Sample ID: 1607110-01A MS			Units: µg/L		Analysis Date: 7/11/2016 08:52 AM	
Client ID:				Run ID: VMS6_160710B			SeqNo: 3915605		Prep Date:	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	177.2	10	200	0	88.6	75-130	0			
1,1,2,2-Tetrachloroethane	176.6	10	200	0	88.3	75-130	0			
1,1,2-Trichloroethane	181.7	10	200	0	90.8	75-125	0			
1,1-Dichloroethane	185	10	200	0	92.5	75-133	0			
1,1-Dichloroethene	188.8	10	200	0	94.4	70-145	0			
1,2,4-Trichlorobenzene	171.7	10	200	0	85.8	70-135	0			
1,2-Dibromo-3-chloropropane	149.8	10	200	0	74.9	60-130	0			
1,2-Dibromoethane	185.8	10	200	0	92.9	80-150	0			
1,2-Dichlorobenzene	173.6	10	200	0	86.8	70-130	0			
1,2-Dichloroethane	180.9	10	200	0	90.4	78-125	0			
1,2-Dichloropropane	173.4	10	200	0	86.7	75-125	0			
1,3-Dichlorobenzene	175.9	10	200	0	88	75-130	0			
1,4-Dichlorobenzene	175.2	10	200	0	87.6	75-130	0			
2-Butanone	151.8	50	200	0	75.9	55-150	0			
2-Hexanone	161.7	50	200	0	80.8	60-135	0			
4-Methyl-2-pentanone	206.6	10	200	0	103	77-178	0			
Acetone	193.5	100	200	0	96.8	60-160	0			
Benzene	182.4	10	200	0	91.2	85-125	0			
Bromodichloromethane	164.4	10	200	0	82.2	75-125	0			
Bromoform	136.7	10	200	0	68.4	60-125	0			
Bromomethane	114.4	10	200	0	57.2	30-185	0			
Carbon disulfide	151.3	10	200	0	75.6	60-165	0			
Carbon tetrachloride	174.2	10	200	0	87.1	65-140	0			
Chlorobenzene	179.6	10	200	0	89.8	80-120	0			
Chloroethane	189.8	10	200	0	94.9	50-140	0			
Chloroform	170.1	10	200	0	85	80-130	0			
Chloromethane	166.3	10	200	0	83.2	50-130	0			
cis-1,2-Dichloroethene	172.2	10	200	0	86.1	75-134	0			
cis-1,3-Dichloropropene	153.2	10	200	0	76.6	70-130	0			
Dibromochloromethane	144.4	10	200	0	72.2	60-115	0			
Dichlorodifluoromethane	147.4	10	200	0	73.7	20-120	0			
Ethylbenzene	177.2	10	200	0	88.6	85-125	0			
Isopropylbenzene	168.1	10	200	0	84	80-127	0			
m,p-Xylene	352.4	20	400	0	88.1	75-130	0			
Methyl tert-butyl ether	157.3	10	200	0	78.6	80-130	0			S
Methylene chloride	179.6	50	200	0	89.8	75-140	0			
o-Xylene	172.2	10	200	0	86.1	80-125	0			
Styrene	169	10	200	0	84.5	85-125	0			S
Tetrachloroethene	184.7	10	200	0	92.4	77-138	0			
Toluene	184.6	10	200	0	92.3	85-125	0			
trans-1,2-Dichloroethene	179.3	10	200	0	89.6	80-140	0			
trans-1,3-Dichloropropene	145.6	10	200	0	72.8	81-123	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191195A	Instrument ID VMS6		Method: SW8260B				
Trichloroethene	184.9	10	200	0	92.4	84-130	0
Trichlorofluoromethane	171.4	10	200	0	85.7	60-140	0
Vinyl chloride	179.8	10	200	0	89.9	50-136	0
Xylenes, Total	524.6	30	600	0	87.4	80-126	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>197.5</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>98.8</i>	<i>75-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>197.5</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>98.8</i>	<i>80-110</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>196.8</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>98.4</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>201.1</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>101</i>	<i>85-110</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191195A** Instrument ID **VMS6** Method: **SW8260B**

MSD				Sample ID: 1607110-01A MSD			Units: µg/L		Analysis Date: 7/11/2016 09:18 AM	
Client ID:				Run ID: VMS6_160710B			SeqNo: 3915606		Prep Date:	
									DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	184.7	10	200	0	92.4	75-130	177.2	4.14	30	
1,1,2,2-Tetrachloroethane	178.3	10	200	0	89.2	75-130	176.6	0.958	30	
1,1,2-Trichloroethane	180.6	10	200	0	90.3	75-125	181.7	0.607	30	
1,1-Dichloroethane	186.5	10	200	0	93.2	75-133	185	0.808	30	
1,1-Dichloroethene	189.1	10	200	0	94.6	70-145	188.8	0.159	30	
1,2,4-Trichlorobenzene	175.1	10	200	0	87.6	70-135	171.7	1.96	30	
1,2-Dibromo-3-chloropropane	161	10	200	0	80.5	60-130	149.8	7.21	30	
1,2-Dibromoethane	190.8	10	200	0	95.4	80-150	185.8	2.66	30	
1,2-Dichlorobenzene	176.5	10	200	0	88.2	70-130	173.6	1.66	30	
1,2-Dichloroethane	185.1	10	200	0	92.6	78-125	180.9	2.3	30	
1,2-Dichloropropane	180.1	10	200	0	90	75-125	173.4	3.79	30	
1,3-Dichlorobenzene	178.4	10	200	0	89.2	75-130	175.9	1.41	30	
1,4-Dichlorobenzene	177.8	10	200	0	88.9	75-130	175.2	1.47	30	
2-Butanone	155.3	50	200	0	77.6	55-150	151.8	2.28	30	
2-Hexanone	163.5	50	200	0	81.8	60-135	161.7	1.11	30	
4-Methyl-2-pentanone	219	10	200	0	110	77-178	206.6	5.83	30	
Acetone	196.8	100	200	0	98.4	60-160	193.5	1.69	30	
Benzene	183.2	10	200	0	91.6	85-125	182.4	0.438	30	
Bromodichloromethane	172.5	10	200	0	86.2	75-125	164.4	4.81	30	
Bromoform	142.3	10	200	0	71.2	60-125	136.7	4.01	30	
Bromomethane	141.7	10	200	0	70.8	30-185	114.4	21.3	30	
Carbon disulfide	156.9	10	200	0	78.4	60-165	151.3	3.63	30	
Carbon tetrachloride	174.4	10	200	0	87.2	65-140	174.2	0.115	30	
Chlorobenzene	183.8	10	200	0	91.9	80-120	179.6	2.31	30	
Chloroethane	194.7	10	200	0	97.4	50-140	189.8	2.55	30	
Chloroform	174.6	10	200	0	87.3	80-130	170.1	2.61	30	
Chloromethane	144.8	10	200	0	72.4	50-130	166.3	13.8	30	
cis-1,2-Dichloroethene	171.3	10	200	0	85.6	75-134	172.2	0.524	30	
cis-1,3-Dichloropropene	154	10	200	0	77	70-130	153.2	0.521	30	
Dibromochloromethane	146.9	10	200	0	73.4	60-115	144.4	1.72	30	
Dichlorodifluoromethane	146.7	10	200	0	73.4	20-120	147.4	0.476	30	
Ethylbenzene	180.5	10	200	0	90.2	85-125	177.2	1.85	30	
Isopropylbenzene	167.7	10	200	0	83.8	80-127	168.1	0.238	30	
m,p-Xylene	359.9	20	400	0	90	75-130	352.4	2.11	30	
Methyl tert-butyl ether	156.9	10	200	0	78.4	80-130	157.3	0.255	30	S
Methylene chloride	183.2	50	200	0	91.6	75-140	179.6	1.98	30	
o-Xylene	175.8	10	200	0	87.9	80-125	172.2	2.07	30	
Styrene	172.6	10	200	0	86.3	85-125	169	2.11	30	
Tetrachloroethene	186.9	10	200	0	93.4	77-138	184.7	1.18	30	
Toluene	182.9	10	200	0	91.4	85-125	184.6	0.925	30	
trans-1,2-Dichloroethene	180.5	10	200	0	90.2	80-140	179.3	0.667	30	
trans-1,3-Dichloropropene	144.6	10	200	0	72.3	81-123	145.6	0.689	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191195A		Instrument ID VMS6		Method: SW8260B					
Trichloroethene	188.3	10	200	0	94.2	84-130	184.9	1.82	30
Trichlorofluoromethane	173.1	10	200	0	86.6	60-140	171.4	0.987	30
Vinyl chloride	181	10	200	0	90.5	50-136	179.8	0.665	30
Xylenes, Total	535.7	30	600	0	89.3	80-126	524.6	2.09	30
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>201.4</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>101</i>	<i>75-120</i>	<i>197.5</i>	<i>1.96</i>	<i>30</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>195.8</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>97.9</i>	<i>80-110</i>	<i>197.5</i>	<i>0.864</i>	<i>30</i>
<i>Surr: Dibromofluoromethane</i>	<i>197.8</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>98.9</i>	<i>85-115</i>	<i>196.8</i>	<i>0.507</i>	<i>30</i>
<i>Surr: Toluene-d8</i>	<i>192.8</i>	<i>0</i>	<i>200</i>	<i>0</i>	<i>96.4</i>	<i>85-110</i>	<i>201.1</i>	<i>4.21</i>	<i>30</i>

The following samples were analyzed in this batch:

1607017-31A	1607017-52A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191292** Instrument ID **VMS10** Method: **SW8260B**

MBLK		Sample ID: VBK2-160711-R191292				Units: µg/Kg		Analysis Date: 7/11/2016 09:46 PM		
Client ID:		Run ID: VMS10_160711B				SeqNo: 3917469		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	U	5.0								
1,1,2,2-Tetrachloroethane	U	5.0								
1,1,2-Trichloroethane	U	5.0								
1,1,2-Trichlorotrifluoroethane	U	5.0								
1,1-Dichloroethane	U	5.0								
1,1-Dichloroethene	U	5.0								
1,2,4-Trichlorobenzene	U	5.0								
1,2-Dibromo-3-chloropropane	U	5.0								
1,2-Dibromoethane	U	5.0								
1,2-Dichlorobenzene	U	5.0								
1,2-Dichloroethane	U	5.0								
1,2-Dichloropropane	U	5.0								
1,3-Dichlorobenzene	U	5.0								
1,4-Dichlorobenzene	U	5.0								
2-Butanone	U	10								
2-Hexanone	U	5.0								
4-Methyl-2-pentanone	U	5.0								
Acetone	U	10								
Benzene	U	5.0								
Bromodichloromethane	U	5.0								
Bromoform	U	5.0								
Bromomethane	U	10								
Carbon disulfide	U	5.0								
Carbon tetrachloride	U	5.0								
Chlorobenzene	U	5.0								
Chloroethane	U	5.0								
Chloroform	1.2	5.0								J
Chloromethane	U	10								
cis-1,2-Dichloroethene	U	5.0								
cis-1,3-Dichloropropene	U	5.0								
Cyclohexane	U	5.0								
Dibromochloromethane	U	5.0								
Dichlorodifluoromethane	U	10								
Ethylbenzene	U	5.0								
Isopropylbenzene	U	5.0								
m,p-Xylene	U	2.5								
Methyl acetate	U	10								
Methyl tert-butyl ether	U	5.0								
Methylcyclohexane	U	10								
Methylene chloride	U	5.0								
o-Xylene	U	2.5								
Styrene	U	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191292	Instrument ID VMS10	Method: SW8260B						
Tetrachloroethene	U	5.0						
Toluene	1.12	5.0						
trans-1,2-Dichloroethene	U	5.0						
trans-1,3-Dichloropropene	U	5.0						
Trichloroethene	U	5.0						
Trichlorofluoromethane	U	5.0						
Vinyl chloride	U	5.0						
Xylenes, Total	U	5.0						
Surr: 1,2-Dichloroethane-d4	19.71	0	20	0	98.6	70-120	0	
Surr: 4-Bromofluorobenzene	18.96	0	20	0	94.8	75-120	0	
Surr: Dibromofluoromethane	19.01	0	20	0	95	85-115	0	
Surr: Toluene-d8	19.54	0	20	0	97.7	85-120	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191292** Instrument ID **VMS10** Method: **SW8260B**

LCS		Sample ID: VLCSW2-160711-R191292				Units: µg/Kg		Analysis Date: 7/11/2016 08:35 PM		
Client ID:		Run ID: VMS10_160711B				SeqNo: 3917468		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.11	5.0	20	0	90.6	70-135	0			
1,1,2,2-Tetrachloroethane	19.16	5.0	20	0	95.8	55-130	0			
1,1,2-Trichloroethane	20.07	5.0	20	0	100	60-125	0			
1,1-Dichloroethane	19.62	5.0	20	0	98.1	75-125	0			
1,1-Dichloroethene	17.55	5.0	20	0	87.8	65-135	0			
1,2,4-Trichlorobenzene	17.55	5.0	20	0	87.8	65-130	0			
1,2-Dibromo-3-chloropropane	14.78	5.0	20	0	73.9	40-135	0			
1,2-Dibromoethane	21.95	5.0	20	0	110	70-125	0			
1,2-Dichlorobenzene	18.41	5.0	20	0	92	75-120	0			
1,2-Dichloroethane	18.37	5.0	20	0	91.8	70-135	0			
1,2-Dichloropropane	17.64	5.0	20	0	88.2	70-120	0			
1,3-Dichlorobenzene	18.54	5.0	20	0	92.7	70-125	0			
1,4-Dichlorobenzene	18.44	5.0	20	0	92.2	70-125	0			
2-Butanone	18.97	10	20	0	94.8	30-160	0			
2-Hexanone	17.55	5.0	20	0	87.8	45-145	0			
4-Methyl-2-pentanone	20.29	5.0	20	0	101	74-173	0			
Acetone	17.14	10	20	0	85.7	20-160	0			
Benzene	18.31	5.0	20	0	91.6	75-125	0			
Bromodichloromethane	17.14	5.0	20	0	85.7	70-130	0			
Bromoform	13.87	5.0	20	0	69.4	55-135	0			
Bromomethane	22.11	10	20	0	111	30-160	0			
Carbon disulfide	16.27	5.0	20	0	81.4	45-160	0			
Carbon tetrachloride	16.77	5.0	20	0	83.8	65-135	0			
Chlorobenzene	18.27	5.0	20	0	91.4	75-125	0			
Chloroethane	19.02	5.0	20	0	95.1	40-155	0			
Chloroform	19	5.0	20	0	95	70-125	0			
Chloromethane	18.54	10	20	0	92.7	50-130	0			
cis-1,2-Dichloroethene	17.81	5.0	20	0	89	65-125	0			
cis-1,3-Dichloropropene	15.7	5.0	20	0	78.5	70-125	0			
Dibromochloromethane	15.02	5.0	20	0	75.1	65-135	0			
Dichlorodifluoromethane	15.51	10	20	0	77.6	35-135	0			
Ethylbenzene	17.91	5.0	20	0	89.6	75-125	0			
Isopropylbenzene	18.41	5.0	20	0	92	75-130	0			
m,p-Xylene	35.03	2.5	40	0	87.6	80-125	0			
Methyl tert-butyl ether	16.61	5.0	20	0	83	75-125	0			
Methylene chloride	19.83	5.0	20	0	99.2	55-140	0			
o-Xylene	16.93	2.5	20	0	84.6	75-125	0			
Styrene	17.93	5.0	20	0	89.6	75-125	0			
Tetrachloroethene	20.01	5.0	20	0	100	65-140	0			
Toluene	18.22	5.0	20	0	91.1	70-125	0			
trans-1,2-Dichloroethene	18.43	5.0	20	0	92.2	65-135	0			
trans-1,3-Dichloropropene	15.4	5.0	20	0	77	65-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191292	Instrument ID VMS10			Method: SW8260B			
Trichloroethene	18.45	5.0	20	0	92.2	75-125	0
Trichlorofluoromethane	18.25	5.0	20	0	91.2	25-185	0
Vinyl chloride	19.08	5.0	20	0	95.4	60-125	0
Xylenes, Total	51.96	5.0	60	0	86.6	75-125	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.32</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>96.6</i>	<i>70-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.33</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>96.6</i>	<i>75-120</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.68</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>98.4</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>19.44</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.2</i>	<i>85-120</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191292** Instrument ID **VMS10** Method: **SW8260B**

MS				Sample ID: 1607378-01A MS			Units: µg/Kg		Analysis Date: 7/12/2016 12:08 PM	
Client ID:				Run ID: VMS10_160711B			SeqNo: 3917475		Prep Date:	
									DF: 0.982	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.13	4.9	19.64	0	92.3	70-135	0			
1,1,2,2-Tetrachloroethane	15.69	4.9	19.64	0	79.9	55-130	0			
1,1,2-Trichloroethane	17.18	4.9	19.64	0	87.4	60-125	0			
1,1-Dichloroethane	18.85	4.9	19.64	0	96	75-125	0			
1,1-Dichloroethene	19.7	4.9	19.64	0	100	65-135	0			
1,2,4-Trichlorobenzene	12.5	4.9	19.64	0	63.6	65-130	0			S
1,2-Dibromo-3-chloropropane	10.93	4.9	19.64	0	55.6	40-135	0			
1,2-Dibromoethane	18.21	4.9	19.64	0	92.7	44-112	0			
1,2-Dichlorobenzene	15.22	4.9	19.64	0	77.5	75-120	0			
1,2-Dichloroethane	16.21	4.9	19.64	0	82.6	70-135	0			
1,2-Dichloropropane	16.41	4.9	19.64	0	83.6	70-120	0			
1,3-Dichlorobenzene	15.94	4.9	19.64	0	81.2	70-125	0			
1,4-Dichlorobenzene	15.46	4.9	19.64	0	78.7	70-125	0			
2-Butanone	15.12	9.8	19.64	4.976	51.7	30-160	0			
2-Hexanone	10.8	4.9	19.64	0	55	45-145	0			
4-Methyl-2-pentanone	14.21	4.9	19.64	0	72.4	74-173	0			S
Acetone	16.49	9.8	19.64	19.32	-14.4	20-160	0			S
Benzene	17.92	4.9	19.64	0	91.2	75-125	0			
Bromodichloromethane	14.85	4.9	19.64	0	75.6	70-130	0			
Bromoform	11.04	4.9	19.64	0	56.2	55-135	0			
Bromomethane	21.94	9.8	19.64	0	112	30-160	0			
Carbon disulfide	15.96	4.9	19.64	0	81.2	45-160	0			
Carbon tetrachloride	17.88	4.9	19.64	0	91	65-135	0			
Chlorobenzene	17.1	4.9	19.64	0	87	75-125	0			
Chloroethane	20.12	4.9	19.64	0	102	40-155	0			
Chloroform	17.76	4.9	19.64	1.051	85.1	70-125	0			
Chloromethane	17.64	9.8	19.64	0	89.8	50-130	0			
cis-1,2-Dichloroethene	17.17	4.9	19.64	0	87.4	65-125	0			
cis-1,3-Dichloropropene	13.04	4.9	19.64	0	66.4	70-125	0			S
Dibromochloromethane	11.95	4.9	19.64	0	60.8	65-135	0			S
Dichlorodifluoromethane	17.61	9.8	19.64	0	89.6	35-135	0			
Ethylbenzene	17.77	4.9	19.64	0	90.5	75-125	0			
Isopropylbenzene	18.45	4.9	19.64	0	94	75-130	0			
m,p-Xylene	35.32	2.5	39.28	0	89.9	80-125	0			
Methyl tert-butyl ether	14.05	4.9	19.64	0	71.6	75-125	0			S
Methylene chloride	23.14	4.9	19.64	1.253	111	55-140	0			
o-Xylene	16.61	2.5	19.64	0	84.6	75-125	0			
Styrene	17.21	4.9	19.64	0	87.6	75-125	0			
Tetrachloroethene	22.8	4.9	19.64	0	116	65-140	0			
Toluene	18.71	4.9	19.64	0	95.2	70-125	0			
trans-1,2-Dichloroethene	18.77	4.9	19.64	0	95.6	65-135	0			
trans-1,3-Dichloropropene	12.08	4.9	19.64	0	61.5	65-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191292	Instrument ID VMS10		Method: SW8260B				
Trichloroethene	19.15	4.9	19.64	0	97.5	75-125	0
Trichlorofluoromethane	20.94	4.9	19.64	0	107	25-185	0
Vinyl chloride	21.55	4.9	19.64	0	110	60-125	0
Xylenes, Total	51.93	4.9	58.92	0	88.1	75-125	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.43</i>	<i>0</i>	<i>19.64</i>	<i>0</i>	<i>99</i>	<i>70-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>18.9</i>	<i>0</i>	<i>19.64</i>	<i>0</i>	<i>96.2</i>	<i>75-120</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.66</i>	<i>0</i>	<i>19.64</i>	<i>0</i>	<i>100</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>19.37</i>	<i>0</i>	<i>19.64</i>	<i>0</i>	<i>98.6</i>	<i>85-120</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191292** Instrument ID **VMS10** Method: **SW8260B**

MSD				Sample ID: 1607378-01A MSD			Units: µg/Kg		Analysis Date: 7/12/2016 12:32 PM	
Client ID:				Run ID: VMS10_160711B			SeqNo: 3917476		Prep Date:	
									DF: 0.992	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	17.62	5.0	19.84	0	88.8	70-135	18.13	2.85	30	
1,1,2,2-Tetrachloroethane	15.11	5.0	19.84	0	76.2	55-130	15.69	3.79	30	
1,1,2-Trichloroethane	16.19	5.0	19.84	0	81.6	60-125	17.18	5.91	30	
1,1-Dichloroethane	18.55	5.0	19.84	0	93.5	75-125	18.85	1.63	30	
1,1-Dichloroethene	19.08	5.0	19.84	0	96.2	65-135	19.7	3.21	30	
1,2,4-Trichlorobenzene	12.05	5.0	19.84	0	60.8	65-130	12.5	3.65	30	S
1,2-Dibromo-3-chloropropane	10.75	5.0	19.84	0	54.2	40-135	10.93	1.63	30	
1,2-Dibromoethane	17.88	5.0	19.84	0	90.1	44-112	18.21	1.83	30	
1,2-Dichlorobenzene	14.77	5.0	19.84	0	74.4	75-120	15.22	3	30	S
1,2-Dichloroethane	16.04	5.0	19.84	0	80.8	70-135	16.21	1.07	30	
1,2-Dichloropropane	16.27	5.0	19.84	0	82	70-120	16.41	0.859	30	
1,3-Dichlorobenzene	15.38	5.0	19.84	0	77.5	70-125	15.94	3.59	30	
1,4-Dichlorobenzene	14.9	5.0	19.84	0	75.1	70-125	15.46	3.67	30	
2-Butanone	14.27	9.9	19.84	4.976	46.9	30-160	15.12	5.77	30	
2-Hexanone	9.9	5.0	19.84	0	49.9	45-145	10.8	8.71	30	
4-Methyl-2-pentanone	12.74	5.0	19.84	0	64.2	74-173	14.21	10.9	30	S
Acetone	16.92	9.9	19.84	19.32	-12.1	20-160	16.49	2.61	30	S
Benzene	17.82	5.0	19.84	0	89.8	75-125	17.92	0.589	30	
Bromodichloromethane	14.9	5.0	19.84	0	75.1	70-130	14.85	0.35	30	
Bromoform	10.5	5.0	19.84	0	52.9	55-135	11.04	5.04	30	S
Bromomethane	20.5	9.9	19.84	0	103	30-160	21.94	6.75	30	
Carbon disulfide	15.9	5.0	19.84	0	80.2	45-160	15.96	0.35	30	
Carbon tetrachloride	17.51	5.0	19.84	0	88.2	65-135	17.88	2.11	30	
Chlorobenzene	16.68	5.0	19.84	0	84	75-125	17.1	2.49	30	
Chloroethane	18.82	5.0	19.84	0	94.8	40-155	20.12	6.69	30	
Chloroform	17.64	5.0	19.84	1.051	83.6	70-125	17.76	0.715	30	
Chloromethane	17.4	9.9	19.84	0	87.7	50-130	17.64	1.35	30	
cis-1,2-Dichloroethene	16.72	5.0	19.84	0	84.2	65-125	17.17	2.66	30	
cis-1,3-Dichloropropene	12.58	5.0	19.84	0	63.4	70-125	13.04	3.61	30	S
Dibromochloromethane	11.92	5.0	19.84	0	60.1	65-135	11.95	0.227	30	S
Dichlorodifluoromethane	17.19	9.9	19.84	0	86.6	35-135	17.61	2.39	30	
Ethylbenzene	17.23	5.0	19.84	0	86.8	75-125	17.77	3.1	30	
Isopropylbenzene	17.72	5.0	19.84	0	89.3	75-130	18.45	4.06	30	
m,p-Xylene	34.05	2.5	39.68	0	85.8	80-125	35.32	3.68	30	
Methyl tert-butyl ether	13.37	5.0	19.84	0	67.4	75-125	14.05	4.96	30	S
Methylene chloride	22	5.0	19.84	1.253	105	55-140	23.14	5.02	30	
o-Xylene	15.85	2.5	19.84	0	79.9	75-125	16.61	4.64	30	
Styrene	16.4	5.0	19.84	0	82.6	75-125	17.21	4.86	30	
Tetrachloroethene	22.25	5.0	19.84	0	112	65-140	22.8	2.45	30	
Toluene	17.9	5.0	19.84	0	90.2	70-125	18.71	4.43	30	
trans-1,2-Dichloroethene	18.17	5.0	19.84	0	91.6	65-135	18.77	3.21	30	
trans-1,3-Dichloropropene	11.45	5.0	19.84	0	57.7	65-125	12.08	5.36	30	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: R191292	Instrument ID VMS10		Method: SW8260B						
Trichloroethene	18.88	5.0	19.84	0	95.2	75-125	19.15	1.43	30
Trichlorofluoromethane	20.32	5.0	19.84	0	102	25-185	20.94	3.01	30
Vinyl chloride	20.42	5.0	19.84	0	103	60-125	21.55	5.38	30
Xylenes, Total	49.9	5.0	59.52	0	83.8	75-125	51.93	3.99	30
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.74</i>	<i>0</i>	<i>19.84</i>	<i>0</i>	<i>99.5</i>	<i>70-120</i>	<i>19.43</i>	<i>1.57</i>	<i>30</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>18.81</i>	<i>0</i>	<i>19.84</i>	<i>0</i>	<i>94.8</i>	<i>75-120</i>	<i>18.9</i>	<i>0.505</i>	<i>30</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.68</i>	<i>0</i>	<i>19.84</i>	<i>0</i>	<i>99.2</i>	<i>85-115</i>	<i>19.66</i>	<i>0.11</i>	<i>30</i>
<i>Surr: Toluene-d8</i>	<i>19.34</i>	<i>0</i>	<i>19.84</i>	<i>0</i>	<i>97.5</i>	<i>85-120</i>	<i>19.37</i>	<i>0.109</i>	<i>30</i>

The following samples were analyzed in this batch:

1607017-13A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R190901** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R190901				Units: % of sample		Analysis Date: 7/5/2016 09:03 PM		
Client ID:		Run ID: MOIST_160705C				SeqNo: 3907893		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R190901				Units: % of sample		Analysis Date: 7/5/2016 09:03 PM		
Client ID:		Run ID: MOIST_160705C				SeqNo: 3907892		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607017-03A DUP				Units: % of sample		Analysis Date: 7/5/2016 09:03 PM		
Client ID: B-53 (1-2 ft)		Run ID: MOIST_160705C				SeqNo: 3907873		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 21.54 0.050 0 0 0 21.86 1.47 20

DUP		Sample ID: 1607121-13A DUP				Units: % of sample		Analysis Date: 7/5/2016 09:03 PM		
Client ID:		Run ID: MOIST_160705C				SeqNo: 3907885		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.89 0.050 0 0 0 18.49 7.3 20

The following samples were analyzed in this batch:

1607017-01A	1607017-02A	1607017-03A
1607017-04A	1607017-05A	1607017-06A
1607017-07A	1607017-08A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 1607017
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R190996** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R190996				Units: % of sample		Analysis Date: 7/6/2016 09:18 AM		
Client ID:		Run ID: MOIST_160706B				SeqNo: 3910351		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R190996				Units: % of sample		Analysis Date: 7/6/2016 09:18 AM		
Client ID:		Run ID: MOIST_160706B				SeqNo: 3910350		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607121-25A DUP				Units: % of sample		Analysis Date: 7/6/2016 09:18 AM		
Client ID:		Run ID: MOIST_160706B				SeqNo: 3910339		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 26.02 0.050 0 0 0 31.76 19.9 20

DUP		Sample ID: 1607140-04C DUP				Units: % of sample		Analysis Date: 7/6/2016 09:18 AM		
Client ID:		Run ID: MOIST_160706B				SeqNo: 3910346		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 26.55 0.050 0 0 0 27 1.68 20

The following samples were analyzed in this batch:

1607017-09A	1607017-10A	1607017-11B
1607017-12B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R190997** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R190997				Units: % of sample		Analysis Date: 7/6/2016 12:49 PM		
Client ID:		Run ID: MOIST_160706C				SeqNo: 3910375		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R190997				Units: % of sample		Analysis Date: 7/6/2016 12:49 PM		
Client ID:		Run ID: MOIST_160706C				SeqNo: 3910374		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607017-14B DUP				Units: % of sample		Analysis Date: 7/6/2016 12:49 PM		
Client ID: B-64 (6'-8')		Run ID: MOIST_160706C				SeqNo: 3910354		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.21 0.050 0 0 0 18.37 4.47 20

DUP		Sample ID: 1607017-23A DUP				Units: % of sample		Analysis Date: 7/6/2016 12:49 PM		
Client ID: B-58 (3-4 ft)		Run ID: MOIST_160706C				SeqNo: 3910364		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.61 0.050 0 0 0 20.46 4.24 20

The following samples were analyzed in this batch:

1607017-13B	1607017-14B	1607017-15B
1607017-16A	1607017-17A	1607017-18A
1607017-19A	1607017-20A	1607017-21A
1607017-22A	1607017-23A	1607017-24A
1607017-25A	1607017-26B	1607017-27B
1607017-28B	1607017-29B	1607017-30B
1607017-32A	1607017-33A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R190998** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R190998				Units: % of sample		Analysis Date: 7/6/2016 02:11 PM		
Client ID:		Run ID: MOIST_160706D				SeqNo: 3910409		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R190998				Units: % of sample		Analysis Date: 7/6/2016 02:11 PM		
Client ID:		Run ID: MOIST_160706D				SeqNo: 3910408		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607017-34A DUP				Units: % of sample		Analysis Date: 7/6/2016 02:11 PM		
Client ID: B-53 (5-6 ft)		Run ID: MOIST_160706D				SeqNo: 3910386		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 19.61 0.050 0 0 0 19.54 0.358 20

DUP		Sample ID: 1607017-39A DUP				Units: % of sample		Analysis Date: 7/6/2016 02:11 PM		
Client ID: B-58 (5-6 ft)		Run ID: MOIST_160706D				SeqNo: 3910393		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 20.19 0.050 0 0 0 20.33 0.691 20

The following samples were analyzed in this batch:

1607017-34A	1607017-35A	1607017-36A
1607017-37A	1607017-38A	1607017-39A
1607017-40A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 1607017
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191097** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R191097				Units: % of sample		Analysis Date: 7/7/2016 12:31 PM		
Client ID:		Run ID: MOIST_160707A				SeqNo: 3912741		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R191097				Units: % of sample		Analysis Date: 7/7/2016 12:31 PM		
Client ID:		Run ID: MOIST_160707A				SeqNo: 3912740		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607017-41A DUP				Units: % of sample		Analysis Date: 7/7/2016 12:31 PM		
Client ID: B-60 (5-6 ft)		Run ID: MOIST_160707A				SeqNo: 3912719		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 23.4 0.050 0 0 0 22.9 2.16 20

DUP		Sample ID: 1607017-51A DUP				Units: % of sample		Analysis Date: 7/7/2016 12:31 PM		
Client ID: B-60 (7-8 ft)		Run ID: MOIST_160707A				SeqNo: 3912730		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 17.61 0.050 0 0 0 18.15 3.02 20

The following samples were analyzed in this batch:

1607017-41A	1607017-42A	1607017-43A
1607017-44A	1607017-45A	1607017-46A
1607017-47A	1607017-48A	1607017-49A
1607017-50A	1607017-51A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



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Customer Information		Project Information		ALS Project Manager: ALS Work Order #: 1607017																
Parameter/Method Request for Analysis																				
Purchase Order		Project Name	Elkem Carbide	A	TCL SVOCs															
Work Order		Project Number	X9025-14-0002-019-017	B	RCRA Metals															
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs															
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture															
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)															
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	F	PCBs															
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals															
Fax	(816) 410-1748	Fax	(816) 410-1748	H																
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals															
				J	TCLP SVOCs															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	B-51 (1-2 ft)	6/27/16	1623	soil				✓												
2	B-52 (1-2 ft)	6/27/16	1646					✓												
3	B-53 (1-2 ft)	6/28/16	1150					✓												
4	B-54 (1-2 ft)		1213					✓												
5	B-55 (1-2 ft)		1335					✓												
6	B-56 (1-2 ft)		1427					✓												
7	B-57 (1-2 ft)		1404					✓												
8	B-58 (1-2 ft)		1413					✓												
9	B-59 (1-2 ft)		1505					✓												
10	B-60 (1-2 ft)		1448					✓												
Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)										Results Due Date:						
Kaitlyn Bahr KC Be		FedEx		<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD																
Relinquished by:		Date:	Time:	Received by:		Notes:														
KC Be		6/29/16	1200	FedEx																
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler ID Cooler Temp QC Package: (Check One Box Below)														
FedEx		6/30/16	0930	[Signature]		<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other _____														
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):																
KC		7/1/16	0825	[Signature]																
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																				

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Customer Information				Project Information				ALS Project Manager: ALS Work Order #: 1607017											
Parameter/Method Request for Analysis																			
Purchase Order		Project Name	Elkem Carbide	A	TCL SVOCs														
Work Order		Project Number	X9025.14-0002-019.017	B	RCRA Metals														
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs														
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture														
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)														
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	F	PCBs														
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals														
Fax	(816) 410-1748	Fax	(816) 410-1748	H															
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals														
				J	TCLP SVOCs														

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
11	B-61 (4'-5')	6/27/16	1415					X	X		X						
12	B-62 (16'-17')	↓	1556					X	X		X						
13	B-63 (6'-8')	6/28/16	1120					X	X		X						
14	B-64 (6'-8')	6/28/16	1000					X	X		X						
15	B-65 (2'-4')	6/28/16	0825					X	X		X						
16	B-51 (3'-4ft)	6/27/16	1625					X									
17	B-52 (3'-4ft)	6/27/16	1648					X									
18	B-53 (3'-4ft)	6/28/16	1155					X									
19	B-54 (3'-4ft)	↓	1215					X									
20	B-55 (3'-4ft)	↓	1337					X									

Sampler(s) Please Print & Sign Kaitlyn Bahr				Shipment Method FedEx		Turnaround Time in Business Days (BD) <input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD				Results Due Date:			
Relinquished by: Kaitlyn Bahr		Date: 6/29/16	Time: 1200	Received by: FedEx		Notes:							
Relinquished by: FedEx		Date: 6/30/16	Time: 0930	Received by (Laboratory): [Signature]		Cooler ID		Cooler Temp		QC Package: (Check One Box Below)			
Logged by (Laboratory): K		Date: 7/1/16	Time: 0825	Checked by (Laboratory): [Signature]						<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRAP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRAP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other			

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

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+1 304 356 3168

York, PA
+1 717 505 5280

ALS Project Manager:

ALS Work Order #: 1607017

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order		Project Name	Elkin Carbide	A	TCL SVOCs											
Work Order		Project Number	X9025-14-0002-019-017	B	RCRA Metals											
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs											
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture											
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)											
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	F	PCBs											
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals											
Fax	(816) 410-1748	Fax	(816) 410-1748	H												
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals											
				J	TCLP SVOCs											

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
21	B-56 (3-4ft)	6/28/16	1428	soil			x										
22	B-57 (3-4ft)		1406				x										
23	B-58 (3-4ft)		1415				x										
24	B-59 (3-4ft)		1508				x										
25	B-60 (3-4ft)		1449				x										
26	B-61 (5-6')	6/27/16	1420					x	x		x						
27	B-62 (4'-5')	6/27/16	1600					x	x		x						
28	B-63 (24-26')	6/28/16	1125					x	x		x						
29	B-64 (26-28')	6/28/16	1005					x	x		x						
30	B-65 (6-8')	6/28/16	0830					x	x		x						

Sampler(s) Please Print & Sign Kaitlyn Bahr Kai Ben		Shipment Method FedEx		Turnaround Time in Business Days (BD) <input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD				Other _____		Results Due Date:	
Relinquished by: Kaitlyn Bahr	Date: 6/29/16	Time: 1200	Received by: FedEx		Notes:						
Relinquished by: FedEx	Date: 6/30/16	Time: 0930	Received by (Laboratory): [Signature]		Cooler ID	Cooler Temp	QC Package: (Check One Box Below)				
Logged by (Laboratory): Kear	Date: 7/1/16	Time: 0925	Checked by (Laboratory): [Signature]				<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other _____				
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035											

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COC ID: 36399

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Environmental

Customer Information				Project Information				ALS Project Manager:												ALS Work Order #: 1607017											
Parameter/Method Request for Analysis																															
Purchase Order		Project Name	91kem Carbide	A	TCL SVOCs																										
Work Order		Project Number	X9025 14.0002.019.017	B	RCRA Metals																										
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs																										
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture																										
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)																										
				F	PCBs																										
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	G	Dissolved RCRA Metals																										
Phone	(816) 412-1755	Phone	(816) 412-1755	H																											
Fax	(816) 410-1748	Fax	(816) 410-1748	I	TCLP Metals																										
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	J	TCLP SVOCs																										
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold														
31	B-61GW	6/28/16	1630	water					X		X		X																		
32	B-51 (5-6 ft)	6/27/16	1630	soil				X																							
33	B-52 (5-6 ft)	↓	1655					X																							
34	B-53 (5-6 ft)	6/28/16	1205					X																							
35	B-54 (5-6 ft)		1217					X																							
36	B-55 (5-6 ft)		1340					X																							
37	B-56 (5-6 ft)		1430					X																							
38	B-57 (5-6 ft)		1407					X																							
39	B-58 (5-6 ft)		1416					X																							
40	B-59 (5-6 ft)		1510					X																							
Sampler(s) Please Print & Sign				Shipment Method				Turnaround Time in Business Days (BD)												Results Due Date:											
Kaitlyn Bahr				FedEx				<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD																							
Relinquished by:		Date:		Time:		Received by:		Notes:																							
Kaitlyn Bahr		6/29/16		1200		FedEx																									
Relinquished by:		Date:		Time:		Received by (Laboratory):		Cooler ID		Cooler Temp		QC Package: (Check One Box Below)																			
FedEx		6/30/16		0930								<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other																			
Logged by (Laboratory):		Date:		Time:		Checked by (Laboratory):																									
Ker		7/1/16		0825		TBB																									
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																															

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+1 304 356 3168

York, PA
+1 717 505 5280

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Customer Information		Project Information		Parameter/Method Request for Analysis																
Purchase Order		Project Name	Elkem Carbide	A	TCL SVOCs															
Work Order		Project Number	X9025.14 0002.019.017	B	RCRA Metals															
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs															
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture															
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)															
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	F	PCBs															
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals															
Fax	(816) 410-1748	Fax	(816) 410-1748	H																
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals															
				J	TCLP SVOCs															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
41	B-4065-6 ft	6/28/16	1452	Soil			X													
42	B-51 (7-8 ft)	6/27/16	1634					X												
43	B-52 (7-8 ft)	↓	1658					X												
44	B-53 (7-8 ft)	6/28/16	1207					X												
45	B-54 (7-8 ft)		1219					X												
46	B-55 (7-8 ft)		1343					X												
47	B-56 (7-8 ft)		1433				X													
48	B-57 (7-8 ft)		1408				X													
49	B-58 (7-8 ft)		1419				X													
50	B-59 (7-8 ft)	↓	1513				X													
Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)				Other				Results Due Date:								
Kaitlyn Bahr		FedEx		<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD																
Relinquished by:		Date:	Time:	Received by:		Notes:														
Kaitlyn Bahr		6/29/16	1200	FedEx																
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler ID														
FedEx		6/30/16	0930			Cooler Temp														
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		QC Package: (Check One Box Below)														
BB		7/1/16	0825	BB		<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist														
						<input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV														
						<input type="checkbox"/> Level IV SW846/CLP														
						<input type="checkbox"/> Other														
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																				

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Environmental

Customer Information				Project Information				ALS Project Manager: ALS Work Order #: 1607017											
Parameter/Method Request for Analysis																			
Purchase Order		Project Name	Elkem Carbide	A	TCL SVOCs														
Work Order		Project Number	XQ025-14-0002-019-017	B	RCRA Metals														
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs														
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture														
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)														
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	F	PCBs														
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Fax	(816) 410-1748	Fax	(816) 410-1748	H															
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals														
				J	TCLP SVOCs														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
51	B-60 (7-8 ft)	6/28/16	1454	soil			X												
52	Rinsate	↓	1645	water					X		X		X						
3																			
4 (53)	TRIP BLANK			SOIL															
5 (54)	TRIP BLANK			WATER															
6																			
7																			
8																			
9																			
10																			
Sampler(s) Please Print & Sign Kaitlyn Bahr				Shipment Method FedEx		Turnaround Time in Business Days (BD) <input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD				Results Due Date:									
Relinquished by: Kaitlyn Bahr		Date: 6/29/16	Time: 1200	Received by: FedEx		Notes:													
Relinquished by: FedEx		Date: 6/30/16	Time: 0926	Received by (Laboratory):		Cooler ID	Cooler Temp	QC Package: (Check One Box Below)											
Logged by (Laboratory): Ker		Date: 7/1/16	Time: 0825	Checked by (Laboratory):				<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other											
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																			

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Sample Receipt Checklist

Client Name: **TETRATECH - MO**

Date/Time Received: **30-Jun-16 09:30**

Work Order: **1607017**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

01-Jul-16
Date

Reviewed by: Tom Bramish
eSignature

01-Jul-16
Date

Matrices: **Soil & Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☒ No ☐ Not Present ☐

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Container/Temp Blank temperature in compliance? Yes ☒ No ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 3.0, 2.4, 4.8 C SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 7/1/2016 9:13:44 AM

Water - VOA vials have zero headspace? Yes ☒ No ☐ No VOA vials submitted ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ N/A ☐

pH adjusted? Yes ☐ No ☒ N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



25-Jul-2016

Rob Monnig
Tetra Tech
415 Oak Street
Kansas City, MO 64106

Re: **Elkem Carbide X9025-14-0002-019-017**

Work Order: **16061792**

Dear Rob,

ALS Environmental received 45 samples on 30-Jun-2016 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is ZZ.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Joseph Ribar".

Electronically approved by: Joseph Ribar

Joseph Ribar
Project Manager



Certificate No: IA: 403

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061792

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
16061792-01	DU-01	Soil		6/28/2016 12:09	6/30/2016 09:30	<input type="checkbox"/>
16061792-02	DU-01-DUP	Soil		6/28/2016 12:09	6/30/2016 09:30	<input type="checkbox"/>
16061792-03	DU-01-TRIP	Soil		6/28/2016 12:09	6/30/2016 09:30	<input type="checkbox"/>
16061792-04	DU-02	Soil		6/28/2016 11:30	6/30/2016 09:30	<input type="checkbox"/>
16061792-05	DU-02-DUP A	Soil		6/28/2016 11:30	6/30/2016 09:30	<input type="checkbox"/>
16061792-06	DU-02-TRIP	Soil		6/28/2016 11:30	6/30/2016 09:30	<input type="checkbox"/>
16061792-07	DU-03	Soil		6/28/2016 14:12	6/30/2016 09:30	<input type="checkbox"/>
16061792-08	DU-03-DUP	Soil		6/28/2016 14:12	6/30/2016 09:30	<input type="checkbox"/>
16061792-09	DU-03-TRIP	Soil		6/28/2016 14:12	6/30/2016 09:30	<input type="checkbox"/>
16061792-10	DU-04	Soil		6/28/2016 13:40	6/30/2016 09:30	<input type="checkbox"/>
16061792-11	DU-04-DUP	Soil		6/28/2016 13:40	6/30/2016 09:30	<input type="checkbox"/>
16061792-12	DU-04-TRIP	Soil		6/28/2016 13:40	6/30/2016 09:30	<input type="checkbox"/>
16061792-13	DU-05	Soil		6/28/2016 10:47	6/30/2016 09:30	<input type="checkbox"/>
16061792-14	DU-05-DUP	Soil		6/28/2016 10:47	6/30/2016 09:30	<input type="checkbox"/>
16061792-15	DU-05-TRIP	Soil		6/28/2016 10:47	6/30/2016 09:30	<input type="checkbox"/>
16061792-16	DU-06	Soil		6/28/2016 09:35	6/30/2016 09:30	<input type="checkbox"/>
16061792-17	DU-06-DUP	Soil		6/28/2016 09:35	6/30/2016 09:30	<input type="checkbox"/>
16061792-18	DU-06-TRIP	Soil		6/28/2016 09:35	6/30/2016 09:30	<input type="checkbox"/>
16061792-19	DU-07	Soil		6/28/2016 14:50	6/30/2016 09:30	<input type="checkbox"/>
16061792-20	DU-07-DUP	Soil		6/28/2016 14:50	6/30/2016 09:30	<input type="checkbox"/>
16061792-21	DU-07-TRIP	Soil		6/28/2016 14:50	6/30/2016 09:30	<input type="checkbox"/>
16061792-22	DU-08	Soil		6/29/2016 10:10	6/30/2016 09:30	<input type="checkbox"/>
16061792-23	DU-08-DUP	Soil		6/29/2016 10:10	6/30/2016 09:30	<input type="checkbox"/>
16061792-24	DU-08-TRIP	Soil		6/29/2016 10:10	6/30/2016 09:30	<input type="checkbox"/>
16061792-25	DU-09	Soil		6/28/2016 15:56	6/30/2016 09:30	<input type="checkbox"/>
16061792-26	DU-09-DUP	Soil		6/28/2016 15:56	6/30/2016 09:30	<input type="checkbox"/>
16061792-27	DU-09-TRIP	Soil		6/28/2016 15:56	6/30/2016 09:30	<input type="checkbox"/>
16061792-28	DU-10	Soil		6/28/2016 15:25	6/30/2016 09:30	<input type="checkbox"/>
16061792-29	DU-10-DUP	Soil		6/28/2016 15:25	6/30/2016 09:30	<input type="checkbox"/>
16061792-30	DU-10-TRIP A	Soil		6/28/2016 15:25	6/30/2016 09:30	<input type="checkbox"/>
16061792-31	DU-11	Soil		6/28/2016 10:15	6/30/2016 09:30	<input type="checkbox"/>
16061792-32	DU-11-DUP A	Soil		6/28/2016 10:15	6/30/2016 09:30	<input type="checkbox"/>
16061792-33	DU-11-TRIP	Soil		6/28/2016 10:15	6/30/2016 09:30	<input type="checkbox"/>
16061792-34	DU-12	Soil		6/28/2016 08:45	6/30/2016 09:30	<input type="checkbox"/>
16061792-35	DU-12-DUP	Soil		6/28/2016 08:45	6/30/2016 09:30	<input type="checkbox"/>
16061792-36	DU-12-TRIP	Soil		6/28/2016 08:45	6/30/2016 09:30	<input type="checkbox"/>
16061792-37	SED-67	Sediment		6/28/2016 11:15	6/30/2016 09:30	<input type="checkbox"/>
16061792-38	DU-02-DUP B	Soil		6/28/2016 11:30	6/30/2016 09:30	<input type="checkbox"/>
16061792-39	DU-02-DUP C	Soil		6/28/2016 11:30	6/30/2016 09:30	<input type="checkbox"/>

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061792

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
16061792-40	DU-10-TRIP B	Soil		6/28/2016 15:25	6/30/2016 09:30	<input type="checkbox"/>
16061792-41	DU-10-TRIP C	Soil		6/28/2016 15:25	6/30/2016 09:30	<input type="checkbox"/>
16061792-42	DU-11-DUP B	Soil		6/28/2016 10:15	6/30/2016 09:30	<input type="checkbox"/>
16061792-43	DU-11-DUP C	Soil		6/28/2016 10:15	6/30/2016 09:30	<input type="checkbox"/>
16061792-44	DU-06 B	Soil		6/28/2016 09:35	6/30/2016 09:30	<input type="checkbox"/>
16061792-45	DU-06 C	Soil		6/28/2016 09:35	6/30/2016 09:30	<input type="checkbox"/>

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061792

Case Narrative

Samples for the above noted Work Order were received on 06/30/2016. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

No other deviations or anomalies were noted.

Extractable Organics:

Samples were analyzed outside of hold time due to the amount of time they needed to dry prior to ISM.

Batch 88485, Method 8270, Sample 16061792-21A: Low surrogate recovery due to sample matrix interference.

Batch 88486, Method 8270, Sample 16061792-26A, -32A, and -33A: Low surrogate recovery due to sample matrix interference.

Batch 88485, Method 8270, Sample 16061792-21A MS: The MS and MSD recoveries were outside control limits due to matrix interference.

Batch 88485, Method 8270, Sample 16061792-21A MSD: The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: See QC batch report

Batch 88486, Method 8270, Sample 16061792-26A MS: The MS recovery was outside control limits due to matrix interference

Batch 88486, Method 8270, Sample 16061792-27A DUP: The RPD between the sample and its duplicate was out of control for multiple analytes due to matrix and dilution. Low surrogate

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061792

Case Narrative

recovery due to sample matrix effects.

Batch 88541, Method 8270, Sample SLCSS1-88541: The LCS recovery was above the upper control limit. All the sample results in the batch were non-detect. No qualification is necessary for this analyte. Benzaldehyde and Hexachlorocyclopentadiene

No other deviations or anomalies were noted.

Metals:

Batch 88567, Method 6010, Sample 16061792-01BMSD: The MSD recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: As,Se

Batch 88567, Method 6010, Sample 16061792-01BMSD: The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Ba,Cr

Batch 88567, Method 6010, Sample 16061792-01BMSD: The MSD recovery was below the lower control limit. The corresponding result in the parent sample may be biased low for this analyte: Cd

Batch 88597, Method 7471, Sample 16061792-21BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Mercury

Batch 88589, Method 6010, Sample 16061792-21BMS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Cd

Batch 88589, Method 6010, Sample 16061792-21BMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba,Cr,Pb

Batch 88589, Method 6010, Sample 16061792-21BMSD: The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Cu,Pb

Batch 88871, Method 6010, Sample 1607946-01AMS: The MS recovery was outside of the control limit; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required for this analyte: Ba,Cr

No other deviations or anomalies were noted.

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061792

Case Narrative

Wet Chemistry:

Samples were analyzed outside of hold time due to the amount of time they needed to dry prior to ISM.

No other deviations or anomalies were noted.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-01
Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792
Lab ID: 16061792-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.040		0.0025	0.015	mg/Kg-dry	1	7/15/2016 11:55
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	7.4		0.088	0.34	mg/Kg-dry	1	7/14/2016 21:42
Barium	84		0.14	0.34	mg/Kg-dry	1	7/14/2016 21:42
Cadmium	20		0.033	0.68	mg/Kg-dry	1	7/14/2016 21:42
Chromium	29		0.019	0.34	mg/Kg-dry	1	7/14/2016 21:42
Lead	540		0.072	0.34	mg/Kg-dry	1	7/14/2016 21:42
Selenium	0.57	J	0.19	0.68	mg/Kg-dry	1	7/14/2016 21:42
Silver	0.48		0.042	0.34	mg/Kg-dry	1	7/14/2016 21:42
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/13/16		Analyst: RM
1,1'-Biphenyl	U	H	54	330	µg/Kg-dry	10	7/13/2016 23:41
2,4,5-Trichlorophenol	U	H	91	330	µg/Kg-dry	10	7/13/2016 23:41
2,4,6-Trichlorophenol	U	H	89	330	µg/Kg-dry	10	7/13/2016 23:41
2,4-Dichlorophenol	U	H	70	330	µg/Kg-dry	10	7/13/2016 23:41
2,4-Dimethylphenol	U	H	68	330	µg/Kg-dry	10	7/13/2016 23:41
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/13/2016 23:41
2,4-Dinitrotoluene	U	H	87	330	µg/Kg-dry	10	7/13/2016 23:41
2,6-Dinitrotoluene	U	H	55	330	µg/Kg-dry	10	7/13/2016 23:41
2-Chloronaphthalene	U	H	47	67	µg/Kg-dry	10	7/13/2016 23:41
2-Chlorophenol	U	H	110	330	µg/Kg-dry	10	7/13/2016 23:41
2-Methylnaphthalene	150	H	34	67	µg/Kg-dry	10	7/13/2016 23:41
2-Methylphenol	U	H	90	330	µg/Kg-dry	10	7/13/2016 23:41
2-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/13/2016 23:41
2-Nitrophenol	U	H	95	330	µg/Kg-dry	10	7/13/2016 23:41
3&4-Methylphenol	U	H	67	330	µg/Kg-dry	10	7/13/2016 23:41
3,3'-Dichlorobenzidine	U	H	50	1,700	µg/Kg-dry	10	7/13/2016 23:41
3-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/13/2016 23:41
4,6-Dinitro-2-methylphenol	U	H	84	330	µg/Kg-dry	10	7/13/2016 23:41
4-Bromophenyl phenyl ether	U	H	90	330	µg/Kg-dry	10	7/13/2016 23:41
4-Chloro-3-methylphenol	U	H	95	330	µg/Kg-dry	10	7/13/2016 23:41
4-Chloroaniline	U	H	53	670	µg/Kg-dry	10	7/13/2016 23:41
4-Chlorophenyl phenyl ether	U	H	92	330	µg/Kg-dry	10	7/13/2016 23:41
4-Nitroaniline	U	H	520	1,700	µg/Kg-dry	10	7/13/2016 23:41
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/13/2016 23:41
Acenaphthene	840	H	48	67	µg/Kg-dry	10	7/13/2016 23:41
Acenaphthylene	U	H	58	67	µg/Kg-dry	10	7/13/2016 23:41
Acetophenone	U	H	52	330	µg/Kg-dry	10	7/13/2016 23:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-01
Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792
Lab ID: 16061792-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	2,200	H	47	67	µg/Kg-dry	10	7/13/2016 23:41
Atrazine	U	H	53	330	µg/Kg-dry	10	7/13/2016 23:41
Benzaldehyde	U	H	510	670	µg/Kg-dry	10	7/13/2016 23:41
Benzo(a)anthracene	8,400	H	58	67	µg/Kg-dry	10	7/13/2016 23:41
Benzo(a)pyrene	8,100	H	41	67	µg/Kg-dry	10	7/13/2016 23:41
Benzo(b)fluoranthene	11,000	H	50	67	µg/Kg-dry	10	7/13/2016 23:41
Benzo(g,h,i)perylene	6,500	H	51	67	µg/Kg-dry	10	7/13/2016 23:41
Benzo(k)fluoranthene	3,600	H	51	67	µg/Kg-dry	10	7/13/2016 23:41
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/13/2016 23:41
Bis(2-chloroethyl)ether	U	H	94	330	µg/Kg-dry	10	7/13/2016 23:41
Bis(2-chloroisopropyl)ether	U	H	78	330	µg/Kg-dry	10	7/13/2016 23:41
Bis(2-ethylhexyl)phthalate	U	H	58	330	µg/Kg-dry	10	7/13/2016 23:41
Butyl benzyl phthalate	U	H	56	330	µg/Kg-dry	10	7/13/2016 23:41
Caprolactam	U	H	110	330	µg/Kg-dry	10	7/13/2016 23:41
Carbazole	1,500	H	36	330	µg/Kg-dry	10	7/13/2016 23:41
Chrysene	9,900	H	54	67	µg/Kg-dry	10	7/13/2016 23:41
Dibenzo(a,h)anthracene	1,800	H	36	67	µg/Kg-dry	10	7/13/2016 23:41
Dibenzofuran	380	H	49	330	µg/Kg-dry	10	7/13/2016 23:41
Diethyl phthalate	U	H	51	330	µg/Kg-dry	10	7/13/2016 23:41
Dimethyl phthalate	U	H	65	330	µg/Kg-dry	10	7/13/2016 23:41
Di-n-butyl phthalate	U	H	61	330	µg/Kg-dry	10	7/13/2016 23:41
Di-n-octyl phthalate	U	H	64	330	µg/Kg-dry	10	7/13/2016 23:41
Fluoranthene	17,000	H	32	67	µg/Kg-dry	10	7/13/2016 23:41
Fluorene	760	H	48	67	µg/Kg-dry	10	7/13/2016 23:41
Hexachlorobenzene	U	H	97	330	µg/Kg-dry	10	7/13/2016 23:41
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/13/2016 23:41
Hexachlorocyclopentadiene	370	H	110	330	µg/Kg-dry	10	7/13/2016 23:41
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/13/2016 23:41
Indeno(1,2,3-cd)pyrene	6,500	H	46	67	µg/Kg-dry	10	7/13/2016 23:41
Isophorone	U	H	65	1,700	µg/Kg-dry	10	7/13/2016 23:41
Naphthalene	310	H	43	67	µg/Kg-dry	10	7/13/2016 23:41
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/13/2016 23:41
N-Nitrosodi-n-propylamine	U	H	55	330	µg/Kg-dry	10	7/13/2016 23:41
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/13/2016 23:41
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/13/2016 23:41
Phenanthrene	11,000	H	31	67	µg/Kg-dry	10	7/13/2016 23:41
Phenol	U	H	83	330	µg/Kg-dry	10	7/13/2016 23:41
Pyrene	15,000	H	12	67	µg/Kg-dry	10	7/13/2016 23:41
Surr: 2,4,6-Tribromophenol	59.0			34-140	%REC	10	7/13/2016 23:41
Surr: 2-Fluorobiphenyl	63.4			12-100	%REC	10	7/13/2016 23:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: DU-01

Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792

Lab ID: 16061792-01

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	57.8			33-117	%REC	10	7/13/2016 23:41
Surr: 4-Terphenyl-d14	68.0			25-137	%REC	10	7/13/2016 23:41
Surr: Nitrobenzene-d5	47.8			37-107	%REC	10	7/13/2016 23:41
Surr: Phenol-d6	62.4			40-106	%REC	10	7/13/2016 23:41
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.9	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-01-DUP
Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792
Lab ID: 16061792-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.052		0.0026	0.016	mg/Kg-dry	1	7/15/2016 12:02
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	7.6		0.084	0.32	mg/Kg-dry	1	7/14/2016 22:10
Barium	90		0.13	0.32	mg/Kg-dry	1	7/14/2016 22:10
Cadmium	40		0.031	0.65	mg/Kg-dry	1	7/14/2016 22:10
Chromium	25		0.018	0.32	mg/Kg-dry	1	7/14/2016 22:10
Lead	470		0.069	0.32	mg/Kg-dry	1	7/14/2016 22:10
Selenium	0.60	J	0.18	0.65	mg/Kg-dry	1	7/14/2016 22:10
Silver	0.54		0.040	0.32	mg/Kg-dry	1	7/14/2016 22:10
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/13/16		Analyst: RM
1,1'-Biphenyl	U	H	110	680	µg/Kg-dry	10	7/14/2016 00:02
2,4,5-Trichlorophenol	U	H	190	680	µg/Kg-dry	10	7/14/2016 00:02
2,4,6-Trichlorophenol	U	H	180	680	µg/Kg-dry	10	7/14/2016 00:02
2,4-Dichlorophenol	U	H	140	680	µg/Kg-dry	10	7/14/2016 00:02
2,4-Dimethylphenol	U	H	140	680	µg/Kg-dry	10	7/14/2016 00:02
2,4-Dinitrophenol	U	H	370	680	µg/Kg-dry	10	7/14/2016 00:02
2,4-Dinitrotoluene	U	H	180	680	µg/Kg-dry	10	7/14/2016 00:02
2,6-Dinitrotoluene	U	H	110	680	µg/Kg-dry	10	7/14/2016 00:02
2-Chloronaphthalene	U	H	95	140	µg/Kg-dry	10	7/14/2016 00:02
2-Chlorophenol	U	H	210	680	µg/Kg-dry	10	7/14/2016 00:02
2-Methylnaphthalene	89	JH	69	140	µg/Kg-dry	10	7/14/2016 00:02
2-Methylphenol	U	H	180	680	µg/Kg-dry	10	7/14/2016 00:02
2-Nitroaniline	U	H	160	680	µg/Kg-dry	10	7/14/2016 00:02
2-Nitrophenol	U	H	190	680	µg/Kg-dry	10	7/14/2016 00:02
3&4-Methylphenol	U	H	140	680	µg/Kg-dry	10	7/14/2016 00:02
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 00:02
3-Nitroaniline	U	H	160	680	µg/Kg-dry	10	7/14/2016 00:02
4,6-Dinitro-2-methylphenol	U	H	170	680	µg/Kg-dry	10	7/14/2016 00:02
4-Bromophenyl phenyl ether	U	H	180	680	µg/Kg-dry	10	7/14/2016 00:02
4-Chloro-3-methylphenol	U	H	190	680	µg/Kg-dry	10	7/14/2016 00:02
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 00:02
4-Chlorophenyl phenyl ether	U	H	190	680	µg/Kg-dry	10	7/14/2016 00:02
4-Nitroaniline	U	H	1,100	3,400	µg/Kg-dry	10	7/14/2016 00:02
4-Nitrophenol	U	H	610	680	µg/Kg-dry	10	7/14/2016 00:02
Acenaphthene	750	H	99	140	µg/Kg-dry	10	7/14/2016 00:02
Acenaphthylene	U	H	120	140	µg/Kg-dry	10	7/14/2016 00:02
Acetophenone	U	H	110	680	µg/Kg-dry	10	7/14/2016 00:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-01-DUP
Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792
Lab ID: 16061792-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	2,200	H	96	140	µg/Kg-dry	10	7/14/2016 00:02
Atrazine	U	H	110	680	µg/Kg-dry	10	7/14/2016 00:02
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 00:02
Benzo(a)anthracene	8,800	H	120	140	µg/Kg-dry	10	7/14/2016 00:02
Benzo(a)pyrene	8,700	H	84	140	µg/Kg-dry	10	7/14/2016 00:02
Benzo(b)fluoranthene	12,000	H	100	140	µg/Kg-dry	10	7/14/2016 00:02
Benzo(g,h,i)perylene	7,000	H	100	140	µg/Kg-dry	10	7/14/2016 00:02
Benzo(k)fluoranthene	4,000	H	100	140	µg/Kg-dry	10	7/14/2016 00:02
Bis(2-chloroethoxy)methane	U	H	65	680	µg/Kg-dry	10	7/14/2016 00:02
Bis(2-chloroethyl)ether	U	H	190	680	µg/Kg-dry	10	7/14/2016 00:02
Bis(2-chloroisopropyl)ether	U	H	160	680	µg/Kg-dry	10	7/14/2016 00:02
Bis(2-ethylhexyl)phthalate	U	H	120	680	µg/Kg-dry	10	7/14/2016 00:02
Butyl benzyl phthalate	U	H	120	680	µg/Kg-dry	10	7/14/2016 00:02
Caprolactam	U	H	230	680	µg/Kg-dry	10	7/14/2016 00:02
Carbazole	1,500	H	74	680	µg/Kg-dry	10	7/14/2016 00:02
Chrysene	9,900	H	110	140	µg/Kg-dry	10	7/14/2016 00:02
Dibenzo(a,h)anthracene	1,800	H	74	140	µg/Kg-dry	10	7/14/2016 00:02
Dibenzofuran	U	H	100	680	µg/Kg-dry	10	7/14/2016 00:02
Diethyl phthalate	U	H	100	680	µg/Kg-dry	10	7/14/2016 00:02
Dimethyl phthalate	U	H	130	680	µg/Kg-dry	10	7/14/2016 00:02
Di-n-butyl phthalate	U	H	120	680	µg/Kg-dry	10	7/14/2016 00:02
Di-n-octyl phthalate	U	H	130	680	µg/Kg-dry	10	7/14/2016 00:02
Fluoranthene	19,000	H	65	140	µg/Kg-dry	10	7/14/2016 00:02
Fluorene	640	H	99	140	µg/Kg-dry	10	7/14/2016 00:02
Hexachlorobenzene	U	H	200	680	µg/Kg-dry	10	7/14/2016 00:02
Hexachlorobutadiene	U	H	370	680	µg/Kg-dry	10	7/14/2016 00:02
Hexachlorocyclopentadiene	U	H	230	680	µg/Kg-dry	10	7/14/2016 00:02
Hexachloroethane	U	H	280	680	µg/Kg-dry	10	7/14/2016 00:02
Indeno(1,2,3-cd)pyrene	7,500	H	95	140	µg/Kg-dry	10	7/14/2016 00:02
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 00:02
Naphthalene	160	H	87	140	µg/Kg-dry	10	7/14/2016 00:02
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 00:02
N-Nitrosodi-n-propylamine	U	H	110	680	µg/Kg-dry	10	7/14/2016 00:02
N-Nitrosodiphenylamine	U	H	65	680	µg/Kg-dry	10	7/14/2016 00:02
Pentachlorophenol	U	H	250	680	µg/Kg-dry	10	7/14/2016 00:02
Phenanthrene	10,000	H	63	140	µg/Kg-dry	10	7/14/2016 00:02
Phenol	U	H	170	680	µg/Kg-dry	10	7/14/2016 00:02
Pyrene	16,000	H	25	140	µg/Kg-dry	10	7/14/2016 00:02
Surr: 2,4,6-Tribromophenol	56.4			34-140	%REC	10	7/14/2016 00:02
Surr: 2-Fluorobiphenyl	66.8			12-100	%REC	10	7/14/2016 00:02

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-01-DUP**Lab ID:** 16061792-02**Collection Date:** 6/28/2016 12:09 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	69.6			33-117	%REC	10	7/14/2016 00:02
Surr: 4-Terphenyl-d14	64.8			25-137	%REC	10	7/14/2016 00:02
Surr: Nitrobenzene-d5	55.6			37-107	%REC	10	7/14/2016 00:02
Surr: Phenol-d6	64.0			40-106	%REC	10	7/14/2016 00:02
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	2.1	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-01-TRIP
Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792
Lab ID: 16061792-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.038		0.0026	0.016	mg/Kg-dry	1	7/15/2016 12:04
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	4.9		0.54	2.1	mg/Kg-dry	5	7/18/2016 14:52
Barium	98		0.17	0.42	mg/Kg-dry	1	7/15/2016 12:07
Cadmium	17		0.040	0.84	mg/Kg-dry	1	7/15/2016 12:07
Chromium	29		0.12	2.1	mg/Kg-dry	5	7/18/2016 14:52
Lead	470		0.44	2.1	mg/Kg-dry	5	7/18/2016 14:52
Selenium	U		1.2	4.2	mg/Kg-dry	5	7/18/2016 14:52
Silver	0.69		0.052	0.42	mg/Kg-dry	1	7/15/2016 12:07
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/13/16		Analyst: RM
1,1'-Biphenyl	U	H	55	340	µg/Kg-dry	10	7/14/2016 00:22
2,4,5-Trichlorophenol	U	H	93	340	µg/Kg-dry	10	7/14/2016 00:22
2,4,6-Trichlorophenol	U	H	91	340	µg/Kg-dry	10	7/14/2016 00:22
2,4-Dichlorophenol	U	H	72	340	µg/Kg-dry	10	7/14/2016 00:22
2,4-Dimethylphenol	U	H	70	340	µg/Kg-dry	10	7/14/2016 00:22
2,4-Dinitrophenol	U	H	180	340	µg/Kg-dry	10	7/14/2016 00:22
2,4-Dinitrotoluene	U	H	89	340	µg/Kg-dry	10	7/14/2016 00:22
2,6-Dinitrotoluene	U	H	56	340	µg/Kg-dry	10	7/14/2016 00:22
2-Chloronaphthalene	U	H	48	68	µg/Kg-dry	10	7/14/2016 00:22
2-Chlorophenol	U	H	110	340	µg/Kg-dry	10	7/14/2016 00:22
2-Methylnaphthalene	180	H	35	68	µg/Kg-dry	10	7/14/2016 00:22
2-Methylphenol	U	H	92	340	µg/Kg-dry	10	7/14/2016 00:22
2-Nitroaniline	U	H	78	340	µg/Kg-dry	10	7/14/2016 00:22
2-Nitrophenol	U	H	97	340	µg/Kg-dry	10	7/14/2016 00:22
3&4-Methylphenol	U	H	69	340	µg/Kg-dry	10	7/14/2016 00:22
3,3'-Dichlorobenzidine	U	H	51	1,700	µg/Kg-dry	10	7/14/2016 00:22
3-Nitroaniline	U	H	78	340	µg/Kg-dry	10	7/14/2016 00:22
4,6-Dinitro-2-methylphenol	U	H	86	340	µg/Kg-dry	10	7/14/2016 00:22
4-Bromophenyl phenyl ether	U	H	92	340	µg/Kg-dry	10	7/14/2016 00:22
4-Chloro-3-methylphenol	U	H	97	340	µg/Kg-dry	10	7/14/2016 00:22
4-Chloroaniline	U	H	54	690	µg/Kg-dry	10	7/14/2016 00:22
4-Chlorophenyl phenyl ether	U	H	94	340	µg/Kg-dry	10	7/14/2016 00:22
4-Nitroaniline	U	H	530	1,700	µg/Kg-dry	10	7/14/2016 00:22
4-Nitrophenol	U	H	310	340	µg/Kg-dry	10	7/14/2016 00:22
Acenaphthene	1,200	H	49	68	µg/Kg-dry	10	7/14/2016 00:22
Acenaphthylene	82	H	59	68	µg/Kg-dry	10	7/14/2016 00:22
Acetophenone	U	H	53	340	µg/Kg-dry	10	7/14/2016 00:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-01-TRIP
Collection Date: 6/28/2016 12:09 PM

Work Order: 16061792
Lab ID: 16061792-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	3,100	H	48	68	µg/Kg-dry	10	7/14/2016 00:22
Atrazine	U	H	54	340	µg/Kg-dry	10	7/14/2016 00:22
Benzaldehyde	U	H	520	690	µg/Kg-dry	10	7/14/2016 00:22
Benzo(a)anthracene	10,000	H	59	68	µg/Kg-dry	10	7/14/2016 00:22
Benzo(a)pyrene	9,800	H	42	68	µg/Kg-dry	10	7/14/2016 00:22
Benzo(b)fluoranthene	13,000	H	51	68	µg/Kg-dry	10	7/14/2016 00:22
Benzo(g,h,i)perylene	8,100	H	52	68	µg/Kg-dry	10	7/14/2016 00:22
Benzo(k)fluoranthene	4,900	H	52	68	µg/Kg-dry	10	7/14/2016 00:22
Bis(2-chloroethoxy)methane	U	H	33	340	µg/Kg-dry	10	7/14/2016 00:22
Bis(2-chloroethyl)ether	U	H	97	340	µg/Kg-dry	10	7/14/2016 00:22
Bis(2-chloroisopropyl)ether	U	H	80	340	µg/Kg-dry	10	7/14/2016 00:22
Bis(2-ethylhexyl)phthalate	U	H	59	340	µg/Kg-dry	10	7/14/2016 00:22
Butyl benzyl phthalate	U	H	58	340	µg/Kg-dry	10	7/14/2016 00:22
Caprolactam	U	H	120	340	µg/Kg-dry	10	7/14/2016 00:22
Carbazole	2,100	H	37	340	µg/Kg-dry	10	7/14/2016 00:22
Chrysene	11,000	H	55	68	µg/Kg-dry	10	7/14/2016 00:22
Dibenzo(a,h)anthracene	2,200	H	37	68	µg/Kg-dry	10	7/14/2016 00:22
Dibenzofuran	490	H	50	340	µg/Kg-dry	10	7/14/2016 00:22
Diethyl phthalate	U	H	52	340	µg/Kg-dry	10	7/14/2016 00:22
Dimethyl phthalate	U	H	67	340	µg/Kg-dry	10	7/14/2016 00:22
Di-n-butyl phthalate	U	H	62	340	µg/Kg-dry	10	7/14/2016 00:22
Di-n-octyl phthalate	U	H	66	340	µg/Kg-dry	10	7/14/2016 00:22
Fluoranthene	20,000	H	160	340	µg/Kg-dry	50	7/15/2016 07:44
Fluorene	1,000	H	50	68	µg/Kg-dry	10	7/14/2016 00:22
Hexachlorobenzene	U	H	99	340	µg/Kg-dry	10	7/14/2016 00:22
Hexachlorobutadiene	U	H	190	340	µg/Kg-dry	10	7/14/2016 00:22
Hexachlorocyclopentadiene	U	H	120	340	µg/Kg-dry	10	7/14/2016 00:22
Hexachloroethane	U	H	140	340	µg/Kg-dry	10	7/14/2016 00:22
Indeno(1,2,3-cd)pyrene	8,400	H	47	68	µg/Kg-dry	10	7/14/2016 00:22
Isophorone	U	H	67	1,700	µg/Kg-dry	10	7/14/2016 00:22
Naphthalene	250	H	44	68	µg/Kg-dry	10	7/14/2016 00:22
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/14/2016 00:22
N-Nitrosodi-n-propylamine	U	H	56	340	µg/Kg-dry	10	7/14/2016 00:22
N-Nitrosodiphenylamine	U	H	33	340	µg/Kg-dry	10	7/14/2016 00:22
Pentachlorophenol	U	H	130	340	µg/Kg-dry	10	7/14/2016 00:22
Phenanthrene	13,000	H	32	68	µg/Kg-dry	10	7/14/2016 00:22
Phenol	U	H	85	340	µg/Kg-dry	10	7/14/2016 00:22
Pyrene	18,000	H	12	68	µg/Kg-dry	10	7/14/2016 00:22
Surr: 2,4,6-Tribromophenol	67.2			34-140	%REC	10	7/14/2016 00:22
Surr: 2-Fluorobiphenyl	73.6			12-100	%REC	10	7/14/2016 00:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-01-TRIP**Lab ID:** 16061792-03**Collection Date:** 6/28/2016 12:09 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	71.0			33-117	%REC	10	7/14/2016 00:22
Surr: 4-Terphenyl-d14	71.6			25-137	%REC	10	7/14/2016 00:22
Surr: Nitrobenzene-d5	59.2			37-107	%REC	10	7/14/2016 00:22
Surr: Phenol-d6	65.2			40-106	%REC	10	7/14/2016 00:22
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	2.2	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.022		0.0027	0.016	mg/Kg-dry	1	7/15/2016 12:06
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	9.4		0.56	2.1	mg/Kg-dry	5	7/18/2016 14:58
Barium	93		0.17	0.43	mg/Kg-dry	1	7/15/2016 12:13
Cadmium	1.7		0.041	0.86	mg/Kg-dry	1	7/15/2016 12:13
Chromium	15		0.12	2.1	mg/Kg-dry	5	7/18/2016 14:58
Lead	56		0.46	2.1	mg/Kg-dry	5	7/18/2016 14:58
Selenium	1.5	J	1.2	4.3	mg/Kg-dry	5	7/18/2016 14:58
Silver	0.44		0.053	0.43	mg/Kg-dry	1	7/15/2016 12:13
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/13/16		Analyst: RM
1,1'-Biphenyl	U	H	60	360	µg/Kg-dry	10	7/14/2016 00:43
2,4,5-Trichlorophenol	U	H	100	360	µg/Kg-dry	10	7/14/2016 00:43
2,4,6-Trichlorophenol	U	H	98	360	µg/Kg-dry	10	7/14/2016 00:43
2,4-Dichlorophenol	U	H	77	360	µg/Kg-dry	10	7/14/2016 00:43
2,4-Dimethylphenol	U	H	75	360	µg/Kg-dry	10	7/14/2016 00:43
2,4-Dinitrophenol	U	H	200	360	µg/Kg-dry	10	7/14/2016 00:43
2,4-Dinitrotoluene	U	H	96	360	µg/Kg-dry	10	7/14/2016 00:43
2,6-Dinitrotoluene	U	H	61	360	µg/Kg-dry	10	7/14/2016 00:43
2-Chloronaphthalene	U	H	51	74	µg/Kg-dry	10	7/14/2016 00:43
2-Chlorophenol	U	H	120	360	µg/Kg-dry	10	7/14/2016 00:43
2-Methylnaphthalene	51	JH	37	74	µg/Kg-dry	10	7/14/2016 00:43
2-Methylphenol	U	H	99	360	µg/Kg-dry	10	7/14/2016 00:43
2-Nitroaniline	U	H	84	360	µg/Kg-dry	10	7/14/2016 00:43
2-Nitrophenol	U	H	100	360	µg/Kg-dry	10	7/14/2016 00:43
3&4-Methylphenol	U	H	74	360	µg/Kg-dry	10	7/14/2016 00:43
3,3'-Dichlorobenzidine	U	H	55	1,800	µg/Kg-dry	10	7/14/2016 00:43
3-Nitroaniline	U	H	84	360	µg/Kg-dry	10	7/14/2016 00:43
4,6-Dinitro-2-methylphenol	U	H	92	360	µg/Kg-dry	10	7/14/2016 00:43
4-Bromophenyl phenyl ether	U	H	99	360	µg/Kg-dry	10	7/14/2016 00:43
4-Chloro-3-methylphenol	U	H	100	360	µg/Kg-dry	10	7/14/2016 00:43
4-Chloroaniline	U	H	58	740	µg/Kg-dry	10	7/14/2016 00:43
4-Chlorophenyl phenyl ether	U	H	100	360	µg/Kg-dry	10	7/14/2016 00:43
4-Nitroaniline	U	H	570	1,800	µg/Kg-dry	10	7/14/2016 00:43
4-Nitrophenol	U	H	330	360	µg/Kg-dry	10	7/14/2016 00:43
Acenaphthene	370	H	53	74	µg/Kg-dry	10	7/14/2016 00:43
Acenaphthylene	U	H	64	74	µg/Kg-dry	10	7/14/2016 00:43
Acetophenone	U	H	58	360	µg/Kg-dry	10	7/14/2016 00:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,100	H	52	74	µg/Kg-dry	10	7/14/2016 00:43
Atrazine	U	H	58	360	µg/Kg-dry	10	7/14/2016 00:43
Benzaldehyde	U	H	560	740	µg/Kg-dry	10	7/14/2016 00:43
Benzo(a)anthracene	4,600	H	64	74	µg/Kg-dry	10	7/14/2016 00:43
Benzo(a)pyrene	4,900	H	45	74	µg/Kg-dry	10	7/14/2016 00:43
Benzo(b)fluoranthene	6,800	H	55	74	µg/Kg-dry	10	7/14/2016 00:43
Benzo(g,h,i)perylene	4,000	H	56	74	µg/Kg-dry	10	7/14/2016 00:43
Benzo(k)fluoranthene	2,300	H	56	74	µg/Kg-dry	10	7/14/2016 00:43
Bis(2-chloroethoxy)methane	U	H	35	360	µg/Kg-dry	10	7/14/2016 00:43
Bis(2-chloroethyl)ether	U	H	100	360	µg/Kg-dry	10	7/14/2016 00:43
Bis(2-chloroisopropyl)ether	U	H	86	360	µg/Kg-dry	10	7/14/2016 00:43
Bis(2-ethylhexyl)phthalate	U	H	64	360	µg/Kg-dry	10	7/14/2016 00:43
Butyl benzyl phthalate	U	H	62	360	µg/Kg-dry	10	7/14/2016 00:43
Caprolactam	U	H	130	360	µg/Kg-dry	10	7/14/2016 00:43
Carbazole	710	H	40	360	µg/Kg-dry	10	7/14/2016 00:43
Chrysene	5,600	H	59	74	µg/Kg-dry	10	7/14/2016 00:43
Dibenzo(a,h)anthracene	960	H	40	74	µg/Kg-dry	10	7/14/2016 00:43
Dibenzofuran	U	H	54	360	µg/Kg-dry	10	7/14/2016 00:43
Diethyl phthalate	U	H	56	360	µg/Kg-dry	10	7/14/2016 00:43
Dimethyl phthalate	U	H	72	360	µg/Kg-dry	10	7/14/2016 00:43
Di-n-butyl phthalate	U	H	67	360	µg/Kg-dry	10	7/14/2016 00:43
Di-n-octyl phthalate	U	H	71	360	µg/Kg-dry	10	7/14/2016 00:43
Fluoranthene	10,000	H	35	74	µg/Kg-dry	10	7/14/2016 00:43
Fluorene	280	H	53	74	µg/Kg-dry	10	7/14/2016 00:43
Hexachlorobenzene	U	H	110	360	µg/Kg-dry	10	7/14/2016 00:43
Hexachlorobutadiene	U	H	200	360	µg/Kg-dry	10	7/14/2016 00:43
Hexachlorocyclopentadiene	U	H	130	360	µg/Kg-dry	10	7/14/2016 00:43
Hexachloroethane	U	H	150	360	µg/Kg-dry	10	7/14/2016 00:43
Indeno(1,2,3-cd)pyrene	4,400	H	51	74	µg/Kg-dry	10	7/14/2016 00:43
Isophorone	U	H	72	1,800	µg/Kg-dry	10	7/14/2016 00:43
Naphthalene	U	H	47	74	µg/Kg-dry	10	7/14/2016 00:43
Nitrobenzene	U	H	120	1,800	µg/Kg-dry	10	7/14/2016 00:43
N-Nitrosodi-n-propylamine	U	H	61	360	µg/Kg-dry	10	7/14/2016 00:43
N-Nitrosodiphenylamine	U	H	35	360	µg/Kg-dry	10	7/14/2016 00:43
Pentachlorophenol	U	H	140	360	µg/Kg-dry	10	7/14/2016 00:43
Phenanthrene	5,200	H	34	74	µg/Kg-dry	10	7/14/2016 00:43
Phenol	U	H	91	360	µg/Kg-dry	10	7/14/2016 00:43
Pyrene	8,900	H	13	74	µg/Kg-dry	10	7/14/2016 00:43
Surr: 2,4,6-Tribromophenol	83.2			34-140	%REC	10	7/14/2016 00:43
Surr: 2-Fluorobiphenyl	79.2			12-100	%REC	10	7/14/2016 00:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-02**Lab ID:** 16061792-04**Collection Date:** 6/28/2016 11:30 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	83.0			33-117	%REC	10	7/14/2016 00:43
<i>Surr: 4-Terphenyl-d14</i>	75.6			25-137	%REC	10	7/14/2016 00:43
<i>Surr: Nitrobenzene-d5</i>	62.8			37-107	%REC	10	7/14/2016 00:43
<i>Surr: Phenol-d6</i>	77.6			40-106	%REC	10	7/14/2016 00:43
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	3.3	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-DUP A
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.022		0.0024	0.014	mg/Kg-dry	1	7/15/2016 12:08
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	11		0.53	2.0	mg/Kg-dry	5	7/18/2016 15:03
Barium	90		0.16	0.41	mg/Kg-dry	1	7/15/2016 12:19
Cadmium	1.4		0.039	0.81	mg/Kg-dry	1	7/15/2016 12:19
Chromium	17		0.11	2.0	mg/Kg-dry	5	7/18/2016 15:03
Lead	53		0.43	2.0	mg/Kg-dry	5	7/18/2016 15:03
Selenium	2.5	J	1.1	4.1	mg/Kg-dry	5	7/18/2016 15:03
Silver	0.16	J	0.050	0.41	mg/Kg-dry	1	7/15/2016 12:19
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/13/16		Analyst: RM
1,1'-Biphenyl	U	H	56	340	µg/Kg-dry	10	7/14/2016 01:04
2,4,5-Trichlorophenol	U	H	94	340	µg/Kg-dry	10	7/14/2016 01:04
2,4,6-Trichlorophenol	U	H	91	340	µg/Kg-dry	10	7/14/2016 01:04
2,4-Dichlorophenol	U	H	72	340	µg/Kg-dry	10	7/14/2016 01:04
2,4-Dimethylphenol	U	H	70	340	µg/Kg-dry	10	7/14/2016 01:04
2,4-Dinitrophenol	U	H	190	340	µg/Kg-dry	10	7/14/2016 01:04
2,4-Dinitrotoluene	U	H	89	340	µg/Kg-dry	10	7/14/2016 01:04
2,6-Dinitrotoluene	U	H	57	340	µg/Kg-dry	10	7/14/2016 01:04
2-Chloronaphthalene	U	H	48	69	µg/Kg-dry	10	7/14/2016 01:04
2-Chlorophenol	U	H	110	340	µg/Kg-dry	10	7/14/2016 01:04
2-Methylnaphthalene	U	H	35	69	µg/Kg-dry	10	7/14/2016 01:04
2-Methylphenol	U	H	93	340	µg/Kg-dry	10	7/14/2016 01:04
2-Nitroaniline	U	H	79	340	µg/Kg-dry	10	7/14/2016 01:04
2-Nitrophenol	U	H	98	340	µg/Kg-dry	10	7/14/2016 01:04
3&4-Methylphenol	U	H	69	340	µg/Kg-dry	10	7/14/2016 01:04
3,3'-Dichlorobenzidine	U	H	51	1,700	µg/Kg-dry	10	7/14/2016 01:04
3-Nitroaniline	U	H	79	340	µg/Kg-dry	10	7/14/2016 01:04
4,6-Dinitro-2-methylphenol	U	H	86	340	µg/Kg-dry	10	7/14/2016 01:04
4-Bromophenyl phenyl ether	U	H	92	340	µg/Kg-dry	10	7/14/2016 01:04
4-Chloro-3-methylphenol	U	H	98	340	µg/Kg-dry	10	7/14/2016 01:04
4-Chloroaniline	U	H	54	690	µg/Kg-dry	10	7/14/2016 01:04
4-Chlorophenyl phenyl ether	U	H	95	340	µg/Kg-dry	10	7/14/2016 01:04
4-Nitroaniline	U	H	530	1,700	µg/Kg-dry	10	7/14/2016 01:04
4-Nitrophenol	U	H	310	340	µg/Kg-dry	10	7/14/2016 01:04
Acenaphthene	310	H	50	69	µg/Kg-dry	10	7/14/2016 01:04
Acenaphthylene	U	H	59	69	µg/Kg-dry	10	7/14/2016 01:04
Acetophenone	U	H	54	340	µg/Kg-dry	10	7/14/2016 01:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-DUP A
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	930	H	48	69	µg/Kg-dry	10	7/14/2016 01:04
Atrazine	U	H	54	340	µg/Kg-dry	10	7/14/2016 01:04
Benzaldehyde	U	H	530	690	µg/Kg-dry	10	7/14/2016 01:04
Benzo(a)anthracene	4,800	H	59	69	µg/Kg-dry	10	7/14/2016 01:04
Benzo(a)pyrene	5,300	H	42	69	µg/Kg-dry	10	7/14/2016 01:04
Benzo(b)fluoranthene	7,600	H	51	69	µg/Kg-dry	10	7/14/2016 01:04
Benzo(g,h,i)perylene	4,600	H	53	69	µg/Kg-dry	10	7/14/2016 01:04
Benzo(k)fluoranthene	2,300	H	52	69	µg/Kg-dry	10	7/14/2016 01:04
Bis(2-chloroethoxy)methane	U	H	33	340	µg/Kg-dry	10	7/14/2016 01:04
Bis(2-chloroethyl)ether	U	H	97	340	µg/Kg-dry	10	7/14/2016 01:04
Bis(2-chloroisopropyl)ether	U	H	80	340	µg/Kg-dry	10	7/14/2016 01:04
Bis(2-ethylhexyl)phthalate	U	H	59	340	µg/Kg-dry	10	7/14/2016 01:04
Butyl benzyl phthalate	U	H	58	340	µg/Kg-dry	10	7/14/2016 01:04
Caprolactam	U	H	120	340	µg/Kg-dry	10	7/14/2016 01:04
Carbazole	540	H	37	340	µg/Kg-dry	10	7/14/2016 01:04
Chrysene	5,900	H	55	69	µg/Kg-dry	10	7/14/2016 01:04
Dibenzo(a,h)anthracene	1,100	H	37	69	µg/Kg-dry	10	7/14/2016 01:04
Dibenzofuran	U	H	50	340	µg/Kg-dry	10	7/14/2016 01:04
Diethyl phthalate	U	H	52	340	µg/Kg-dry	10	7/14/2016 01:04
Dimethyl phthalate	U	H	67	340	µg/Kg-dry	10	7/14/2016 01:04
Di-n-butyl phthalate	U	H	63	340	µg/Kg-dry	10	7/14/2016 01:04
Di-n-octyl phthalate	U	H	66	340	µg/Kg-dry	10	7/14/2016 01:04
Fluoranthene	9,900	H	33	69	µg/Kg-dry	10	7/14/2016 01:04
Fluorene	250	H	50	69	µg/Kg-dry	10	7/14/2016 01:04
Hexachlorobenzene	U	H	100	340	µg/Kg-dry	10	7/14/2016 01:04
Hexachlorobutadiene	U	H	190	340	µg/Kg-dry	10	7/14/2016 01:04
Hexachlorocyclopentadiene	U	H	120	340	µg/Kg-dry	10	7/14/2016 01:04
Hexachloroethane	U	H	140	340	µg/Kg-dry	10	7/14/2016 01:04
Indeno(1,2,3-cd)pyrene	4,800	H	48	69	µg/Kg-dry	10	7/14/2016 01:04
Isophorone	U	H	67	1,700	µg/Kg-dry	10	7/14/2016 01:04
Naphthalene	U	H	44	69	µg/Kg-dry	10	7/14/2016 01:04
Nitrobenzene	U	H	120	1,700	µg/Kg-dry	10	7/14/2016 01:04
N-Nitrosodi-n-propylamine	U	H	57	340	µg/Kg-dry	10	7/14/2016 01:04
N-Nitrosodiphenylamine	U	H	33	340	µg/Kg-dry	10	7/14/2016 01:04
Pentachlorophenol	U	H	130	340	µg/Kg-dry	10	7/14/2016 01:04
Phenanthrene	4,500	H	32	69	µg/Kg-dry	10	7/14/2016 01:04
Phenol	U	H	85	340	µg/Kg-dry	10	7/14/2016 01:04
Pyrene	9,600	H	12	69	µg/Kg-dry	10	7/14/2016 01:04
Surr: 2,4,6-Tribromophenol	58.8			34-140	%REC	10	7/14/2016 01:04
Surr: 2-Fluorobiphenyl	64.8			12-100	%REC	10	7/14/2016 01:04

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-02-DUP A**Lab ID:** 16061792-05**Collection Date:** 6/28/2016 11:30 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	54.0			33-117	%REC	10	7/14/2016 01:04
Surr: 4-Terphenyl-d14	66.0			25-137	%REC	10	7/14/2016 01:04
Surr: Nitrobenzene-d5	45.4			37-107	%REC	10	7/14/2016 01:04
Surr: Phenol-d6	59.6			40-106	%REC	10	7/14/2016 01:04
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.7	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-TRIP
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.028		0.0025	0.015	mg/Kg-dry	1	7/15/2016 12:10
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	9.7		0.56	2.1	mg/Kg-dry	5	7/18/2016 15:09
Barium	83		0.17	0.43	mg/Kg-dry	1	7/15/2016 12:24
Cadmium	1.5		0.041	0.85	mg/Kg-dry	1	7/15/2016 12:24
Chromium	16		0.12	2.1	mg/Kg-dry	5	7/18/2016 15:09
Lead	47		0.45	2.1	mg/Kg-dry	5	7/18/2016 15:09
Selenium	1.6	J	1.2	4.3	mg/Kg-dry	5	7/18/2016 15:09
Silver	0.093	J	0.053	0.43	mg/Kg-dry	1	7/15/2016 12:24
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	U	H	110	680	µg/Kg-dry	10	7/13/2016 23:26
2,4,5-Trichlorophenol	U	H	190	680	µg/Kg-dry	10	7/13/2016 23:26
2,4,6-Trichlorophenol	U	H	180	680	µg/Kg-dry	10	7/13/2016 23:26
2,4-Dichlorophenol	U	H	140	680	µg/Kg-dry	10	7/13/2016 23:26
2,4-Dimethylphenol	U	H	140	680	µg/Kg-dry	10	7/13/2016 23:26
2,4-Dinitrophenol	U	H	370	680	µg/Kg-dry	10	7/13/2016 23:26
2,4-Dinitrotoluene	U	H	180	680	µg/Kg-dry	10	7/13/2016 23:26
2,6-Dinitrotoluene	U	H	110	680	µg/Kg-dry	10	7/13/2016 23:26
2-Chloronaphthalene	U	H	96	140	µg/Kg-dry	10	7/13/2016 23:26
2-Chlorophenol	U	H	220	680	µg/Kg-dry	10	7/13/2016 23:26
2-Methylnaphthalene	330	H	70	140	µg/Kg-dry	10	7/13/2016 23:26
2-Methylphenol	U	H	180	680	µg/Kg-dry	10	7/13/2016 23:26
2-Nitroaniline	U	H	160	680	µg/Kg-dry	10	7/13/2016 23:26
2-Nitrophenol	U	H	200	680	µg/Kg-dry	10	7/13/2016 23:26
3&4-Methylphenol	U	H	140	680	µg/Kg-dry	10	7/13/2016 23:26
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/13/2016 23:26
3-Nitroaniline	U	H	160	680	µg/Kg-dry	10	7/13/2016 23:26
4,6-Dinitro-2-methylphenol	U	H	170	680	µg/Kg-dry	10	7/13/2016 23:26
4-Bromophenyl phenyl ether	U	H	180	680	µg/Kg-dry	10	7/13/2016 23:26
4-Chloro-3-methylphenol	U	H	200	680	µg/Kg-dry	10	7/13/2016 23:26
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/13/2016 23:26
4-Chlorophenyl phenyl ether	U	H	190	680	µg/Kg-dry	10	7/13/2016 23:26
4-Nitroaniline	U	H	1,100	3,400	µg/Kg-dry	10	7/13/2016 23:26
4-Nitrophenol	U	H	610	680	µg/Kg-dry	10	7/13/2016 23:26
Acenaphthene	1,400	H	99	140	µg/Kg-dry	10	7/13/2016 23:26
Acenaphthylene	U	H	120	140	µg/Kg-dry	10	7/13/2016 23:26
Acetophenone	U	H	110	680	µg/Kg-dry	10	7/13/2016 23:26

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-TRIP
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	2,900	H	96	140	µg/Kg-dry	10	7/13/2016 23:26
Atrazine	U	H	110	680	µg/Kg-dry	10	7/13/2016 23:26
Benzaldehyde	U	H	1,100	1,400	µg/Kg-dry	10	7/13/2016 23:26
Benzo(a)anthracene	8,200	H	120	140	µg/Kg-dry	10	7/13/2016 23:26
Benzo(a)pyrene	8,600	H	84	140	µg/Kg-dry	10	7/13/2016 23:26
Benzo(b)fluoranthene	12,000	H	100	140	µg/Kg-dry	10	7/13/2016 23:26
Benzo(g,h,i)perylene	6,200	H	100	140	µg/Kg-dry	10	7/13/2016 23:26
Benzo(k)fluoranthene	3,300	H	100	140	µg/Kg-dry	10	7/13/2016 23:26
Bis(2-chloroethoxy)methane	U	H	66	680	µg/Kg-dry	10	7/13/2016 23:26
Bis(2-chloroethyl)ether	U	H	190	680	µg/Kg-dry	10	7/13/2016 23:26
Bis(2-chloroisopropyl)ether	U	H	160	680	µg/Kg-dry	10	7/13/2016 23:26
Bis(2-ethylhexyl)phthalate	U	H	120	680	µg/Kg-dry	10	7/13/2016 23:26
Butyl benzyl phthalate	U	H	120	680	µg/Kg-dry	10	7/13/2016 23:26
Caprolactam	U	H	230	680	µg/Kg-dry	10	7/13/2016 23:26
Carbazole	2,200	H	74	680	µg/Kg-dry	10	7/13/2016 23:26
Chrysene	8,700	H	110	140	µg/Kg-dry	10	7/13/2016 23:26
Dibenzo(a,h)anthracene	1,800	H	74	140	µg/Kg-dry	10	7/13/2016 23:26
Dibenzofuran	660	JH	100	680	µg/Kg-dry	10	7/13/2016 23:26
Diethyl phthalate	U	H	100	680	µg/Kg-dry	10	7/13/2016 23:26
Dimethyl phthalate	U	H	130	680	µg/Kg-dry	10	7/13/2016 23:26
Di-n-butyl phthalate	U	H	130	680	µg/Kg-dry	10	7/13/2016 23:26
Di-n-octyl phthalate	U	H	130	680	µg/Kg-dry	10	7/13/2016 23:26
Fluoranthene	20,000	H	66	140	µg/Kg-dry	10	7/13/2016 23:26
Fluorene	1,300	H	99	140	µg/Kg-dry	10	7/13/2016 23:26
Hexachlorobenzene	U	H	200	680	µg/Kg-dry	10	7/13/2016 23:26
Hexachlorobutadiene	U	H	370	680	µg/Kg-dry	10	7/13/2016 23:26
Hexachlorocyclopentadiene	U	H	230	680	µg/Kg-dry	10	7/13/2016 23:26
Hexachloroethane	U	H	280	680	µg/Kg-dry	10	7/13/2016 23:26
Indeno(1,2,3-cd)pyrene	8,200	H	95	140	µg/Kg-dry	10	7/13/2016 23:26
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/13/2016 23:26
Naphthalene	340	H	87	140	µg/Kg-dry	10	7/13/2016 23:26
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/13/2016 23:26
N-Nitrosodi-n-propylamine	U	H	110	680	µg/Kg-dry	10	7/13/2016 23:26
N-Nitrosodiphenylamine	U	H	66	680	µg/Kg-dry	10	7/13/2016 23:26
Pentachlorophenol	U	H	250	680	µg/Kg-dry	10	7/13/2016 23:26
Phenanthrene	12,000	H	64	140	µg/Kg-dry	10	7/13/2016 23:26
Phenol	U	H	170	680	µg/Kg-dry	10	7/13/2016 23:26
Pyrene	15,000	H	25	140	µg/Kg-dry	10	7/13/2016 23:26
Surr: 2,4,6-Tribromophenol	71.0			34-140	%REC	10	7/13/2016 23:26
Surr: 2-Fluorobiphenyl	61.2			12-100	%REC	10	7/13/2016 23:26

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-02-TRIP**Lab ID:** 16061792-06**Collection Date:** 6/28/2016 11:30 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	56.8			33-117	%REC	10	7/13/2016 23:26
<i>Surr: 4-Terphenyl-d14</i>	61.8			25-137	%REC	10	7/13/2016 23:26
<i>Surr: Nitrobenzene-d5</i>	58.2			37-107	%REC	10	7/13/2016 23:26
<i>Surr: Phenol-d6</i>	57.2			40-106	%REC	10	7/13/2016 23:26
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	5.9	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-03
Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792
Lab ID: 16061792-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.072		0.0029	0.018	mg/Kg-dry	1	7/15/2016 12:19
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	12		0.69	2.6	mg/Kg-dry	5	7/18/2016 15:14
Barium	150		0.21	0.53	mg/Kg-dry	1	7/15/2016 12:30
Cadmium	11		0.051	1.1	mg/Kg-dry	1	7/15/2016 12:30
Chromium	54		0.15	2.6	mg/Kg-dry	5	7/18/2016 15:14
Lead	760		0.56	2.6	mg/Kg-dry	5	7/18/2016 15:14
Selenium	U		1.5	5.3	mg/Kg-dry	5	7/18/2016 15:14
Silver	0.50	J	0.065	0.53	mg/Kg-dry	1	7/15/2016 12:30
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	250	JH	140	840	µg/Kg-dry	10	7/13/2016 23:48
2,4,5-Trichlorophenol	U	H	230	840	µg/Kg-dry	10	7/13/2016 23:48
2,4,6-Trichlorophenol	U	H	230	840	µg/Kg-dry	10	7/13/2016 23:48
2,4-Dichlorophenol	U	H	180	840	µg/Kg-dry	10	7/13/2016 23:48
2,4-Dimethylphenol	U	H	170	840	µg/Kg-dry	10	7/13/2016 23:48
2,4-Dinitrophenol	U	H	460	840	µg/Kg-dry	10	7/13/2016 23:48
2,4-Dinitrotoluene	U	H	220	840	µg/Kg-dry	10	7/13/2016 23:48
2,6-Dinitrotoluene	U	H	140	840	µg/Kg-dry	10	7/13/2016 23:48
2-Chloronaphthalene	U	H	120	170	µg/Kg-dry	10	7/13/2016 23:48
2-Chlorophenol	U	H	270	840	µg/Kg-dry	10	7/13/2016 23:48
2-Methylnaphthalene	760	H	86	170	µg/Kg-dry	10	7/13/2016 23:48
2-Methylphenol	U	H	230	840	µg/Kg-dry	10	7/13/2016 23:48
2-Nitroaniline	U	H	190	840	µg/Kg-dry	10	7/13/2016 23:48
2-Nitrophenol	U	H	240	840	µg/Kg-dry	10	7/13/2016 23:48
3&4-Methylphenol	550	JH	170	840	µg/Kg-dry	10	7/13/2016 23:48
3,3'-Dichlorobenzidine	U	H	130	4,300	µg/Kg-dry	10	7/13/2016 23:48
3-Nitroaniline	U	H	190	840	µg/Kg-dry	10	7/13/2016 23:48
4,6-Dinitro-2-methylphenol	U	H	210	840	µg/Kg-dry	10	7/13/2016 23:48
4-Bromophenyl phenyl ether	U	H	230	840	µg/Kg-dry	10	7/13/2016 23:48
4-Chloro-3-methylphenol	U	H	240	840	µg/Kg-dry	10	7/13/2016 23:48
4-Chloroaniline	U	H	130	1,700	µg/Kg-dry	10	7/13/2016 23:48
4-Chlorophenyl phenyl ether	U	H	230	840	µg/Kg-dry	10	7/13/2016 23:48
4-Nitroaniline	U	H	1,300	4,300	µg/Kg-dry	10	7/13/2016 23:48
4-Nitrophenol	U	H	760	840	µg/Kg-dry	10	7/13/2016 23:48
Acenaphthene	10,000	H	120	170	µg/Kg-dry	10	7/13/2016 23:48
Acenaphthylene	260	H	150	170	µg/Kg-dry	10	7/13/2016 23:48
Acetophenone	U	H	130	840	µg/Kg-dry	10	7/13/2016 23:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-03
Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792
Lab ID: 16061792-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	23,000	H	120	170	µg/Kg-dry	10	7/13/2016 23:48
Atrazine	U	H	130	840	µg/Kg-dry	10	7/13/2016 23:48
Benzaldehyde	U	H	1,300	1,700	µg/Kg-dry	10	7/13/2016 23:48
Benzo(a)anthracene	72,000	H	1,500	1,700	µg/Kg-dry	100	7/15/2016 01:32
Benzo(a)pyrene	71,000	H	1,000	1,700	µg/Kg-dry	100	7/15/2016 01:32
Benzo(b)fluoranthene	92,000	H	1,300	1,700	µg/Kg-dry	100	7/15/2016 01:32
Benzo(g,h,i)perylene	36,000	H	130	170	µg/Kg-dry	10	7/13/2016 23:48
Benzo(k)fluoranthene	26,000	H	130	170	µg/Kg-dry	10	7/13/2016 23:48
Bis(2-chloroethoxy)methane	U	H	81	840	µg/Kg-dry	10	7/13/2016 23:48
Bis(2-chloroethyl)ether	U	H	240	840	µg/Kg-dry	10	7/13/2016 23:48
Bis(2-chloroisopropyl)ether	U	H	200	840	µg/Kg-dry	10	7/13/2016 23:48
Bis(2-ethylhexyl)phthalate	U	H	150	840	µg/Kg-dry	10	7/13/2016 23:48
Butyl benzyl phthalate	U	H	140	840	µg/Kg-dry	10	7/13/2016 23:48
Caprolactam	U	H	290	840	µg/Kg-dry	10	7/13/2016 23:48
Carbazole	15,000	H	92	840	µg/Kg-dry	10	7/13/2016 23:48
Chrysene	75,000	H	1,400	1,700	µg/Kg-dry	100	7/15/2016 01:32
Dibenzo(a,h)anthracene	12,000	H	92	170	µg/Kg-dry	10	7/13/2016 23:48
Dibenzofuran	4,300	H	120	840	µg/Kg-dry	10	7/13/2016 23:48
Diethyl phthalate	U	H	130	840	µg/Kg-dry	10	7/13/2016 23:48
Dimethyl phthalate	U	H	170	840	µg/Kg-dry	10	7/13/2016 23:48
Di-n-butyl phthalate	U	H	160	840	µg/Kg-dry	10	7/13/2016 23:48
Di-n-octyl phthalate	U	H	160	840	µg/Kg-dry	10	7/13/2016 23:48
Fluoranthene	170,000	H	810	1,700	µg/Kg-dry	100	7/15/2016 01:32
Fluorene	7,700	H	120	170	µg/Kg-dry	10	7/13/2016 23:48
Hexachlorobenzene	U	H	250	840	µg/Kg-dry	10	7/13/2016 23:48
Hexachlorobutadiene	U	H	460	840	µg/Kg-dry	10	7/13/2016 23:48
Hexachlorocyclopentadiene	U	H	290	840	µg/Kg-dry	10	7/13/2016 23:48
Hexachloroethane	U	H	350	840	µg/Kg-dry	10	7/13/2016 23:48
Indeno(1,2,3-cd)pyrene	43,000	H	120	170	µg/Kg-dry	10	7/13/2016 23:48
Isophorone	U	H	170	4,300	µg/Kg-dry	10	7/13/2016 23:48
Naphthalene	960	H	110	170	µg/Kg-dry	10	7/13/2016 23:48
Nitrobenzene	U	H	290	4,300	µg/Kg-dry	10	7/13/2016 23:48
N-Nitrosodi-n-propylamine	U	H	140	840	µg/Kg-dry	10	7/13/2016 23:48
N-Nitrosodiphenylamine	U	H	81	840	µg/Kg-dry	10	7/13/2016 23:48
Pentachlorophenol	U	H	310	840	µg/Kg-dry	10	7/13/2016 23:48
Phenanthrene	110,000	H	790	1,700	µg/Kg-dry	100	7/15/2016 01:32
Phenol	U	H	210	840	µg/Kg-dry	10	7/13/2016 23:48
Pyrene	140,000	H	310	1,700	µg/Kg-dry	100	7/15/2016 01:32
Surr: 2,4,6-Tribromophenol	82.8			34-140	%REC	10	7/13/2016 23:48
Surr: 2-Fluorobiphenyl	79.6			12-100	%REC	10	7/13/2016 23:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-03**Lab ID:** 16061792-07**Collection Date:** 6/28/2016 02:12 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	75.0			33-117	%REC	10	7/13/2016 23:48
<i>Surr: 4-Terphenyl-d14</i>	69.4			25-137	%REC	10	7/13/2016 23:48
<i>Surr: Nitrobenzene-d5</i>	73.8			37-107	%REC	10	7/13/2016 23:48
<i>Surr: Phenol-d6</i>	70.6			40-106	%REC	10	7/13/2016 23:48
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	24	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-03-DUP
Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792
Lab ID: 16061792-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B			Prep: SW7471 / 7/15/16	Analyst: LR
Mercury	0.083		0.0025	0.015	mg/Kg-dry	1	7/15/2016 12:22
METALS ANALYSIS BY ICP							
			Method: SW846 6010C			Prep: SW3050B / 7/14/16	Analyst: JEC
Arsenic	11		0.22	0.84	mg/Kg-dry	2	7/15/2016 12:36
Barium	190		0.34	0.84	mg/Kg-dry	2	7/15/2016 12:36
Cadmium	8.0		0.080	1.7	mg/Kg-dry	2	7/15/2016 12:36
Chromium	41		0.047	0.84	mg/Kg-dry	2	7/15/2016 12:36
Lead	520		0.18	0.84	mg/Kg-dry	2	7/15/2016 12:36
Selenium	0.52	J	0.47	1.7	mg/Kg-dry	2	7/15/2016 12:36
Silver	0.48	J	0.10	0.84	mg/Kg-dry	2	7/15/2016 12:36
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D			Prep: SW3546 / 7/13/16	Analyst: RS
1,1'-Biphenyl	510	JH	110	660	µg/Kg-dry	10	7/14/2016 12:10
2,4,5-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:10
2,4,6-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:10
2,4-Dichlorophenol	U	H	140	660	µg/Kg-dry	10	7/14/2016 12:10
2,4-Dimethylphenol	U	H	140	660	µg/Kg-dry	10	7/14/2016 12:10
2,4-Dinitrophenol	U	H	360	660	µg/Kg-dry	10	7/14/2016 12:10
2,4-Dinitrotoluene	U	H	170	660	µg/Kg-dry	10	7/14/2016 12:10
2,6-Dinitrotoluene	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:10
2-Chloronaphthalene	U	H	94	130	µg/Kg-dry	10	7/14/2016 12:10
2-Chlorophenol	U	H	210	660	µg/Kg-dry	10	7/14/2016 12:10
2-Methylnaphthalene	1,300	H	68	130	µg/Kg-dry	10	7/14/2016 12:10
2-Methylphenol	440	JH	180	660	µg/Kg-dry	10	7/14/2016 12:10
2-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/14/2016 12:10
2-Nitrophenol	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:10
3&4-Methylphenol	440	JH	130	660	µg/Kg-dry	10	7/14/2016 12:10
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 12:10
3-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/14/2016 12:10
4,6-Dinitro-2-methylphenol	U	H	170	660	µg/Kg-dry	10	7/14/2016 12:10
4-Bromophenyl phenyl ether	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:10
4-Chloro-3-methylphenol	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:10
4-Chloroaniline	U	H	110	1,300	µg/Kg-dry	10	7/14/2016 12:10
4-Chlorophenyl phenyl ether	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:10
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 12:10
4-Nitrophenol	U	H	600	660	µg/Kg-dry	10	7/14/2016 12:10
Acenaphthene	21,000	H	97	130	µg/Kg-dry	10	7/14/2016 12:10
Acenaphthylene	290	H	120	130	µg/Kg-dry	10	7/14/2016 12:10
Acetophenone	U	H	100	660	µg/Kg-dry	10	7/14/2016 12:10

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-03-DUP
Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792
Lab ID: 16061792-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	40,000	H	95	130	µg/Kg-dry	10	7/14/2016 12:10
Atrazine	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:10
Benzaldehyde	U	H	1,000	1,300	µg/Kg-dry	10	7/14/2016 12:10
Benzo(a)anthracene	85,000	H	1,200	1,300	µg/Kg-dry	100	7/15/2016 02:00
Benzo(a)pyrene	83,000	H	820	1,300	µg/Kg-dry	100	7/15/2016 02:00
Benzo(b)fluoranthene	110,000	H	1,000	1,300	µg/Kg-dry	100	7/15/2016 02:00
Benzo(g,h,i)perylene	40,000	H	100	130	µg/Kg-dry	10	7/14/2016 12:10
Benzo(k)fluoranthene	30,000	H	100	130	µg/Kg-dry	10	7/14/2016 12:10
Bis(2-chloroethoxy)methane	U	H	64	660	µg/Kg-dry	10	7/14/2016 12:10
Bis(2-chloroethyl)ether	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:10
Bis(2-chloroisopropyl)ether	U	H	160	660	µg/Kg-dry	10	7/14/2016 12:10
Bis(2-ethylhexyl)phthalate	U	H	120	660	µg/Kg-dry	10	7/14/2016 12:10
Butyl benzyl phthalate	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:10
Caprolactam	U	H	230	660	µg/Kg-dry	10	7/14/2016 12:10
Carbazole	24,000	H	72	660	µg/Kg-dry	10	7/14/2016 12:10
Chrysene	84,000	H	1,100	1,300	µg/Kg-dry	100	7/15/2016 02:00
Dibenzo(a,h)anthracene	15,000	H	72	130	µg/Kg-dry	10	7/14/2016 12:10
Dibenzofuran	9,300	H	99	660	µg/Kg-dry	10	7/14/2016 12:10
Diethyl phthalate	U	H	100	660	µg/Kg-dry	10	7/14/2016 12:10
Dimethyl phthalate	U	H	130	660	µg/Kg-dry	10	7/14/2016 12:10
Di-n-butyl phthalate	U	H	120	660	µg/Kg-dry	10	7/14/2016 12:10
Di-n-octyl phthalate	U	H	130	660	µg/Kg-dry	10	7/14/2016 12:10
Fluoranthene	210,000	H	640	1,300	µg/Kg-dry	100	7/15/2016 02:00
Fluorene	16,000	H	97	130	µg/Kg-dry	10	7/14/2016 12:10
Hexachlorobenzene	U	H	200	660	µg/Kg-dry	10	7/14/2016 12:10
Hexachlorobutadiene	U	H	360	660	µg/Kg-dry	10	7/14/2016 12:10
Hexachlorocyclopentadiene	U	H	230	660	µg/Kg-dry	10	7/14/2016 12:10
Hexachloroethane	U	H	280	660	µg/Kg-dry	10	7/14/2016 12:10
Indeno(1,2,3-cd)pyrene	62,000	H	930	1,300	µg/Kg-dry	100	7/15/2016 02:00
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 12:10
Naphthalene	2,000	H	86	130	µg/Kg-dry	10	7/14/2016 12:10
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 12:10
N-Nitrosodi-n-propylamine	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:10
N-Nitrosodiphenylamine	U	H	64	660	µg/Kg-dry	10	7/14/2016 12:10
Pentachlorophenol	U	H	250	660	µg/Kg-dry	10	7/14/2016 12:10
Phenanthrene	160,000	H	620	1,300	µg/Kg-dry	100	7/15/2016 02:00
Phenol	U	H	170	660	µg/Kg-dry	10	7/14/2016 12:10
Pyrene	180,000	H	240	1,300	µg/Kg-dry	100	7/15/2016 02:00
Surr: 2,4,6-Tribromophenol	73.0			34-140	%REC	10	7/14/2016 12:10
Surr: 2-Fluorobiphenyl	62.6			12-100	%REC	10	7/14/2016 12:10

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: DU-03-DUP

Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792

Lab ID: 16061792-08

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	58.2			33-117	%REC	10	7/14/2016 12:10
Surr: 4-Terphenyl-d14	61.8			25-137	%REC	10	7/14/2016 12:10
Surr: Nitrobenzene-d5	59.2			37-107	%REC	10	7/14/2016 12:10
Surr: Phenol-d6	56.2			40-106	%REC	10	7/14/2016 12:10
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	1.8	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-03-TRIP
Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792
Lab ID: 16061792-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.082		0.0024	0.015	mg/Kg-dry	1	7/15/2016 12:24
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	9.0		0.50	1.9	mg/Kg-dry	5	7/15/2016 12:42
Barium	100		0.77	1.9	mg/Kg-dry	5	7/15/2016 12:42
Cadmium	13		0.19	3.9	mg/Kg-dry	5	7/15/2016 12:42
Chromium	35		0.11	1.9	mg/Kg-dry	5	7/15/2016 12:42
Lead	470		0.41	1.9	mg/Kg-dry	5	7/15/2016 12:42
Selenium	U		1.1	3.9	mg/Kg-dry	5	7/15/2016 12:42
Silver	0.32	J	0.24	1.9	mg/Kg-dry	5	7/15/2016 12:42
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	360	JH	110	670	µg/Kg-dry	10	7/15/2016 02:55
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/15/2016 02:55
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/15/2016 02:55
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/15/2016 02:55
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/15/2016 02:55
2,4-Dinitrophenol	U	H	370	670	µg/Kg-dry	10	7/15/2016 02:55
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/15/2016 02:55
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/15/2016 02:55
2-Chloronaphthalene	U	H	95	140	µg/Kg-dry	10	7/15/2016 02:55
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/15/2016 02:55
2-Methylnaphthalene	910	H	69	140	µg/Kg-dry	10	7/15/2016 02:55
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/15/2016 02:55
2-Nitroaniline	U	H	160	670	µg/Kg-dry	10	7/15/2016 02:55
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/15/2016 02:55
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/15/2016 02:55
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/15/2016 02:55
3-Nitroaniline	U	H	160	670	µg/Kg-dry	10	7/15/2016 02:55
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/15/2016 02:55
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/15/2016 02:55
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/15/2016 02:55
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/15/2016 02:55
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/15/2016 02:55
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/15/2016 02:55
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/15/2016 02:55
Acenaphthene	18,000	H	98	140	µg/Kg-dry	10	7/15/2016 02:55
Acenaphthylene	210	H	120	140	µg/Kg-dry	10	7/15/2016 02:55
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/15/2016 02:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-03-TRIP
Collection Date: 6/28/2016 02:12 PM

Work Order: 16061792
Lab ID: 16061792-09
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	38,000	H	95	140	µg/Kg-dry	10	7/15/2016 02:55
Atrazine	U	H	110	670	µg/Kg-dry	10	7/15/2016 02:55
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/15/2016 02:55
Benzo(a)anthracene	75,000	H	1,200	1,400	µg/Kg-dry	100	7/15/2016 02:28
Benzo(a)pyrene	76,000	H	830	1,400	µg/Kg-dry	100	7/15/2016 02:28
Benzo(b)fluoranthene	96,000	H	1,000	1,400	µg/Kg-dry	100	7/15/2016 02:28
Benzo(g,h,i)perylene	43,000	H	1,000	1,400	µg/Kg-dry	100	7/15/2016 02:28
Benzo(k)fluoranthene	36,000	H	100	140	µg/Kg-dry	10	7/15/2016 02:55
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/15/2016 02:55
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/15/2016 02:55
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/15/2016 02:55
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/15/2016 02:55
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/15/2016 02:55
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/15/2016 02:55
Carbazole	23,000	H	73	670	µg/Kg-dry	10	7/15/2016 02:55
Chrysene	74,000	H	1,100	1,400	µg/Kg-dry	100	7/15/2016 02:28
Dibenzo(a,h)anthracene	13,000	H	73	140	µg/Kg-dry	10	7/15/2016 02:55
Dibenzofuran	7,400	H	99	670	µg/Kg-dry	10	7/15/2016 02:55
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/15/2016 02:55
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/15/2016 02:55
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/15/2016 02:55
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/15/2016 02:55
Fluoranthene	170,000	H	650	1,400	µg/Kg-dry	100	7/15/2016 02:28
Fluorene	14,000	H	98	140	µg/Kg-dry	10	7/15/2016 02:55
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/15/2016 02:55
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/15/2016 02:55
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/15/2016 02:55
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/15/2016 02:55
Indeno(1,2,3-cd)pyrene	56,000	H	940	1,400	µg/Kg-dry	100	7/15/2016 02:28
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/15/2016 02:55
Naphthalene	1,300	H	86	140	µg/Kg-dry	10	7/15/2016 02:55
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/15/2016 02:55
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/15/2016 02:55
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/15/2016 02:55
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/15/2016 02:55
Phenanthrene	140,000	H	630	1,400	µg/Kg-dry	100	7/15/2016 02:28
Phenol	U	H	170	670	µg/Kg-dry	10	7/15/2016 02:55
Pyrene	170,000	H	250	1,400	µg/Kg-dry	100	7/15/2016 02:28
Surr: 2,4,6-Tribromophenol	58.6			34-140	%REC	10	7/15/2016 02:55
Surr: 2-Fluorobiphenyl	60.6			12-100	%REC	10	7/15/2016 02:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-03-TRIP**Lab ID:** 16061792-09**Collection Date:** 6/28/2016 02:12 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	57.6			33-117	%REC	10	7/15/2016 02:55
Surr: 4-Terphenyl-d14	72.0			25-137	%REC	10	7/15/2016 02:55
Surr: Nitrobenzene-d5	57.2			37-107	%REC	10	7/15/2016 02:55
Surr: Phenol-d6	53.2			40-106	%REC	10	7/15/2016 02:55
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.8	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-04
Collection Date: 6/28/2016 01:40 PM

Work Order: 16061792
Lab ID: 16061792-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.12		0.0026	0.016	mg/Kg-dry	1	7/15/2016 12:26
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.3		0.54	2.1	mg/Kg-dry	5	7/15/2016 12:48
Barium	110		0.83	2.1	mg/Kg-dry	5	7/15/2016 12:48
Cadmium	2.7	J	0.20	4.1	mg/Kg-dry	5	7/15/2016 12:48
Chromium	36		0.12	2.1	mg/Kg-dry	5	7/15/2016 12:48
Lead	390		0.44	2.1	mg/Kg-dry	5	7/15/2016 12:48
Selenium	U		1.2	4.1	mg/Kg-dry	5	7/15/2016 12:48
Silver	0.29	J	0.26	2.1	mg/Kg-dry	5	7/15/2016 12:48
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	84	H	11	65	µg/Kg-dry	1	7/13/2016 19:49
2,4,5-Trichlorophenol	U	H	18	65	µg/Kg-dry	1	7/13/2016 19:49
2,4,6-Trichlorophenol	U	H	18	65	µg/Kg-dry	1	7/13/2016 19:49
2,4-Dichlorophenol	U	H	14	65	µg/Kg-dry	1	7/13/2016 19:49
2,4-Dimethylphenol	U	H	13	65	µg/Kg-dry	1	7/13/2016 19:49
2,4-Dinitrophenol	U	H	36	65	µg/Kg-dry	1	7/13/2016 19:49
2,4-Dinitrotoluene	U	H	17	65	µg/Kg-dry	1	7/13/2016 19:49
2,6-Dinitrotoluene	U	H	11	65	µg/Kg-dry	1	7/13/2016 19:49
2-Chloronaphthalene	U	H	9.2	13	µg/Kg-dry	1	7/13/2016 19:49
2-Chlorophenol	U	H	21	65	µg/Kg-dry	1	7/13/2016 19:49
2-Methylnaphthalene	430	H	6.7	13	µg/Kg-dry	1	7/13/2016 19:49
2-Methylphenol	U	H	18	65	µg/Kg-dry	1	7/13/2016 19:49
2-Nitroaniline	U	H	15	65	µg/Kg-dry	1	7/13/2016 19:49
2-Nitrophenol	U	H	19	65	µg/Kg-dry	1	7/13/2016 19:49
3&4-Methylphenol	82	H	13	65	µg/Kg-dry	1	7/13/2016 19:49
3,3'-Dichlorobenzidine	U	H	9.8	330	µg/Kg-dry	1	7/13/2016 19:49
3-Nitroaniline	U	H	15	65	µg/Kg-dry	1	7/13/2016 19:49
4,6-Dinitro-2-methylphenol	U	H	17	65	µg/Kg-dry	1	7/13/2016 19:49
4-Bromophenyl phenyl ether	U	H	18	65	µg/Kg-dry	1	7/13/2016 19:49
4-Chloro-3-methylphenol	U	H	19	65	µg/Kg-dry	1	7/13/2016 19:49
4-Chloroaniline	U	H	10	130	µg/Kg-dry	1	7/13/2016 19:49
4-Chlorophenyl phenyl ether	U	H	18	65	µg/Kg-dry	1	7/13/2016 19:49
4-Nitroaniline	U	H	100	330	µg/Kg-dry	1	7/13/2016 19:49
4-Nitrophenol	U	H	59	65	µg/Kg-dry	1	7/13/2016 19:49
Acenaphthene	630	H	9.5	13	µg/Kg-dry	1	7/13/2016 19:49
Acenaphthylene	56	H	11	13	µg/Kg-dry	1	7/13/2016 19:49
Acetophenone	U	H	10	65	µg/Kg-dry	1	7/13/2016 19:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-04
Collection Date: 6/28/2016 01:40 PM

Work Order: 16061792
Lab ID: 16061792-10
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,900	H	9.3	13	µg/Kg-dry	1	7/13/2016 19:49
Atrazine	U	H	10	65	µg/Kg-dry	1	7/13/2016 19:49
Benzaldehyde	U	H	100	130	µg/Kg-dry	1	7/13/2016 19:49
Benzo(a)anthracene	6,900	H	110	130	µg/Kg-dry	10	7/14/2016 19:00
Benzo(a)pyrene	7,200	H	81	130	µg/Kg-dry	10	7/14/2016 19:00
Benzo(b)fluoranthene	10,000	H	98	130	µg/Kg-dry	10	7/14/2016 19:00
Benzo(g,h,i)perylene	5,100	H	100	130	µg/Kg-dry	10	7/14/2016 19:00
Benzo(k)fluoranthene	3,300	H	100	130	µg/Kg-dry	10	7/14/2016 19:00
Bis(2-chloroethoxy)methane	U	H	6.3	65	µg/Kg-dry	1	7/13/2016 19:49
Bis(2-chloroethyl)ether	U	H	19	65	µg/Kg-dry	1	7/13/2016 19:49
Bis(2-chloroisopropyl)ether	U	H	15	65	µg/Kg-dry	1	7/13/2016 19:49
Bis(2-ethylhexyl)phthalate	U	H	11	65	µg/Kg-dry	1	7/13/2016 19:49
Butyl benzyl phthalate	U	H	11	65	µg/Kg-dry	1	7/13/2016 19:49
Caprolactam	U	H	23	65	µg/Kg-dry	1	7/13/2016 19:49
Carbazole	1,200	H	7.1	65	µg/Kg-dry	1	7/13/2016 19:49
Chrysene	7,700	H	110	130	µg/Kg-dry	10	7/14/2016 19:00
Dibenzo(a,h)anthracene	1,500	H	7.1	13	µg/Kg-dry	1	7/13/2016 19:49
Dibenzofuran	430	H	9.7	65	µg/Kg-dry	1	7/13/2016 19:49
Diethyl phthalate	U	H	10	65	µg/Kg-dry	1	7/13/2016 19:49
Dimethyl phthalate	U	H	13	65	µg/Kg-dry	1	7/13/2016 19:49
Di-n-butyl phthalate	U	H	12	65	µg/Kg-dry	1	7/13/2016 19:49
Di-n-octyl phthalate	U	H	13	65	µg/Kg-dry	1	7/13/2016 19:49
Fluoranthene	13,000	H	63	130	µg/Kg-dry	10	7/14/2016 19:00
Fluorene	530	H	9.6	13	µg/Kg-dry	1	7/13/2016 19:49
Hexachlorobenzene	U	H	19	65	µg/Kg-dry	1	7/13/2016 19:49
Hexachlorobutadiene	U	H	36	65	µg/Kg-dry	1	7/13/2016 19:49
Hexachlorocyclopentadiene	U	H	23	65	µg/Kg-dry	1	7/13/2016 19:49
Hexachloroethane	U	H	27	65	µg/Kg-dry	1	7/13/2016 19:49
Indeno(1,2,3-cd)pyrene	6,100	H	92	130	µg/Kg-dry	10	7/14/2016 19:00
Isophorone	U	H	13	330	µg/Kg-dry	1	7/13/2016 19:49
Naphthalene	370	H	8.4	13	µg/Kg-dry	1	7/13/2016 19:49
Nitrobenzene	U	H	22	330	µg/Kg-dry	1	7/13/2016 19:49
N-Nitrosodi-n-propylamine	U	H	11	65	µg/Kg-dry	1	7/13/2016 19:49
N-Nitrosodiphenylamine	U	H	6.3	65	µg/Kg-dry	1	7/13/2016 19:49
Pentachlorophenol	U	H	24	65	µg/Kg-dry	1	7/13/2016 19:49
Phenanthrene	8,700	H	61	130	µg/Kg-dry	10	7/14/2016 19:00
Phenol	U	H	16	65	µg/Kg-dry	1	7/13/2016 19:49
Pyrene	14,000	H	24	130	µg/Kg-dry	10	7/14/2016 19:00
Surr: 2,4,6-Tribromophenol	57.3			34-140	%REC	1	7/13/2016 19:49
Surr: 2-Fluorobiphenyl	59.3			12-100	%REC	1	7/13/2016 19:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-04**Lab ID:** 16061792-10**Collection Date:** 6/28/2016 01:40 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	57.7			33-117	%REC	1	7/13/2016 19:49
<i>Surr: 4-Terphenyl-d14</i>	56.7			25-137	%REC	1	7/13/2016 19:49
<i>Surr: Nitrobenzene-d5</i>	56.5			37-107	%REC	1	7/13/2016 19:49
<i>Surr: Phenol-d6</i>	50.4			40-106	%REC	1	7/13/2016 19:49
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	1.4	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-04-DUP
Collection Date: 6/28/2016 01:40 PM

Work Order: 16061792
Lab ID: 16061792-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.075		0.0030	0.018	mg/Kg-dry	1	7/15/2016 12:28
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.8		0.62	2.4	mg/Kg-dry	5	7/15/2016 12:54
Barium	73		0.95	2.4	mg/Kg-dry	5	7/15/2016 12:54
Cadmium	3.0	J	0.23	4.8	mg/Kg-dry	5	7/15/2016 12:54
Chromium	23		0.13	2.4	mg/Kg-dry	5	7/15/2016 12:54
Lead	370		0.50	2.4	mg/Kg-dry	5	7/15/2016 12:54
Selenium	U		1.3	4.8	mg/Kg-dry	5	7/15/2016 12:54
Silver	U		0.29	2.4	mg/Kg-dry	5	7/15/2016 12:54
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	87	H	13	79	µg/Kg-dry	1	7/13/2016 20:11
2,4,5-Trichlorophenol	U	H	22	79	µg/Kg-dry	1	7/13/2016 20:11
2,4,6-Trichlorophenol	U	H	21	79	µg/Kg-dry	1	7/13/2016 20:11
2,4-Dichlorophenol	U	H	17	79	µg/Kg-dry	1	7/13/2016 20:11
2,4-Dimethylphenol	U	H	16	79	µg/Kg-dry	1	7/13/2016 20:11
2,4-Dinitrophenol	U	H	43	79	µg/Kg-dry	1	7/13/2016 20:11
2,4-Dinitrotoluene	U	H	21	79	µg/Kg-dry	1	7/13/2016 20:11
2,6-Dinitrotoluene	U	H	13	79	µg/Kg-dry	1	7/13/2016 20:11
2-Chloronaphthalene	U	H	11	16	µg/Kg-dry	1	7/13/2016 20:11
2-Chlorophenol	U	H	25	79	µg/Kg-dry	1	7/13/2016 20:11
2-Methylnaphthalene	430	H	8.1	16	µg/Kg-dry	1	7/13/2016 20:11
2-Methylphenol	56	JH	22	79	µg/Kg-dry	1	7/13/2016 20:11
2-Nitroaniline	U	H	18	79	µg/Kg-dry	1	7/13/2016 20:11
2-Nitrophenol	U	H	23	79	µg/Kg-dry	1	7/13/2016 20:11
3&4-Methylphenol	90	H	16	79	µg/Kg-dry	1	7/13/2016 20:11
3,3'-Dichlorobenzidine	U	H	12	400	µg/Kg-dry	1	7/13/2016 20:11
3-Nitroaniline	U	H	18	79	µg/Kg-dry	1	7/13/2016 20:11
4,6-Dinitro-2-methylphenol	U	H	20	79	µg/Kg-dry	1	7/13/2016 20:11
4-Bromophenyl phenyl ether	U	H	21	79	µg/Kg-dry	1	7/13/2016 20:11
4-Chloro-3-methylphenol	U	H	23	79	µg/Kg-dry	1	7/13/2016 20:11
4-Chloroaniline	U	H	13	160	µg/Kg-dry	1	7/13/2016 20:11
4-Chlorophenyl phenyl ether	U	H	22	79	µg/Kg-dry	1	7/13/2016 20:11
4-Nitroaniline	U	H	120	400	µg/Kg-dry	1	7/13/2016 20:11
4-Nitrophenol	U	H	71	79	µg/Kg-dry	1	7/13/2016 20:11
Acenaphthene	710	H	12	16	µg/Kg-dry	1	7/13/2016 20:11
Acenaphthylene	75	H	14	16	µg/Kg-dry	1	7/13/2016 20:11
Acetophenone	U	H	13	79	µg/Kg-dry	1	7/13/2016 20:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-04-DUP
Collection Date: 6/28/2016 01:40 PM

Work Order: 16061792
Lab ID: 16061792-11
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	2,100	H	11	16	µg/Kg-dry	1	7/13/2016 20:11
Atrazine	U	H	13	79	µg/Kg-dry	1	7/13/2016 20:11
Benzaldehyde	U	H	120	160	µg/Kg-dry	1	7/13/2016 20:11
Benzo(a)anthracene	8,600	H	140	160	µg/Kg-dry	10	7/14/2016 19:29
Benzo(a)pyrene	9,200	H	98	160	µg/Kg-dry	10	7/14/2016 19:29
Benzo(b)fluoranthene	12,000	H	120	160	µg/Kg-dry	10	7/14/2016 19:29
Benzo(g,h,i)perylene	6,200	H	120	160	µg/Kg-dry	10	7/14/2016 19:29
Benzo(k)fluoranthene	4,300	H	120	160	µg/Kg-dry	10	7/14/2016 19:29
Bis(2-chloroethoxy)methane	U	H	7.7	79	µg/Kg-dry	1	7/13/2016 20:11
Bis(2-chloroethyl)ether	U	H	23	79	µg/Kg-dry	1	7/13/2016 20:11
Bis(2-chloroisopropyl)ether	U	H	19	79	µg/Kg-dry	1	7/13/2016 20:11
Bis(2-ethylhexyl)phthalate	U	H	14	79	µg/Kg-dry	1	7/13/2016 20:11
Butyl benzyl phthalate	U	H	14	79	µg/Kg-dry	1	7/13/2016 20:11
Caprolactam	U	H	27	79	µg/Kg-dry	1	7/13/2016 20:11
Carbazole	1,400	H	8.6	79	µg/Kg-dry	1	7/13/2016 20:11
Chrysene	9,700	H	130	160	µg/Kg-dry	10	7/14/2016 19:29
Dibenzo(a,h)anthracene	2,000	H	8.6	16	µg/Kg-dry	1	7/13/2016 20:11
Dibenzofuran	470	H	12	79	µg/Kg-dry	1	7/13/2016 20:11
Diethyl phthalate	U	H	12	79	µg/Kg-dry	1	7/13/2016 20:11
Dimethyl phthalate	U	H	16	79	µg/Kg-dry	1	7/13/2016 20:11
Di-n-butyl phthalate	U	H	15	79	µg/Kg-dry	1	7/13/2016 20:11
Di-n-octyl phthalate	U	H	15	79	µg/Kg-dry	1	7/13/2016 20:11
Fluoranthene	18,000	H	77	160	µg/Kg-dry	10	7/14/2016 19:29
Fluorene	640	H	12	16	µg/Kg-dry	1	7/13/2016 20:11
Hexachlorobenzene	U	H	23	79	µg/Kg-dry	1	7/13/2016 20:11
Hexachlorobutadiene	U	H	43	79	µg/Kg-dry	1	7/13/2016 20:11
Hexachlorocyclopentadiene	U	H	27	79	µg/Kg-dry	1	7/13/2016 20:11
Hexachloroethane	U	H	33	79	µg/Kg-dry	1	7/13/2016 20:11
Indeno(1,2,3-cd)pyrene	7,300	H	110	160	µg/Kg-dry	10	7/14/2016 19:29
Isophorone	U	H	16	400	µg/Kg-dry	1	7/13/2016 20:11
Naphthalene	400	H	10	16	µg/Kg-dry	1	7/13/2016 20:11
Nitrobenzene	U	H	27	400	µg/Kg-dry	1	7/13/2016 20:11
N-Nitrosodi-n-propylamine	U	H	13	79	µg/Kg-dry	1	7/13/2016 20:11
N-Nitrosodiphenylamine	U	H	7.7	79	µg/Kg-dry	1	7/13/2016 20:11
Pentachlorophenol	U	H	29	79	µg/Kg-dry	1	7/13/2016 20:11
Phenanthrene	10,000	H	74	160	µg/Kg-dry	10	7/14/2016 19:29
Phenol	U	H	20	79	µg/Kg-dry	1	7/13/2016 20:11
Pyrene	16,000	H	29	160	µg/Kg-dry	10	7/14/2016 19:29
Surr: 2,4,6-Tribromophenol	71.8			34-140	%REC	1	7/13/2016 20:11
Surr: 2-Fluorobiphenyl	68.4			12-100	%REC	1	7/13/2016 20:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-04-DUP**Lab ID:** 16061792-11**Collection Date:** 6/28/2016 01:40 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	68.7			33-117	%REC	1	7/13/2016 20:11
Surr: 4-Terphenyl-d14	67.1			25-137	%REC	1	7/13/2016 20:11
Surr: Nitrobenzene-d5	65.7			37-107	%REC	1	7/13/2016 20:11
Surr: Phenol-d6	63.1			40-106	%REC	1	7/13/2016 20:11
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	18	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-04-TRIP
Collection Date: 6/28/2016 01:40 PM

Work Order: 16061792
Lab ID: 16061792-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.10		0.0023	0.014	mg/Kg-dry	1	7/15/2016 12:30
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	5.9		0.42	1.6	mg/Kg-dry	5	7/15/2016 12:59
Barium	81		0.64	1.6	mg/Kg-dry	5	7/15/2016 12:59
Cadmium	2.6	J	0.15	3.2	mg/Kg-dry	5	7/15/2016 12:59
Chromium	20		0.090	1.6	mg/Kg-dry	5	7/15/2016 12:59
Lead	430		0.34	1.6	mg/Kg-dry	5	7/15/2016 12:59
Selenium	U		0.90	3.2	mg/Kg-dry	5	7/15/2016 12:59
Silver	0.40	J	0.20	1.6	mg/Kg-dry	5	7/15/2016 12:59
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	51	JH	11	66	µg/Kg-dry	1	7/13/2016 20:33
2,4,5-Trichlorophenol	U	H	18	66	µg/Kg-dry	1	7/13/2016 20:33
2,4,6-Trichlorophenol	U	H	18	66	µg/Kg-dry	1	7/13/2016 20:33
2,4-Dichlorophenol	U	H	14	66	µg/Kg-dry	1	7/13/2016 20:33
2,4-Dimethylphenol	U	H	14	66	µg/Kg-dry	1	7/13/2016 20:33
2,4-Dinitrophenol	U	H	36	66	µg/Kg-dry	1	7/13/2016 20:33
2,4-Dinitrotoluene	U	H	17	66	µg/Kg-dry	1	7/13/2016 20:33
2,6-Dinitrotoluene	U	H	11	66	µg/Kg-dry	1	7/13/2016 20:33
2-Chloronaphthalene	U	H	9.3	13	µg/Kg-dry	1	7/13/2016 20:33
2-Chlorophenol	U	H	21	66	µg/Kg-dry	1	7/13/2016 20:33
2-Methylnaphthalene	260	H	6.8	13	µg/Kg-dry	1	7/13/2016 20:33
2-Methylphenol	U	H	18	66	µg/Kg-dry	1	7/13/2016 20:33
2-Nitroaniline	U	H	15	66	µg/Kg-dry	1	7/13/2016 20:33
2-Nitrophenol	U	H	19	66	µg/Kg-dry	1	7/13/2016 20:33
3&4-Methylphenol	65	JH	13	66	µg/Kg-dry	1	7/13/2016 20:33
3,3'-Dichlorobenzidine	U	H	9.9	330	µg/Kg-dry	1	7/13/2016 20:33
3-Nitroaniline	U	H	15	66	µg/Kg-dry	1	7/13/2016 20:33
4,6-Dinitro-2-methylphenol	U	H	17	66	µg/Kg-dry	1	7/13/2016 20:33
4-Bromophenyl phenyl ether	U	H	18	66	µg/Kg-dry	1	7/13/2016 20:33
4-Chloro-3-methylphenol	U	H	19	66	µg/Kg-dry	1	7/13/2016 20:33
4-Chloroaniline	U	H	11	130	µg/Kg-dry	1	7/13/2016 20:33
4-Chlorophenyl phenyl ether	U	H	18	66	µg/Kg-dry	1	7/13/2016 20:33
4-Nitroaniline	U	H	100	330	µg/Kg-dry	1	7/13/2016 20:33
4-Nitrophenol	U	H	60	66	µg/Kg-dry	1	7/13/2016 20:33
Acenaphthene	270	H	9.7	13	µg/Kg-dry	1	7/13/2016 20:33
Acenaphthylene	27	H	12	13	µg/Kg-dry	1	7/13/2016 20:33
Acetophenone	U	H	10	66	µg/Kg-dry	1	7/13/2016 20:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-04-TRIP
Collection Date: 6/28/2016 01:40 PM

Work Order: 16061792
Lab ID: 16061792-12
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	860	H	9.4	13	µg/Kg-dry	1	7/13/2016 20:33
Atrazine	U	H	11	66	µg/Kg-dry	1	7/13/2016 20:33
Benzaldehyde	U	H	100	130	µg/Kg-dry	1	7/13/2016 20:33
Benzo(a)anthracene	4,000	H	12	13	µg/Kg-dry	1	7/13/2016 20:33
Benzo(a)pyrene	3,700	H	8.2	13	µg/Kg-dry	1	7/13/2016 20:33
Benzo(b)fluoranthene	6,500	H	50	67	µg/Kg-dry	5	7/14/2016 20:26
Benzo(g,h,i)perylene	3,000	H	10	13	µg/Kg-dry	1	7/13/2016 20:33
Benzo(k)fluoranthene	1,900	H	10	13	µg/Kg-dry	1	7/13/2016 20:33
Bis(2-chloroethoxy)methane	U	H	6.4	66	µg/Kg-dry	1	7/13/2016 20:33
Bis(2-chloroethyl)ether	U	H	19	66	µg/Kg-dry	1	7/13/2016 20:33
Bis(2-chloroisopropyl)ether	U	H	16	66	µg/Kg-dry	1	7/13/2016 20:33
Bis(2-ethylhexyl)phthalate	120	H	12	66	µg/Kg-dry	1	7/13/2016 20:33
Butyl benzyl phthalate	U	H	11	66	µg/Kg-dry	1	7/13/2016 20:33
Caprolactam	U	H	23	66	µg/Kg-dry	1	7/13/2016 20:33
Carbazole	580	H	7.2	66	µg/Kg-dry	1	7/13/2016 20:33
Chrysene	4,800	H	54	67	µg/Kg-dry	5	7/14/2016 20:26
Dibenzo(a,h)anthracene	1,100	H	7.2	13	µg/Kg-dry	1	7/13/2016 20:33
Dibenzofuran	200	H	9.8	66	µg/Kg-dry	1	7/13/2016 20:33
Diethyl phthalate	U	H	10	66	µg/Kg-dry	1	7/13/2016 20:33
Dimethyl phthalate	U	H	13	66	µg/Kg-dry	1	7/13/2016 20:33
Di-n-butyl phthalate	U	H	12	66	µg/Kg-dry	1	7/13/2016 20:33
Di-n-octyl phthalate	U	H	13	66	µg/Kg-dry	1	7/13/2016 20:33
Fluoranthene	7,800	H	32	67	µg/Kg-dry	5	7/14/2016 20:26
Fluorene	200	H	9.7	13	µg/Kg-dry	1	7/13/2016 20:33
Hexachlorobenzene	U	H	19	66	µg/Kg-dry	1	7/13/2016 20:33
Hexachlorobutadiene	U	H	36	66	µg/Kg-dry	1	7/13/2016 20:33
Hexachlorocyclopentadiene	U	H	23	66	µg/Kg-dry	1	7/13/2016 20:33
Hexachloroethane	U	H	28	66	µg/Kg-dry	1	7/13/2016 20:33
Indeno(1,2,3-cd)pyrene	3,300	H	9.3	13	µg/Kg-dry	1	7/13/2016 20:33
Isophorone	U	H	13	330	µg/Kg-dry	1	7/13/2016 20:33
Naphthalene	200	H	8.5	13	µg/Kg-dry	1	7/13/2016 20:33
Nitrobenzene	U	H	22	330	µg/Kg-dry	1	7/13/2016 20:33
N-Nitrosodi-n-propylamine	U	H	11	66	µg/Kg-dry	1	7/13/2016 20:33
N-Nitrosodiphenylamine	U	H	6.4	66	µg/Kg-dry	1	7/13/2016 20:33
Pentachlorophenol	U	H	25	66	µg/Kg-dry	1	7/13/2016 20:33
Phenanthrene	3,700	H	6.2	13	µg/Kg-dry	1	7/13/2016 20:33
Phenol	U	H	17	66	µg/Kg-dry	1	7/13/2016 20:33
Pyrene	7,800	H	12	67	µg/Kg-dry	5	7/14/2016 20:26
Surr: 2,4,6-Tribromophenol	66.1			34-140	%REC	1	7/13/2016 20:33
Surr: 2-Fluorobiphenyl	61.7			12-100	%REC	1	7/13/2016 20:33

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-04-TRIP**Lab ID:** 16061792-12**Collection Date:** 6/28/2016 01:40 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	63.3			33-117	%REC	1	7/13/2016 20:33
Surr: 4-Terphenyl-d14	65.9			25-137	%REC	1	7/13/2016 20:33
Surr: Nitrobenzene-d5	59.8			37-107	%REC	1	7/13/2016 20:33
Surr: Phenol-d6	59.6			40-106	%REC	1	7/13/2016 20:33
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.2	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-05
Collection Date: 6/28/2016 10:47 AM

Work Order: 16061792
Lab ID: 16061792-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.092		0.0027	0.016	mg/Kg-dry	1	7/15/2016 12:33
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	9.2		0.51	1.9	mg/Kg-dry	5	7/15/2016 14:36
Barium	150		0.78	1.9	mg/Kg-dry	5	7/15/2016 14:36
Cadmium	1.8	J	0.19	3.9	mg/Kg-dry	5	7/15/2016 14:36
Chromium	17		0.11	1.9	mg/Kg-dry	5	7/15/2016 14:36
Lead	110		0.41	1.9	mg/Kg-dry	5	7/15/2016 14:36
Selenium	2.1	J	1.1	3.9	mg/Kg-dry	5	7/15/2016 14:36
Silver	U		0.24	1.9	mg/Kg-dry	5	7/15/2016 14:36
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	340	JH	110	660	µg/Kg-dry	10	7/14/2016 12:53
2,4,5-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:53
2,4,6-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:53
2,4-Dichlorophenol	U	H	140	660	µg/Kg-dry	10	7/14/2016 12:53
2,4-Dimethylphenol	U	H	140	660	µg/Kg-dry	10	7/14/2016 12:53
2,4-Dinitrophenol	U	H	360	660	µg/Kg-dry	10	7/14/2016 12:53
2,4-Dinitrotoluene	U	H	170	660	µg/Kg-dry	10	7/14/2016 12:53
2,6-Dinitrotoluene	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:53
2-Chloronaphthalene	U	H	94	130	µg/Kg-dry	10	7/14/2016 12:53
2-Chlorophenol	U	H	210	660	µg/Kg-dry	10	7/14/2016 12:53
2-Methylnaphthalene	860	H	68	130	µg/Kg-dry	10	7/14/2016 12:53
2-Methylphenol	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:53
2-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/14/2016 12:53
2-Nitrophenol	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:53
3&4-Methylphenol	U	H	130	660	µg/Kg-dry	10	7/14/2016 12:53
3,3'-Dichlorobenzidine	U	H	99	3,400	µg/Kg-dry	10	7/14/2016 12:53
3-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/14/2016 12:53
4,6-Dinitro-2-methylphenol	U	H	170	660	µg/Kg-dry	10	7/14/2016 12:53
4-Bromophenyl phenyl ether	U	H	180	660	µg/Kg-dry	10	7/14/2016 12:53
4-Chloro-3-methylphenol	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:53
4-Chloroaniline	U	H	110	1,300	µg/Kg-dry	10	7/14/2016 12:53
4-Chlorophenyl phenyl ether	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:53
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 12:53
4-Nitrophenol	U	H	600	660	µg/Kg-dry	10	7/14/2016 12:53
Acenaphthene	3,700	H	97	130	µg/Kg-dry	10	7/14/2016 12:53
Acenaphthylene	160	H	120	130	µg/Kg-dry	10	7/14/2016 12:53
Acetophenone	U	H	100	660	µg/Kg-dry	10	7/14/2016 12:53

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-05
Collection Date: 6/28/2016 10:47 AM

Work Order: 16061792
Lab ID: 16061792-13
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	9,500	H	94	130	µg/Kg-dry	10	7/14/2016 12:53
Atrazine	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:53
Benzaldehyde	U	H	1,000	1,300	µg/Kg-dry	10	7/14/2016 12:53
Benzo(a)anthracene	31,000	H	120	130	µg/Kg-dry	10	7/14/2016 12:53
Benzo(a)pyrene	28,000	H	82	130	µg/Kg-dry	10	7/14/2016 12:53
Benzo(b)fluoranthene	39,000	H	100	130	µg/Kg-dry	10	7/14/2016 12:53
Benzo(g,h,i)perylene	20,000	H	100	130	µg/Kg-dry	10	7/14/2016 12:53
Benzo(k)fluoranthene	13,000	H	100	130	µg/Kg-dry	10	7/14/2016 12:53
Bis(2-chloroethoxy)methane	U	H	64	660	µg/Kg-dry	10	7/14/2016 12:53
Bis(2-chloroethyl)ether	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:53
Bis(2-chloroisopropyl)ether	U	H	160	660	µg/Kg-dry	10	7/14/2016 12:53
Bis(2-ethylhexyl)phthalate	U	H	120	660	µg/Kg-dry	10	7/14/2016 12:53
Butyl benzyl phthalate	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:53
Caprolactam	U	H	230	660	µg/Kg-dry	10	7/14/2016 12:53
Carbazole	6,200	H	72	660	µg/Kg-dry	10	7/14/2016 12:53
Chrysene	32,000	H	110	130	µg/Kg-dry	10	7/14/2016 12:53
Dibenzo(a,h)anthracene	7,000	H	72	130	µg/Kg-dry	10	7/14/2016 12:53
Dibenzofuran	2,100	H	98	660	µg/Kg-dry	10	7/14/2016 12:53
Diethyl phthalate	U	H	100	660	µg/Kg-dry	10	7/14/2016 12:53
Dimethyl phthalate	U	H	130	660	µg/Kg-dry	10	7/14/2016 12:53
Di-n-butyl phthalate	U	H	120	660	µg/Kg-dry	10	7/14/2016 12:53
Di-n-octyl phthalate	U	H	130	660	µg/Kg-dry	10	7/14/2016 12:53
Fluoranthene	74,000	H	320	670	µg/Kg-dry	50	7/14/2016 18:03
Fluorene	2,800	H	97	130	µg/Kg-dry	10	7/14/2016 12:53
Hexachlorobenzene	U	H	190	660	µg/Kg-dry	10	7/14/2016 12:53
Hexachlorobutadiene	U	H	360	660	µg/Kg-dry	10	7/14/2016 12:53
Hexachlorocyclopentadiene	U	H	230	660	µg/Kg-dry	10	7/14/2016 12:53
Hexachloroethane	U	H	280	660	µg/Kg-dry	10	7/14/2016 12:53
Indeno(1,2,3-cd)pyrene	25,000	H	93	130	µg/Kg-dry	10	7/14/2016 12:53
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 12:53
Naphthalene	1,100	H	86	130	µg/Kg-dry	10	7/14/2016 12:53
Nitrobenzene	U	H	220	3,400	µg/Kg-dry	10	7/14/2016 12:53
N-Nitrosodi-n-propylamine	U	H	110	660	µg/Kg-dry	10	7/14/2016 12:53
N-Nitrosodiphenylamine	U	H	64	660	µg/Kg-dry	10	7/14/2016 12:53
Pentachlorophenol	U	H	250	660	µg/Kg-dry	10	7/14/2016 12:53
Phenanthrene	35,000	H	62	130	µg/Kg-dry	10	7/14/2016 12:53
Phenol	U	H	170	660	µg/Kg-dry	10	7/14/2016 12:53
Pyrene	64,000	H	120	670	µg/Kg-dry	50	7/14/2016 18:03
Surr: 2,4,6-Tribromophenol	87.8			34-140	%REC	10	7/14/2016 12:53
Surr: 2-Fluorobiphenyl	82.4			12-100	%REC	10	7/14/2016 12:53

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-05**Lab ID:** 16061792-13**Collection Date:** 6/28/2016 10:47 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	75.6			33-117	%REC	10	7/14/2016 12:53
Surr: 4-Terphenyl-d14	74.0			25-137	%REC	10	7/14/2016 12:53
Surr: Nitrobenzene-d5	74.0			37-107	%REC	10	7/14/2016 12:53
Surr: Phenol-d6	70.2			40-106	%REC	10	7/14/2016 12:53
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	2.1	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-05-DUP
Collection Date: 6/28/2016 10:47 AM

Work Order: 16061792
Lab ID: 16061792-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.27		0.0027	0.016	mg/Kg-dry	1	7/15/2016 12:35
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.3		0.51	2.0	mg/Kg-dry	5	7/15/2016 14:41
Barium	97		0.78	2.0	mg/Kg-dry	5	7/15/2016 14:41
Cadmium	1.3	J	0.19	3.9	mg/Kg-dry	5	7/15/2016 14:41
Chromium	21		0.11	2.0	mg/Kg-dry	5	7/15/2016 14:41
Lead	120		0.41	2.0	mg/Kg-dry	5	7/15/2016 14:41
Selenium	2.4	J	1.1	3.9	mg/Kg-dry	5	7/15/2016 14:41
Silver	U		0.24	2.0	mg/Kg-dry	5	7/15/2016 14:41
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	330	H	11	67	µg/Kg-dry	1	7/13/2016 20:55
2,4,5-Trichlorophenol	U	H	19	67	µg/Kg-dry	1	7/13/2016 20:55
2,4,6-Trichlorophenol	U	H	18	67	µg/Kg-dry	1	7/13/2016 20:55
2,4-Dichlorophenol	U	H	14	67	µg/Kg-dry	1	7/13/2016 20:55
2,4-Dimethylphenol	U	H	14	67	µg/Kg-dry	1	7/13/2016 20:55
2,4-Dinitrophenol	U	H	37	67	µg/Kg-dry	1	7/13/2016 20:55
2,4-Dinitrotoluene	U	H	18	67	µg/Kg-dry	1	7/13/2016 20:55
2,6-Dinitrotoluene	U	H	11	67	µg/Kg-dry	1	7/13/2016 20:55
2-Chloronaphthalene	U	H	9.5	14	µg/Kg-dry	1	7/13/2016 20:55
2-Chlorophenol	U	H	21	67	µg/Kg-dry	1	7/13/2016 20:55
2-Methylnaphthalene	820	H	6.9	14	µg/Kg-dry	1	7/13/2016 20:55
2-Methylphenol	U	H	18	67	µg/Kg-dry	1	7/13/2016 20:55
2-Nitroaniline	U	H	16	67	µg/Kg-dry	1	7/13/2016 20:55
2-Nitrophenol	U	H	19	67	µg/Kg-dry	1	7/13/2016 20:55
3&4-Methylphenol	63	JH	14	67	µg/Kg-dry	1	7/13/2016 20:55
3,3'-Dichlorobenzidine	U	H	10	340	µg/Kg-dry	1	7/13/2016 20:55
3-Nitroaniline	U	H	16	67	µg/Kg-dry	1	7/13/2016 20:55
4,6-Dinitro-2-methylphenol	U	H	17	67	µg/Kg-dry	1	7/13/2016 20:55
4-Bromophenyl phenyl ether	U	H	18	67	µg/Kg-dry	1	7/13/2016 20:55
4-Chloro-3-methylphenol	U	H	19	67	µg/Kg-dry	1	7/13/2016 20:55
4-Chloroaniline	U	H	11	140	µg/Kg-dry	1	7/13/2016 20:55
4-Chlorophenyl phenyl ether	U	H	19	67	µg/Kg-dry	1	7/13/2016 20:55
4-Nitroaniline	U	H	110	340	µg/Kg-dry	1	7/13/2016 20:55
4-Nitrophenol	U	H	61	67	µg/Kg-dry	1	7/13/2016 20:55
Acenaphthene	3,000	H	9.8	14	µg/Kg-dry	1	7/13/2016 20:55
Acenaphthylene	110	H	12	14	µg/Kg-dry	1	7/13/2016 20:55
Acetophenone	U	H	11	67	µg/Kg-dry	1	7/13/2016 20:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-05-DUP
Collection Date: 6/28/2016 10:47 AM

Work Order: 16061792
Lab ID: 16061792-14
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	7,200	H	190	270	µg/Kg-dry	20	7/14/2016 19:58
Atrazine	U	H	11	67	µg/Kg-dry	1	7/13/2016 20:55
Benzaldehyde	U	H	100	140	µg/Kg-dry	1	7/13/2016 20:55
Benzo(a)anthracene	21,000	H	240	270	µg/Kg-dry	20	7/14/2016 19:58
Benzo(a)pyrene	23,000	H	170	270	µg/Kg-dry	20	7/14/2016 19:58
Benzo(b)fluoranthene	32,000	H	200	270	µg/Kg-dry	20	7/14/2016 19:58
Benzo(g,h,i)perylene	16,000	H	210	270	µg/Kg-dry	20	7/14/2016 19:58
Benzo(k)fluoranthene	9,900	H	210	270	µg/Kg-dry	20	7/14/2016 19:58
Bis(2-chloroethoxy)methane	U	H	6.5	67	µg/Kg-dry	1	7/13/2016 20:55
Bis(2-chloroethyl)ether	U	H	19	67	µg/Kg-dry	1	7/13/2016 20:55
Bis(2-chloroisopropyl)ether	U	H	16	67	µg/Kg-dry	1	7/13/2016 20:55
Bis(2-ethylhexyl)phthalate	U	H	12	67	µg/Kg-dry	1	7/13/2016 20:55
Butyl benzyl phthalate	U	H	12	67	µg/Kg-dry	1	7/13/2016 20:55
Caprolactam	U	H	23	67	µg/Kg-dry	1	7/13/2016 20:55
Carbazole	4,500	H	150	1,300	µg/Kg-dry	20	7/14/2016 19:58
Chrysene	24,000	H	220	270	µg/Kg-dry	20	7/14/2016 19:58
Dibenzo(a,h)anthracene	3,300	H	7.3	14	µg/Kg-dry	1	7/13/2016 20:55
Dibenzofuran	2,000	H	10	67	µg/Kg-dry	1	7/13/2016 20:55
Diethyl phthalate	U	H	10	67	µg/Kg-dry	1	7/13/2016 20:55
Dimethyl phthalate	33	JH	13	67	µg/Kg-dry	1	7/13/2016 20:55
Di-n-butyl phthalate	U	H	12	67	µg/Kg-dry	1	7/13/2016 20:55
Di-n-octyl phthalate	U	H	13	67	µg/Kg-dry	1	7/13/2016 20:55
Fluoranthene	49,000	H	130	270	µg/Kg-dry	20	7/14/2016 19:58
Fluorene	2,500	H	9.9	14	µg/Kg-dry	1	7/13/2016 20:55
Hexachlorobenzene	U	H	20	67	µg/Kg-dry	1	7/13/2016 20:55
Hexachlorobutadiene	U	H	37	67	µg/Kg-dry	1	7/13/2016 20:55
Hexachlorocyclopentadiene	U	H	23	67	µg/Kg-dry	1	7/13/2016 20:55
Hexachloroethane	U	H	28	67	µg/Kg-dry	1	7/13/2016 20:55
Indeno(1,2,3-cd)pyrene	19,000	H	190	270	µg/Kg-dry	20	7/14/2016 19:58
Isophorone	U	H	13	340	µg/Kg-dry	1	7/13/2016 20:55
Naphthalene	1,000	H	8.7	14	µg/Kg-dry	1	7/13/2016 20:55
Nitrobenzene	U	H	23	340	µg/Kg-dry	1	7/13/2016 20:55
N-Nitrosodi-n-propylamine	U	H	11	67	µg/Kg-dry	1	7/13/2016 20:55
N-Nitrosodiphenylamine	U	H	6.5	67	µg/Kg-dry	1	7/13/2016 20:55
Pentachlorophenol	U	H	25	67	µg/Kg-dry	1	7/13/2016 20:55
Phenanthrene	30,000	H	130	270	µg/Kg-dry	20	7/14/2016 19:58
Phenol	U	H	17	67	µg/Kg-dry	1	7/13/2016 20:55
Pyrene	44,000	H	49	270	µg/Kg-dry	20	7/14/2016 19:58
Surr: 2,4,6-Tribromophenol	47.6			34-140	%REC	1	7/13/2016 20:55
Surr: 2-Fluorobiphenyl	48.5			12-100	%REC	1	7/13/2016 20:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-05-DUP**Lab ID:** 16061792-14**Collection Date:** 6/28/2016 10:47 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	46.2			33-117	%REC	1	7/13/2016 20:55
<i>Surr: 4-Terphenyl-d14</i>	55.5			25-137	%REC	1	7/13/2016 20:55
<i>Surr: Nitrobenzene-d5</i>	46.3			37-107	%REC	1	7/13/2016 20:55
<i>Surr: Phenol-d6</i>	41.1			40-106	%REC	1	7/13/2016 20:55
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	2.6	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-05-TRIP
Collection Date: 6/28/2016 10:47 AM

Work Order: 16061792
Lab ID: 16061792-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.19		0.0027	0.017	mg/Kg-dry	1	7/15/2016 12:37
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	8.0		0.61	2.3	mg/Kg-dry	5	7/15/2016 14:47
Barium	140		0.93	2.3	mg/Kg-dry	5	7/15/2016 14:47
Cadmium	1.4	J	0.22	4.7	mg/Kg-dry	5	7/15/2016 14:47
Chromium	23		0.13	2.3	mg/Kg-dry	5	7/15/2016 14:47
Lead	140		0.49	2.3	mg/Kg-dry	5	7/15/2016 14:47
Selenium	1.9	J	1.3	4.7	mg/Kg-dry	5	7/15/2016 14:47
Silver	U		0.29	2.3	mg/Kg-dry	5	7/15/2016 14:47
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	370	H	12	73	µg/Kg-dry	1	7/13/2016 21:17
2,4,5-Trichlorophenol	U	H	20	73	µg/Kg-dry	1	7/13/2016 21:17
2,4,6-Trichlorophenol	U	H	20	73	µg/Kg-dry	1	7/13/2016 21:17
2,4-Dichlorophenol	U	H	15	73	µg/Kg-dry	1	7/13/2016 21:17
2,4-Dimethylphenol	U	H	15	73	µg/Kg-dry	1	7/13/2016 21:17
2,4-Dinitrophenol	U	H	40	73	µg/Kg-dry	1	7/13/2016 21:17
2,4-Dinitrotoluene	U	H	19	73	µg/Kg-dry	1	7/13/2016 21:17
2,6-Dinitrotoluene	U	H	12	73	µg/Kg-dry	1	7/13/2016 21:17
2-Chloronaphthalene	U	H	10	15	µg/Kg-dry	1	7/13/2016 21:17
2-Chlorophenol	U	H	23	73	µg/Kg-dry	1	7/13/2016 21:17
2-Methylnaphthalene	960	H	7.5	15	µg/Kg-dry	1	7/13/2016 21:17
2-Methylphenol	U	H	20	73	µg/Kg-dry	1	7/13/2016 21:17
2-Nitroaniline	U	H	17	73	µg/Kg-dry	1	7/13/2016 21:17
2-Nitrophenol	U	H	21	73	µg/Kg-dry	1	7/13/2016 21:17
3&4-Methylphenol	69	JH	15	73	µg/Kg-dry	1	7/13/2016 21:17
3,3'-Dichlorobenzidine	U	H	11	370	µg/Kg-dry	1	7/13/2016 21:17
3-Nitroaniline	U	H	17	73	µg/Kg-dry	1	7/13/2016 21:17
4,6-Dinitro-2-methylphenol	U	H	18	73	µg/Kg-dry	1	7/13/2016 21:17
4-Bromophenyl phenyl ether	U	H	20	73	µg/Kg-dry	1	7/13/2016 21:17
4-Chloro-3-methylphenol	U	H	21	73	µg/Kg-dry	1	7/13/2016 21:17
4-Chloroaniline	U	H	12	150	µg/Kg-dry	1	7/13/2016 21:17
4-Chlorophenyl phenyl ether	U	H	20	73	µg/Kg-dry	1	7/13/2016 21:17
4-Nitroaniline	U	H	110	370	µg/Kg-dry	1	7/13/2016 21:17
4-Nitrophenol	U	H	66	73	µg/Kg-dry	1	7/13/2016 21:17
Acenaphthene	3,000	H	11	15	µg/Kg-dry	1	7/13/2016 21:17
Acenaphthylene	150	H	13	15	µg/Kg-dry	1	7/13/2016 21:17
Acetophenone	U	H	12	73	µg/Kg-dry	1	7/13/2016 21:17

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-05-TRIP
Collection Date: 6/28/2016 10:47 AM

Work Order: 16061792
Lab ID: 16061792-15
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	8,300	H	210	290	µg/Kg-dry	20	7/15/2016 12:10
Atrazine	U	H	12	73	µg/Kg-dry	1	7/13/2016 21:17
Benzaldehyde	U	H	110	150	µg/Kg-dry	1	7/13/2016 21:17
Benzo(a)anthracene	24,000	H	250	290	µg/Kg-dry	20	7/15/2016 12:10
Benzo(a)pyrene	26,000	H	180	290	µg/Kg-dry	20	7/15/2016 12:10
Benzo(b)fluoranthene	35,000	H	220	290	µg/Kg-dry	20	7/15/2016 12:10
Benzo(g,h,i)perylene	17,000	H	230	290	µg/Kg-dry	20	7/15/2016 12:10
Benzo(k)fluoranthene	12,000	H	220	290	µg/Kg-dry	20	7/15/2016 12:10
Bis(2-chloroethoxy)methane	U	H	7.1	73	µg/Kg-dry	1	7/13/2016 21:17
Bis(2-chloroethyl)ether	U	H	21	73	µg/Kg-dry	1	7/13/2016 21:17
Bis(2-chloroisopropyl)ether	U	H	17	73	µg/Kg-dry	1	7/13/2016 21:17
Bis(2-ethylhexyl)phthalate	U	H	13	73	µg/Kg-dry	1	7/13/2016 21:17
Butyl benzyl phthalate	U	H	12	73	µg/Kg-dry	1	7/13/2016 21:17
Caprolactam	U	H	25	73	µg/Kg-dry	1	7/13/2016 21:17
Carbazole	3,800	H	7.9	73	µg/Kg-dry	1	7/13/2016 21:17
Chrysene	28,000	H	240	290	µg/Kg-dry	20	7/15/2016 12:10
Dibenzo(a,h)anthracene	3,500	H	7.9	15	µg/Kg-dry	1	7/13/2016 21:17
Dibenzofuran	2,200	H	11	73	µg/Kg-dry	1	7/13/2016 21:17
Diethyl phthalate	U	H	11	73	µg/Kg-dry	1	7/13/2016 21:17
Dimethyl phthalate	U	H	14	73	µg/Kg-dry	1	7/13/2016 21:17
Di-n-butyl phthalate	U	H	13	73	µg/Kg-dry	1	7/13/2016 21:17
Di-n-octyl phthalate	U	H	14	73	µg/Kg-dry	1	7/13/2016 21:17
Fluoranthene	55,000	H	140	290	µg/Kg-dry	20	7/15/2016 12:10
Fluorene	2,600	H	11	15	µg/Kg-dry	1	7/13/2016 21:17
Hexachlorobenzene	U	H	21	73	µg/Kg-dry	1	7/13/2016 21:17
Hexachlorobutadiene	U	H	40	73	µg/Kg-dry	1	7/13/2016 21:17
Hexachlorocyclopentadiene	U	H	25	73	µg/Kg-dry	1	7/13/2016 21:17
Hexachloroethane	U	H	30	73	µg/Kg-dry	1	7/13/2016 21:17
Indeno(1,2,3-cd)pyrene	21,000	H	200	290	µg/Kg-dry	20	7/15/2016 12:10
Isophorone	U	H	14	370	µg/Kg-dry	1	7/13/2016 21:17
Naphthalene	870	H	9.4	15	µg/Kg-dry	1	7/13/2016 21:17
Nitrobenzene	U	H	25	370	µg/Kg-dry	1	7/13/2016 21:17
N-Nitrosodi-n-propylamine	U	H	12	73	µg/Kg-dry	1	7/13/2016 21:17
N-Nitrosodiphenylamine	U	H	7.1	73	µg/Kg-dry	1	7/13/2016 21:17
Pentachlorophenol	U	H	27	73	µg/Kg-dry	1	7/13/2016 21:17
Phenanthrene	32,000	H	140	290	µg/Kg-dry	20	7/15/2016 12:10
Phenol	U	H	18	73	µg/Kg-dry	1	7/13/2016 21:17
Pyrene	49,000	H	53	290	µg/Kg-dry	20	7/15/2016 12:10
Surr: 2,4,6-Tribromophenol	72.3			34-140	%REC	1	7/13/2016 21:17
Surr: 2-Fluorobiphenyl	68.5			12-100	%REC	1	7/13/2016 21:17

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-05-TRIP**Lab ID:** 16061792-15**Collection Date:** 6/28/2016 10:47 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	67.0			33-117	%REC	1	7/13/2016 21:17
Surr: 4-Terphenyl-d14	75.6			25-137	%REC	1	7/13/2016 21:17
Surr: Nitrobenzene-d5	64.5			37-107	%REC	1	7/13/2016 21:17
Surr: Phenol-d6	62.7			40-106	%REC	1	7/13/2016 21:17
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	12	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.028		0.0025	0.015	mg/Kg-dry	1	7/15/2016 12:39
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	8.3		0.53	2.1	mg/Kg-dry	5	7/15/2016 14:52
Barium	230		0.82	2.1	mg/Kg-dry	5	7/15/2016 14:52
Cadmium	0.85	J	0.20	4.1	mg/Kg-dry	5	7/15/2016 14:52
Chromium	15		0.11	2.1	mg/Kg-dry	5	7/15/2016 14:52
Lead	85		0.43	2.1	mg/Kg-dry	5	7/15/2016 14:52
Selenium	1.9	J	1.1	4.1	mg/Kg-dry	5	7/15/2016 14:52
Silver	U		0.25	2.1	mg/Kg-dry	5	7/15/2016 14:52
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	52	JH	10	64	µg/Kg-dry	1	7/13/2016 21:38
2,4,5-Trichlorophenol	U	H	18	64	µg/Kg-dry	1	7/13/2016 21:38
2,4,6-Trichlorophenol	U	H	17	64	µg/Kg-dry	1	7/13/2016 21:38
2,4-Dichlorophenol	U	H	14	64	µg/Kg-dry	1	7/13/2016 21:38
2,4-Dimethylphenol	U	H	13	64	µg/Kg-dry	1	7/13/2016 21:38
2,4-Dinitrophenol	U	H	35	64	µg/Kg-dry	1	7/13/2016 21:38
2,4-Dinitrotoluene	U	H	17	64	µg/Kg-dry	1	7/13/2016 21:38
2,6-Dinitrotoluene	U	H	11	64	µg/Kg-dry	1	7/13/2016 21:38
2-Chloronaphthalene	U	H	9.0	13	µg/Kg-dry	1	7/13/2016 21:38
2-Chlorophenol	U	H	20	64	µg/Kg-dry	1	7/13/2016 21:38
2-Methylnaphthalene	300	H	6.6	13	µg/Kg-dry	1	7/13/2016 21:38
2-Methylphenol	U	H	17	64	µg/Kg-dry	1	7/13/2016 21:38
2-Nitroaniline	U	H	15	64	µg/Kg-dry	1	7/13/2016 21:38
2-Nitrophenol	U	H	18	64	µg/Kg-dry	1	7/13/2016 21:38
3&4-Methylphenol	51	JH	13	64	µg/Kg-dry	1	7/13/2016 21:38
3,3'-Dichlorobenzidine	U	H	9.6	320	µg/Kg-dry	1	7/13/2016 21:38
3-Nitroaniline	U	H	15	64	µg/Kg-dry	1	7/13/2016 21:38
4,6-Dinitro-2-methylphenol	U	H	16	64	µg/Kg-dry	1	7/13/2016 21:38
4-Bromophenyl phenyl ether	U	H	17	64	µg/Kg-dry	1	7/13/2016 21:38
4-Chloro-3-methylphenol	U	H	18	64	µg/Kg-dry	1	7/13/2016 21:38
4-Chloroaniline	U	H	10	130	µg/Kg-dry	1	7/13/2016 21:38
4-Chlorophenyl phenyl ether	U	H	18	64	µg/Kg-dry	1	7/13/2016 21:38
4-Nitroaniline	U	H	100	320	µg/Kg-dry	1	7/13/2016 21:38
4-Nitrophenol	U	H	58	64	µg/Kg-dry	1	7/13/2016 21:38
Acenaphthene	280	H	9.3	13	µg/Kg-dry	1	7/13/2016 21:38
Acenaphthylene	75	H	11	13	µg/Kg-dry	1	7/13/2016 21:38
Acetophenone	U	H	10	64	µg/Kg-dry	1	7/13/2016 21:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-16
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	840	H	9.1	13	µg/Kg-dry	1	7/13/2016 21:38
Atrazine	U	H	10	64	µg/Kg-dry	1	7/13/2016 21:38
Benzaldehyde	U	H	99	130	µg/Kg-dry	1	7/13/2016 21:38
Benzo(a)anthracene	3,300	H	11	13	µg/Kg-dry	1	7/13/2016 21:38
Benzo(a)pyrene	3,300	H	7.9	13	µg/Kg-dry	1	7/13/2016 21:38
Benzo(b)fluoranthene	5,300	H	48	64	µg/Kg-dry	5	7/14/2016 23:42
Benzo(g,h,i)perylene	2,500	H	9.9	13	µg/Kg-dry	1	7/13/2016 21:38
Benzo(k)fluoranthene	1,400	H	9.8	13	µg/Kg-dry	1	7/13/2016 21:38
Bis(2-chloroethoxy)methane	U	H	6.2	64	µg/Kg-dry	1	7/13/2016 21:38
Bis(2-chloroethyl)ether	U	H	18	64	µg/Kg-dry	1	7/13/2016 21:38
Bis(2-chloroisopropyl)ether	U	H	15	64	µg/Kg-dry	1	7/13/2016 21:38
Bis(2-ethylhexyl)phthalate	U	H	11	64	µg/Kg-dry	1	7/13/2016 21:38
Butyl benzyl phthalate	U	H	11	64	µg/Kg-dry	1	7/13/2016 21:38
Caprolactam	U	H	22	64	µg/Kg-dry	1	7/13/2016 21:38
Carbazole	510	H	7.0	64	µg/Kg-dry	1	7/13/2016 21:38
Chrysene	4,200	H	52	64	µg/Kg-dry	5	7/14/2016 23:42
Dibenzo(a,h)anthracene	900	H	7.0	13	µg/Kg-dry	1	7/13/2016 21:38
Dibenzofuran	190	H	9.5	64	µg/Kg-dry	1	7/13/2016 21:38
Diethyl phthalate	U	H	9.9	64	µg/Kg-dry	1	7/13/2016 21:38
Dimethyl phthalate	U	H	13	64	µg/Kg-dry	1	7/13/2016 21:38
Di-n-butyl phthalate	U	H	12	64	µg/Kg-dry	1	7/13/2016 21:38
Di-n-octyl phthalate	U	H	12	64	µg/Kg-dry	1	7/13/2016 21:38
Fluoranthene	6,100	H	31	64	µg/Kg-dry	5	7/14/2016 23:42
Fluorene	220	H	9.4	13	µg/Kg-dry	1	7/13/2016 21:38
Hexachlorobenzene	U	H	19	64	µg/Kg-dry	1	7/13/2016 21:38
Hexachlorobutadiene	U	H	35	64	µg/Kg-dry	1	7/13/2016 21:38
Hexachlorocyclopentadiene	U	H	22	64	µg/Kg-dry	1	7/13/2016 21:38
Hexachloroethane	U	H	27	64	µg/Kg-dry	1	7/13/2016 21:38
Indeno(1,2,3-cd)pyrene	2,700	H	9.0	13	µg/Kg-dry	1	7/13/2016 21:38
Isophorone	U	H	13	320	µg/Kg-dry	1	7/13/2016 21:38
Naphthalene	330	H	8.2	13	µg/Kg-dry	1	7/13/2016 21:38
Nitrobenzene	U	H	22	320	µg/Kg-dry	1	7/13/2016 21:38
N-Nitrosodi-n-propylamine	U	H	11	64	µg/Kg-dry	1	7/13/2016 21:38
N-Nitrosodiphenylamine	U	H	6.2	64	µg/Kg-dry	1	7/13/2016 21:38
Pentachlorophenol	U	H	24	64	µg/Kg-dry	1	7/13/2016 21:38
Phenanthrene	3,200	H	6.0	13	µg/Kg-dry	1	7/13/2016 21:38
Phenol	U	H	16	64	µg/Kg-dry	1	7/13/2016 21:38
Pyrene	6,500	H	12	64	µg/Kg-dry	5	7/14/2016 23:42
Surr: 2,4,6-Tribromophenol	56.3			34-140	%REC	1	7/13/2016 21:38
Surr: 2-Fluorobiphenyl	55.3			12-100	%REC	1	7/13/2016 21:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-06**Lab ID:** 16061792-16**Collection Date:** 6/28/2016 09:35 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	57.1			33-117	%REC	1	7/13/2016 21:38
Surr: 4-Terphenyl-d14	55.8			25-137	%REC	1	7/13/2016 21:38
Surr: Nitrobenzene-d5	54.8			37-107	%REC	1	7/13/2016 21:38
Surr: Phenol-d6	52.2			40-106	%REC	1	7/13/2016 21:38
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.9	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06-DUP
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.024		0.0027	0.017	mg/Kg-dry	1	7/15/2016 12:48
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.1		0.49	1.9	mg/Kg-dry	5	7/15/2016 14:58
Barium	170		0.75	1.9	mg/Kg-dry	5	7/15/2016 14:58
Cadmium	0.88	J	0.18	3.7	mg/Kg-dry	5	7/15/2016 14:58
Chromium	13		0.10	1.9	mg/Kg-dry	5	7/15/2016 14:58
Lead	59		0.40	1.9	mg/Kg-dry	5	7/15/2016 14:58
Selenium	1.5	J	1.0	3.7	mg/Kg-dry	5	7/15/2016 14:58
Silver	U		0.23	1.9	mg/Kg-dry	5	7/15/2016 14:58
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	61	JH	11	67	µg/Kg-dry	1	7/13/2016 22:00
2,4,5-Trichlorophenol	U	H	18	67	µg/Kg-dry	1	7/13/2016 22:00
2,4,6-Trichlorophenol	U	H	18	67	µg/Kg-dry	1	7/13/2016 22:00
2,4-Dichlorophenol	U	H	14	67	µg/Kg-dry	1	7/13/2016 22:00
2,4-Dimethylphenol	U	H	14	67	µg/Kg-dry	1	7/13/2016 22:00
2,4-Dinitrophenol	U	H	36	67	µg/Kg-dry	1	7/13/2016 22:00
2,4-Dinitrotoluene	U	H	18	67	µg/Kg-dry	1	7/13/2016 22:00
2,6-Dinitrotoluene	U	H	11	67	µg/Kg-dry	1	7/13/2016 22:00
2-Chloronaphthalene	U	H	9.4	14	µg/Kg-dry	1	7/13/2016 22:00
2-Chlorophenol	U	H	21	67	µg/Kg-dry	1	7/13/2016 22:00
2-Methylnaphthalene	400	H	6.9	14	µg/Kg-dry	1	7/13/2016 22:00
2-Methylphenol	U	H	18	67	µg/Kg-dry	1	7/13/2016 22:00
2-Nitroaniline	U	H	15	67	µg/Kg-dry	1	7/13/2016 22:00
2-Nitrophenol	U	H	19	67	µg/Kg-dry	1	7/13/2016 22:00
3&4-Methylphenol	65	JH	14	67	µg/Kg-dry	1	7/13/2016 22:00
3,3'-Dichlorobenzidine	U	H	10	340	µg/Kg-dry	1	7/13/2016 22:00
3-Nitroaniline	U	H	15	67	µg/Kg-dry	1	7/13/2016 22:00
4,6-Dinitro-2-methylphenol	U	H	17	67	µg/Kg-dry	1	7/13/2016 22:00
4-Bromophenyl phenyl ether	U	H	18	67	µg/Kg-dry	1	7/13/2016 22:00
4-Chloro-3-methylphenol	U	H	19	67	µg/Kg-dry	1	7/13/2016 22:00
4-Chloroaniline	U	H	11	140	µg/Kg-dry	1	7/13/2016 22:00
4-Chlorophenyl phenyl ether	U	H	19	67	µg/Kg-dry	1	7/13/2016 22:00
4-Nitroaniline	U	H	100	340	µg/Kg-dry	1	7/13/2016 22:00
4-Nitrophenol	U	H	60	67	µg/Kg-dry	1	7/13/2016 22:00
Acenaphthene	510	H	9.8	14	µg/Kg-dry	1	7/13/2016 22:00
Acenaphthylene	57	H	12	14	µg/Kg-dry	1	7/13/2016 22:00
Acetophenone	13	JH	11	67	µg/Kg-dry	1	7/13/2016 22:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06-DUP
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-17
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	2,800	H	9.5	14	µg/Kg-dry	1	7/13/2016 22:00
Atrazine	U	H	11	67	µg/Kg-dry	1	7/13/2016 22:00
Benzaldehyde	U	H	100	140	µg/Kg-dry	1	7/13/2016 22:00
Benzo(a)anthracene	5,200	H	120	140	µg/Kg-dry	10	7/14/2016 21:51
Benzo(a)pyrene	5,500	H	83	140	µg/Kg-dry	10	7/14/2016 21:51
Benzo(b)fluoranthene	7,200	H	100	140	µg/Kg-dry	10	7/14/2016 21:51
Benzo(g,h,i)perylene	3,400	H	10	14	µg/Kg-dry	1	7/13/2016 22:00
Benzo(k)fluoranthene	1,900	H	10	14	µg/Kg-dry	1	7/13/2016 22:00
Bis(2-chloroethoxy)methane	U	H	6.5	67	µg/Kg-dry	1	7/13/2016 22:00
Bis(2-chloroethyl)ether	U	H	19	67	µg/Kg-dry	1	7/13/2016 22:00
Bis(2-chloroisopropyl)ether	U	H	16	67	µg/Kg-dry	1	7/13/2016 22:00
Bis(2-ethylhexyl)phthalate	U	H	12	67	µg/Kg-dry	1	7/13/2016 22:00
Butyl benzyl phthalate	U	H	11	67	µg/Kg-dry	1	7/13/2016 22:00
Caprolactam	U	H	23	67	µg/Kg-dry	1	7/13/2016 22:00
Carbazole	1,300	H	7.3	67	µg/Kg-dry	1	7/13/2016 22:00
Chrysene	6,100	H	110	140	µg/Kg-dry	10	7/14/2016 21:51
Dibenzo(a,h)anthracene	1,200	H	7.3	14	µg/Kg-dry	1	7/13/2016 22:00
Dibenzofuran	290	H	9.9	67	µg/Kg-dry	1	7/13/2016 22:00
Diethyl phthalate	U	H	10	67	µg/Kg-dry	1	7/13/2016 22:00
Dimethyl phthalate	U	H	13	67	µg/Kg-dry	1	7/13/2016 22:00
Di-n-butyl phthalate	U	H	12	67	µg/Kg-dry	1	7/13/2016 22:00
Di-n-octyl phthalate	U	H	13	67	µg/Kg-dry	1	7/13/2016 22:00
Fluoranthene	11,000	H	65	140	µg/Kg-dry	10	7/14/2016 21:51
Fluorene	600	H	9.8	14	µg/Kg-dry	1	7/13/2016 22:00
Hexachlorobenzene	U	H	20	67	µg/Kg-dry	1	7/13/2016 22:00
Hexachlorobutadiene	U	H	37	67	µg/Kg-dry	1	7/13/2016 22:00
Hexachlorocyclopentadiene	U	H	23	67	µg/Kg-dry	1	7/13/2016 22:00
Hexachloroethane	U	H	28	67	µg/Kg-dry	1	7/13/2016 22:00
Indeno(1,2,3-cd)pyrene	3,500	H	9.4	14	µg/Kg-dry	1	7/13/2016 22:00
Isophorone	U	H	13	340	µg/Kg-dry	1	7/13/2016 22:00
Naphthalene	330	H	8.6	14	µg/Kg-dry	1	7/13/2016 22:00
Nitrobenzene	U	H	23	340	µg/Kg-dry	1	7/13/2016 22:00
N-Nitrosodi-n-propylamine	U	H	11	67	µg/Kg-dry	1	7/13/2016 22:00
N-Nitrosodiphenylamine	U	H	6.5	67	µg/Kg-dry	1	7/13/2016 22:00
Pentachlorophenol	U	H	25	67	µg/Kg-dry	1	7/13/2016 22:00
Phenanthrene	8,400	H	63	140	µg/Kg-dry	10	7/14/2016 21:51
Phenol	U	H	17	67	µg/Kg-dry	1	7/13/2016 22:00
Pyrene	9,700	H	24	140	µg/Kg-dry	10	7/14/2016 21:51
Surr: 2,4,6-Tribromophenol	66.7			34-140	%REC	1	7/13/2016 22:00
Surr: 2-Fluorobiphenyl	60.9			12-100	%REC	1	7/13/2016 22:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-06-DUP**Lab ID:** 16061792-17**Collection Date:** 6/28/2016 09:35 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	63.5			33-117	%REC	1	7/13/2016 22:00
Surr: 4-Terphenyl-d14	64.4			25-137	%REC	1	7/13/2016 22:00
Surr: Nitrobenzene-d5	60.8			37-107	%REC	1	7/13/2016 22:00
Surr: Phenol-d6	58.7			40-106	%REC	1	7/13/2016 22:00
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	1.5	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06-TRIP
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.030		0.0026	0.016	mg/Kg-dry	1	7/15/2016 12:50
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	7.3		0.45	1.7	mg/Kg-dry	5	7/15/2016 15:03
Barium	190		0.69	1.7	mg/Kg-dry	5	7/15/2016 15:03
Cadmium	1.1	J	0.17	3.5	mg/Kg-dry	5	7/15/2016 15:03
Chromium	18		0.097	1.7	mg/Kg-dry	5	7/15/2016 15:03
Lead	64		0.37	1.7	mg/Kg-dry	5	7/15/2016 15:03
Selenium	1.3	J	0.97	3.5	mg/Kg-dry	5	7/15/2016 15:03
Silver	U		0.21	1.7	mg/Kg-dry	5	7/15/2016 15:03
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	35	JH	11	65	µg/Kg-dry	1	7/13/2016 22:22
2,4,5-Trichlorophenol	U	H	18	65	µg/Kg-dry	1	7/13/2016 22:22
2,4,6-Trichlorophenol	U	H	17	65	µg/Kg-dry	1	7/13/2016 22:22
2,4-Dichlorophenol	U	H	14	65	µg/Kg-dry	1	7/13/2016 22:22
2,4-Dimethylphenol	U	H	13	65	µg/Kg-dry	1	7/13/2016 22:22
2,4-Dinitrophenol	U	H	35	65	µg/Kg-dry	1	7/13/2016 22:22
2,4-Dinitrotoluene	U	H	17	65	µg/Kg-dry	1	7/13/2016 22:22
2,6-Dinitrotoluene	U	H	11	65	µg/Kg-dry	1	7/13/2016 22:22
2-Chloronaphthalene	U	H	9.2	13	µg/Kg-dry	1	7/13/2016 22:22
2-Chlorophenol	U	H	21	65	µg/Kg-dry	1	7/13/2016 22:22
2-Methylnaphthalene	240	H	6.7	13	µg/Kg-dry	1	7/13/2016 22:22
2-Methylphenol	U	H	18	65	µg/Kg-dry	1	7/13/2016 22:22
2-Nitroaniline	U	H	15	65	µg/Kg-dry	1	7/13/2016 22:22
2-Nitrophenol	U	H	19	65	µg/Kg-dry	1	7/13/2016 22:22
3&4-Methylphenol	50	JH	13	65	µg/Kg-dry	1	7/13/2016 22:22
3,3'-Dichlorobenzidine	U	H	9.7	330	µg/Kg-dry	1	7/13/2016 22:22
3-Nitroaniline	U	H	15	65	µg/Kg-dry	1	7/13/2016 22:22
4,6-Dinitro-2-methylphenol	U	H	16	65	µg/Kg-dry	1	7/13/2016 22:22
4-Bromophenyl phenyl ether	U	H	18	65	µg/Kg-dry	1	7/13/2016 22:22
4-Chloro-3-methylphenol	U	H	19	65	µg/Kg-dry	1	7/13/2016 22:22
4-Chloroaniline	U	H	10	130	µg/Kg-dry	1	7/13/2016 22:22
4-Chlorophenyl phenyl ether	U	H	18	65	µg/Kg-dry	1	7/13/2016 22:22
4-Nitroaniline	U	H	100	330	µg/Kg-dry	1	7/13/2016 22:22
4-Nitrophenol	U	H	59	65	µg/Kg-dry	1	7/13/2016 22:22
Acenaphthene	250	H	9.5	13	µg/Kg-dry	1	7/13/2016 22:22
Acenaphthylene	45	H	11	13	µg/Kg-dry	1	7/13/2016 22:22
Acetophenone	U	H	10	65	µg/Kg-dry	1	7/13/2016 22:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06-TRIP
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-18
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	830	H	9.2	13	µg/Kg-dry	1	7/13/2016 22:22
Atrazine	U	H	10	65	µg/Kg-dry	1	7/13/2016 22:22
Benzaldehyde	U	H	100	130	µg/Kg-dry	1	7/13/2016 22:22
Benzo(a)anthracene	3,300	H	11	13	µg/Kg-dry	1	7/13/2016 22:22
Benzo(a)pyrene	3,100	H	8.0	13	µg/Kg-dry	1	7/13/2016 22:22
Benzo(b)fluoranthene	5,100	H	49	66	µg/Kg-dry	5	7/14/2016 20:54
Benzo(g,h,i)perylene	2,400	H	10	13	µg/Kg-dry	1	7/13/2016 22:22
Benzo(k)fluoranthene	1,300	H	9.9	13	µg/Kg-dry	1	7/13/2016 22:22
Bis(2-chloroethoxy)methane	U	H	6.3	65	µg/Kg-dry	1	7/13/2016 22:22
Bis(2-chloroethyl)ether	U	H	19	65	µg/Kg-dry	1	7/13/2016 22:22
Bis(2-chloroisopropyl)ether	U	H	15	65	µg/Kg-dry	1	7/13/2016 22:22
Bis(2-ethylhexyl)phthalate	U	H	11	65	µg/Kg-dry	1	7/13/2016 22:22
Butyl benzyl phthalate	U	H	11	65	µg/Kg-dry	1	7/13/2016 22:22
Caprolactam	U	H	22	65	µg/Kg-dry	1	7/13/2016 22:22
Carbazole	520	H	7.1	65	µg/Kg-dry	1	7/13/2016 22:22
Chrysene	3,900	H	11	13	µg/Kg-dry	1	7/13/2016 22:22
Dibenzo(a,h)anthracene	910	H	7.1	13	µg/Kg-dry	1	7/13/2016 22:22
Dibenzofuran	140	H	9.6	65	µg/Kg-dry	1	7/13/2016 22:22
Diethyl phthalate	U	H	10	65	µg/Kg-dry	1	7/13/2016 22:22
Dimethyl phthalate	U	H	13	65	µg/Kg-dry	1	7/13/2016 22:22
Di-n-butyl phthalate	U	H	12	65	µg/Kg-dry	1	7/13/2016 22:22
Di-n-octyl phthalate	U	H	13	65	µg/Kg-dry	1	7/13/2016 22:22
Fluoranthene	7,000	H	31	66	µg/Kg-dry	5	7/14/2016 20:54
Fluorene	220	H	9.5	13	µg/Kg-dry	1	7/13/2016 22:22
Hexachlorobenzene	U	H	19	65	µg/Kg-dry	1	7/13/2016 22:22
Hexachlorobutadiene	U	H	36	65	µg/Kg-dry	1	7/13/2016 22:22
Hexachlorocyclopentadiene	U	H	22	65	µg/Kg-dry	1	7/13/2016 22:22
Hexachloroethane	U	H	27	65	µg/Kg-dry	1	7/13/2016 22:22
Indeno(1,2,3-cd)pyrene	2,600	H	9.1	13	µg/Kg-dry	1	7/13/2016 22:22
Isophorone	U	H	13	330	µg/Kg-dry	1	7/13/2016 22:22
Naphthalene	220	H	8.4	13	µg/Kg-dry	1	7/13/2016 22:22
Nitrobenzene	U	H	22	330	µg/Kg-dry	1	7/13/2016 22:22
N-Nitrosodi-n-propylamine	U	H	11	65	µg/Kg-dry	1	7/13/2016 22:22
N-Nitrosodiphenylamine	U	H	6.3	65	µg/Kg-dry	1	7/13/2016 22:22
Pentachlorophenol	U	H	24	65	µg/Kg-dry	1	7/13/2016 22:22
Phenanthrene	3,100	H	6.1	13	µg/Kg-dry	1	7/13/2016 22:22
Phenol	U	H	16	65	µg/Kg-dry	1	7/13/2016 22:22
Pyrene	7,300	H	12	66	µg/Kg-dry	5	7/14/2016 20:54
Surr: 2,4,6-Tribromophenol	64.1			34-140	%REC	1	7/13/2016 22:22
Surr: 2-Fluorobiphenyl	60.0			12-100	%REC	1	7/13/2016 22:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-06-TRIP**Lab ID:** 16061792-18**Collection Date:** 6/28/2016 09:35 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	61.2			33-117	%REC	1	7/13/2016 22:22
Surr: 4-Terphenyl-d14	57.9			25-137	%REC	1	7/13/2016 22:22
Surr: Nitrobenzene-d5	58.4			37-107	%REC	1	7/13/2016 22:22
Surr: Phenol-d6	55.4			40-106	%REC	1	7/13/2016 22:22
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	1.6	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-07
Collection Date: 6/28/2016 02:50 PM

Work Order: 16061792
Lab ID: 16061792-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.57		0.013	0.077	mg/Kg-dry	5	7/15/2016 15:00
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	8.8		0.54	2.1	mg/Kg-dry	5	7/15/2016 15:08
Barium	79		0.83	2.1	mg/Kg-dry	5	7/15/2016 15:08
Cadmium	8.9		0.20	4.2	mg/Kg-dry	5	7/15/2016 15:08
Chromium	31		0.12	2.1	mg/Kg-dry	5	7/15/2016 15:08
Lead	230		0.44	2.1	mg/Kg-dry	5	7/15/2016 15:08
Selenium	3.9	J	1.2	4.2	mg/Kg-dry	5	7/15/2016 15:08
Silver	0.66	J	0.26	2.1	mg/Kg-dry	5	7/15/2016 15:08
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	340	JH	110	670	µg/Kg-dry	10	7/14/2016 21:22
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 21:22
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 21:22
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 21:22
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 21:22
2,4-Dinitrophenol	U	H	370	670	µg/Kg-dry	10	7/14/2016 21:22
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/14/2016 21:22
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/14/2016 21:22
2-Chloronaphthalene	U	H	95	140	µg/Kg-dry	10	7/14/2016 21:22
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/14/2016 21:22
2-Methylnaphthalene	1,300	H	69	140	µg/Kg-dry	10	7/14/2016 21:22
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 21:22
2-Nitroaniline	U	H	160	670	µg/Kg-dry	10	7/14/2016 21:22
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 21:22
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 21:22
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 21:22
3-Nitroaniline	U	H	160	670	µg/Kg-dry	10	7/14/2016 21:22
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 21:22
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/14/2016 21:22
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 21:22
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 21:22
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 21:22
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 21:22
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/14/2016 21:22
Acenaphthene	9,000	H	98	140	µg/Kg-dry	10	7/14/2016 21:22
Acenaphthylene	200	H	120	140	µg/Kg-dry	10	7/14/2016 21:22
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/14/2016 21:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-07
Collection Date: 6/28/2016 02:50 PM

Work Order: 16061792
Lab ID: 16061792-19
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	17,000	H	95	140	µg/Kg-dry	10	7/14/2016 21:22
Atrazine	U	H	110	670	µg/Kg-dry	10	7/14/2016 21:22
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 21:22
Benzo(a)anthracene	31,000	H	120	140	µg/Kg-dry	10	7/14/2016 21:22
Benzo(a)pyrene	25,000	H	83	140	µg/Kg-dry	10	7/14/2016 21:22
Benzo(b)fluoranthene	35,000	H	100	140	µg/Kg-dry	10	7/14/2016 21:22
Benzo(g,h,i)perylene	15,000	H	100	140	µg/Kg-dry	10	7/14/2016 21:22
Benzo(k)fluoranthene	11,000	H	100	140	µg/Kg-dry	10	7/14/2016 21:22
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/14/2016 21:22
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 21:22
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/14/2016 21:22
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 21:22
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/14/2016 21:22
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/14/2016 21:22
Carbazole	10,000	H	73	670	µg/Kg-dry	10	7/14/2016 21:22
Chrysene	33,000	H	110	140	µg/Kg-dry	10	7/14/2016 21:22
Dibenzo(a,h)anthracene	4,800	H	73	140	µg/Kg-dry	10	7/14/2016 21:22
Dibenzofuran	4,600	H	99	670	µg/Kg-dry	10	7/14/2016 21:22
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/14/2016 21:22
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 21:22
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 21:22
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 21:22
Fluoranthene	77,000	H	320	680	µg/Kg-dry	50	7/14/2016 22:19
Fluorene	8,700	H	98	140	µg/Kg-dry	10	7/14/2016 21:22
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/14/2016 21:22
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/14/2016 21:22
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/14/2016 21:22
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/14/2016 21:22
Indeno(1,2,3-cd)pyrene	18,000	H	94	140	µg/Kg-dry	10	7/14/2016 21:22
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 21:22
Naphthalene	1,400	H	86	140	µg/Kg-dry	10	7/14/2016 21:22
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 21:22
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/14/2016 21:22
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/14/2016 21:22
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/14/2016 21:22
Phenanthrene	76,000	H	310	680	µg/Kg-dry	50	7/14/2016 22:19
Phenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 21:22
Pyrene	68,000	H	120	680	µg/Kg-dry	50	7/14/2016 22:19
Surr: 2,4,6-Tribromophenol	60.2			34-140	%REC	10	7/14/2016 21:22
Surr: 2-Fluorobiphenyl	52.6			12-100	%REC	10	7/14/2016 21:22

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-07**Lab ID:** 16061792-19**Collection Date:** 6/28/2016 02:50 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	54.8			33-117	%REC	10	7/14/2016 21:22
<i>Surr: 4-Terphenyl-d14</i>	74.8			25-137	%REC	10	7/14/2016 21:22
<i>Surr: Nitrobenzene-d5</i>	56.6			37-107	%REC	10	7/14/2016 21:22
<i>Surr: Phenol-d6</i>	47.8			40-106	%REC	10	7/14/2016 21:22
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	3.4	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-07-DUP
Collection Date: 6/28/2016 02:50 PM

Work Order: 16061792
Lab ID: 16061792-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	1.1		0.024	0.15	mg/Kg-dry	10	7/15/2016 15:03
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	8.3		0.46	1.8	mg/Kg-dry	5	7/15/2016 15:14
Barium	69		0.71	1.8	mg/Kg-dry	5	7/15/2016 15:14
Cadmium	7.6		0.17	3.6	mg/Kg-dry	5	7/15/2016 15:14
Chromium	33		0.10	1.8	mg/Kg-dry	5	7/15/2016 15:14
Lead	200		0.38	1.8	mg/Kg-dry	5	7/15/2016 15:14
Selenium	3.2	J	1.0	3.6	mg/Kg-dry	5	7/15/2016 15:14
Silver	0.81	J	0.22	1.8	mg/Kg-dry	5	7/15/2016 15:14
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	U	H	210	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,4,5-Trichlorophenol	U	H	360	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,4,6-Trichlorophenol	U	H	350	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,4-Dichlorophenol	U	H	280	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,4-Dimethylphenol	U	H	270	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,4-Dinitrophenol	U	H	710	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,4-Dinitrotoluene	U	H	340	1,300	µg/Kg-dry	20	7/15/2016 12:38
2,6-Dinitrotoluene	U	H	220	1,300	µg/Kg-dry	20	7/15/2016 12:38
2-Chloronaphthalene	U	H	180	260	µg/Kg-dry	20	7/15/2016 12:38
2-Chlorophenol	U	H	410	1,300	µg/Kg-dry	20	7/15/2016 12:38
2-Methylnaphthalene	380	H	130	260	µg/Kg-dry	20	7/15/2016 12:38
2-Methylphenol	U	H	350	1,300	µg/Kg-dry	20	7/15/2016 12:38
2-Nitroaniline	U	H	300	1,300	µg/Kg-dry	20	7/15/2016 12:38
2-Nitrophenol	U	H	370	1,300	µg/Kg-dry	20	7/15/2016 12:38
3&4-Methylphenol	U	H	260	1,300	µg/Kg-dry	20	7/15/2016 12:38
3,3'-Dichlorobenzidine	U	H	190	6,600	µg/Kg-dry	20	7/15/2016 12:38
3-Nitroaniline	U	H	300	1,300	µg/Kg-dry	20	7/15/2016 12:38
4,6-Dinitro-2-methylphenol	U	H	330	1,300	µg/Kg-dry	20	7/15/2016 12:38
4-Bromophenyl phenyl ether	U	H	350	1,300	µg/Kg-dry	20	7/15/2016 12:38
4-Chloro-3-methylphenol	U	H	370	1,300	µg/Kg-dry	20	7/15/2016 12:38
4-Chloroaniline	U	H	210	2,600	µg/Kg-dry	20	7/15/2016 12:38
4-Chlorophenyl phenyl ether	U	H	360	1,300	µg/Kg-dry	20	7/15/2016 12:38
4-Nitroaniline	U	H	2,000	6,600	µg/Kg-dry	20	7/15/2016 12:38
4-Nitrophenol	U	H	1,200	1,300	µg/Kg-dry	20	7/15/2016 12:38
Acenaphthene	1,900	H	190	260	µg/Kg-dry	20	7/15/2016 12:38
Acenaphthylene	U	H	230	260	µg/Kg-dry	20	7/15/2016 12:38
Acetophenone	U	H	210	1,300	µg/Kg-dry	20	7/15/2016 12:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-07-DUP
Collection Date: 6/28/2016 02:50 PM

Work Order: 16061792
Lab ID: 16061792-20
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	4,800	H	190	260	µg/Kg-dry	20	7/15/2016 12:38
Atrazine	U	H	210	1,300	µg/Kg-dry	20	7/15/2016 12:38
Benzaldehyde	U	H	2,000	2,600	µg/Kg-dry	20	7/15/2016 12:38
Benzo(a)anthracene	14,000	H	230	260	µg/Kg-dry	20	7/15/2016 12:38
Benzo(a)pyrene	15,000	H	160	260	µg/Kg-dry	20	7/15/2016 12:38
Benzo(b)fluoranthene	21,000	H	200	260	µg/Kg-dry	20	7/15/2016 12:38
Benzo(g,h,i)perylene	9,600	H	200	260	µg/Kg-dry	20	7/15/2016 12:38
Benzo(k)fluoranthene	6,200	H	200	260	µg/Kg-dry	20	7/15/2016 12:38
Bis(2-chloroethoxy)methane	U	H	130	1,300	µg/Kg-dry	20	7/15/2016 12:38
Bis(2-chloroethyl)ether	U	H	370	1,300	µg/Kg-dry	20	7/15/2016 12:38
Bis(2-chloroisopropyl)ether	U	H	310	1,300	µg/Kg-dry	20	7/15/2016 12:38
Bis(2-ethylhexyl)phthalate	U	H	230	1,300	µg/Kg-dry	20	7/15/2016 12:38
Butyl benzyl phthalate	U	H	220	1,300	µg/Kg-dry	20	7/15/2016 12:38
Caprolactam	U	H	450	1,300	µg/Kg-dry	20	7/15/2016 12:38
Carbazole	3,200	H	140	1,300	µg/Kg-dry	20	7/15/2016 12:38
Chrysene	15,000	H	210	260	µg/Kg-dry	20	7/15/2016 12:38
Dibenzo(a,h)anthracene	2,800	H	140	260	µg/Kg-dry	20	7/15/2016 12:38
Dibenzofuran	910	JH	190	1,300	µg/Kg-dry	20	7/15/2016 12:38
Diethyl phthalate	U	H	200	1,300	µg/Kg-dry	20	7/15/2016 12:38
Dimethyl phthalate	U	H	260	1,300	µg/Kg-dry	20	7/15/2016 12:38
Di-n-butyl phthalate	U	H	240	1,300	µg/Kg-dry	20	7/15/2016 12:38
Di-n-octyl phthalate	U	H	250	1,300	µg/Kg-dry	20	7/15/2016 12:38
Fluoranthene	30,000	H	130	260	µg/Kg-dry	20	7/15/2016 12:38
Fluorene	1,600	H	190	260	µg/Kg-dry	20	7/15/2016 12:38
Hexachlorobenzene	U	H	380	1,300	µg/Kg-dry	20	7/15/2016 12:38
Hexachlorobutadiene	U	H	710	1,300	µg/Kg-dry	20	7/15/2016 12:38
Hexachlorocyclopentadiene	U	H	450	1,300	µg/Kg-dry	20	7/15/2016 12:38
Hexachloroethane	U	H	540	1,300	µg/Kg-dry	20	7/15/2016 12:38
Indeno(1,2,3-cd)pyrene	12,000	H	180	260	µg/Kg-dry	20	7/15/2016 12:38
Isophorone	U	H	260	6,600	µg/Kg-dry	20	7/15/2016 12:38
Naphthalene	410	H	170	260	µg/Kg-dry	20	7/15/2016 12:38
Nitrobenzene	U	H	440	6,600	µg/Kg-dry	20	7/15/2016 12:38
N-Nitrosodi-n-propylamine	U	H	220	1,300	µg/Kg-dry	20	7/15/2016 12:38
N-Nitrosodiphenylamine	U	H	130	1,300	µg/Kg-dry	20	7/15/2016 12:38
Pentachlorophenol	U	H	480	1,300	µg/Kg-dry	20	7/15/2016 12:38
Phenanthrene	20,000	H	120	260	µg/Kg-dry	20	7/15/2016 12:38
Phenol	U	H	330	1,300	µg/Kg-dry	20	7/15/2016 12:38
Pyrene	32,000	H	48	260	µg/Kg-dry	20	7/15/2016 12:38
Surr: 2,4,6-Tribromophenol	68.0			34-140	%REC	20	7/15/2016 12:38
Surr: 2-Fluorobiphenyl	52.0			12-100	%REC	20	7/15/2016 12:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-07-DUP**Lab ID:** 16061792-20**Collection Date:** 6/28/2016 02:50 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	57.6			33-117	%REC	20	7/15/2016 12:38
Surr: 4-Terphenyl-d14	80.4			25-137	%REC	20	7/15/2016 12:38
Surr: Nitrobenzene-d5	63.2			37-107	%REC	20	7/15/2016 12:38
Surr: Phenol-d6	44.0			40-106	%REC	20	7/15/2016 12:38
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	2.0	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-07-TRIP
Collection Date: 6/28/2016 02:50 PM

Work Order: 16061792
Lab ID: 16061792-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.75		0.025	0.15	mg/Kg-dry	10	7/15/2016 15:05
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	10		0.53	2.0	mg/Kg-dry	5	7/18/2016 10:53
Barium	86		0.82	2.0	mg/Kg-dry	5	7/18/2016 10:53
Cadmium	9.2		0.20	4.1	mg/Kg-dry	5	7/18/2016 10:53
Chromium	35		0.11	2.0	mg/Kg-dry	5	7/18/2016 10:53
Lead	250		0.43	2.0	mg/Kg-dry	5	7/18/2016 10:53
Selenium	2.6	J	1.1	4.1	mg/Kg-dry	5	7/18/2016 10:53
Silver	0.39	J	0.25	2.0	mg/Kg-dry	5	7/18/2016 10:53
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	U	H	110	670	µg/Kg-dry	10	7/14/2016 18:31
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 18:31
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 18:31
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 18:31
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 18:31
2,4-Dinitrophenol	U	H	360	670	µg/Kg-dry	10	7/14/2016 18:31
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/14/2016 18:31
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/14/2016 18:31
2-Chloronaphthalene	U	H	94	130	µg/Kg-dry	10	7/14/2016 18:31
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/14/2016 18:31
2-Methylnaphthalene	530	H	69	130	µg/Kg-dry	10	7/14/2016 18:31
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 18:31
2-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 18:31
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 18:31
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 18:31
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 18:31
3-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 18:31
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 18:31
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/14/2016 18:31
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 18:31
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 18:31
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 18:31
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 18:31
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/14/2016 18:31
Acenaphthene	1,500	H	97	130	µg/Kg-dry	10	7/14/2016 18:31
Acenaphthylene	130	H	120	130	µg/Kg-dry	10	7/14/2016 18:31
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/14/2016 18:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-07-TRIP
Collection Date: 6/28/2016 02:50 PM

Work Order: 16061792
Lab ID: 16061792-21
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	3,700	H	95	130	µg/Kg-dry	10	7/14/2016 18:31
Atrazine	U	H	110	670	µg/Kg-dry	10	7/14/2016 18:31
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 18:31
Benzo(a)anthracene	10,000	H	120	130	µg/Kg-dry	10	7/14/2016 18:31
Benzo(a)pyrene	10,000	H	83	130	µg/Kg-dry	10	7/14/2016 18:31
Benzo(b)fluoranthene	14,000	H	100	130	µg/Kg-dry	10	7/14/2016 18:31
Benzo(g,h,i)perylene	7,100	H	100	130	µg/Kg-dry	10	7/14/2016 18:31
Benzo(k)fluoranthene	4,900	H	100	130	µg/Kg-dry	10	7/14/2016 18:31
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/14/2016 18:31
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 18:31
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/14/2016 18:31
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 18:31
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/14/2016 18:31
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/14/2016 18:31
Carbazole	2,200	H	73	670	µg/Kg-dry	10	7/14/2016 18:31
Chrysene	11,000	H	110	130	µg/Kg-dry	10	7/14/2016 18:31
Dibenzo(a,h)anthracene	2,300	H	73	130	µg/Kg-dry	10	7/14/2016 18:31
Dibenzofuran	700	H	99	670	µg/Kg-dry	10	7/14/2016 18:31
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/14/2016 18:31
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 18:31
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 18:31
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 18:31
Fluoranthene	23,000	H	65	130	µg/Kg-dry	10	7/14/2016 18:31
Fluorene	1,300	H	98	130	µg/Kg-dry	10	7/14/2016 18:31
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/14/2016 18:31
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/14/2016 18:31
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/14/2016 18:31
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/14/2016 18:31
Indeno(1,2,3-cd)pyrene	8,700	H	94	130	µg/Kg-dry	10	7/14/2016 18:31
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 18:31
Naphthalene	660	H	86	130	µg/Kg-dry	10	7/14/2016 18:31
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 18:31
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/14/2016 18:31
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/14/2016 18:31
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/14/2016 18:31
Phenanthrene	15,000	H	63	130	µg/Kg-dry	10	7/14/2016 18:31
Phenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 18:31
Pyrene	20,000	H	24	130	µg/Kg-dry	10	7/14/2016 18:31
Surr: 2,4,6-Tribromophenol	54.0			34-140	%REC	10	7/14/2016 18:31
Surr: 2-Fluorobiphenyl	43.8			12-100	%REC	10	7/14/2016 18:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-07-TRIP**Lab ID:** 16061792-21**Collection Date:** 6/28/2016 02:50 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	39.6			33-117	%REC	10	7/14/2016 18:31
Surr: 4-Terphenyl-d14	53.0			25-137	%REC	10	7/14/2016 18:31
Surr: Nitrobenzene-d5	44.0			37-107	%REC	10	7/14/2016 18:31
Surr: Phenol-d6	30.6	S		40-106	%REC	10	7/14/2016 18:31
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	3.1	H	0.025	0.050	% of sample	1	7/13/2016 16:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-08
Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792
Lab ID: 16061792-22
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.10		0.0023	0.014	mg/Kg-dry	1	7/15/2016 13:10
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.2		0.49	1.9	mg/Kg-dry	5	7/18/2016 11:10
Barium	110		0.75	1.9	mg/Kg-dry	5	7/18/2016 11:10
Cadmium	2.3	J	0.18	3.7	mg/Kg-dry	5	7/18/2016 11:10
Chromium	18		0.10	1.9	mg/Kg-dry	5	7/18/2016 11:10
Lead	940		0.40	1.9	mg/Kg-dry	5	7/18/2016 11:10
Selenium	1.2	J	1.0	3.7	mg/Kg-dry	5	7/18/2016 11:10
Silver	U		0.23	1.9	mg/Kg-dry	5	7/18/2016 11:10
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	210	J	110	640	µg/Kg-dry	10	7/14/2016 01:14
2,4,5-Trichlorophenol	U		180	640	µg/Kg-dry	10	7/14/2016 01:14
2,4,6-Trichlorophenol	U		170	640	µg/Kg-dry	10	7/14/2016 01:14
2,4-Dichlorophenol	U		140	640	µg/Kg-dry	10	7/14/2016 01:14
2,4-Dimethylphenol	U		130	640	µg/Kg-dry	10	7/14/2016 01:14
2,4-Dinitrophenol	U		350	640	µg/Kg-dry	10	7/14/2016 01:14
2,4-Dinitrotoluene	U		170	640	µg/Kg-dry	10	7/14/2016 01:14
2,6-Dinitrotoluene	U		110	640	µg/Kg-dry	10	7/14/2016 01:14
2-Chloronaphthalene	U		91	130	µg/Kg-dry	10	7/14/2016 01:14
2-Chlorophenol	U		200	640	µg/Kg-dry	10	7/14/2016 01:14
2-Methylnaphthalene	580		66	130	µg/Kg-dry	10	7/14/2016 01:14
2-Methylphenol	U		180	640	µg/Kg-dry	10	7/14/2016 01:14
2-Nitroaniline	U		150	640	µg/Kg-dry	10	7/14/2016 01:14
2-Nitrophenol	U		180	640	µg/Kg-dry	10	7/14/2016 01:14
3&4-Methylphenol	U		130	640	µg/Kg-dry	10	7/14/2016 01:14
3,3'-Dichlorobenzidine	U		96	3,200	µg/Kg-dry	10	7/14/2016 01:14
3-Nitroaniline	U		150	640	µg/Kg-dry	10	7/14/2016 01:14
4,6-Dinitro-2-methylphenol	U		160	640	µg/Kg-dry	10	7/14/2016 01:14
4-Bromophenyl phenyl ether	U		170	640	µg/Kg-dry	10	7/14/2016 01:14
4-Chloro-3-methylphenol	U		180	640	µg/Kg-dry	10	7/14/2016 01:14
4-Chloroaniline	U		100	1,300	µg/Kg-dry	10	7/14/2016 01:14
4-Chlorophenyl phenyl ether	U		180	640	µg/Kg-dry	10	7/14/2016 01:14
4-Nitroaniline	U		1,000	3,200	µg/Kg-dry	10	7/14/2016 01:14
4-Nitrophenol	U		580	640	µg/Kg-dry	10	7/14/2016 01:14
Acenaphthene	9,400		94	130	µg/Kg-dry	10	7/14/2016 01:14
Acenaphthylene	570		110	130	µg/Kg-dry	10	7/14/2016 01:14
Acetophenone	U		100	640	µg/Kg-dry	10	7/14/2016 01:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-08
Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792
Lab ID: 16061792-22
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	28,000		91	130	µg/Kg-dry	10	7/14/2016 01:14
Atrazine	U		100	640	µg/Kg-dry	10	7/14/2016 01:14
Benzaldehyde	U		1,000	1,300	µg/Kg-dry	10	7/14/2016 01:14
Benzo(a)anthracene	93,000		1,100	1,300	µg/Kg-dry	100	7/15/2016 03:23
Benzo(a)pyrene	92,000		800	1,300	µg/Kg-dry	100	7/15/2016 03:23
Benzo(b)fluoranthene	120,000		970	1,300	µg/Kg-dry	100	7/15/2016 03:23
Benzo(g,h,i)perylene	56,000		990	1,300	µg/Kg-dry	100	7/15/2016 03:23
Benzo(k)fluoranthene	35,000		98	130	µg/Kg-dry	10	7/14/2016 01:14
Bis(2-chloroethoxy)methane	U		62	640	µg/Kg-dry	10	7/14/2016 01:14
Bis(2-chloroethyl)ether	U		180	640	µg/Kg-dry	10	7/14/2016 01:14
Bis(2-chloroisopropyl)ether	U		150	640	µg/Kg-dry	10	7/14/2016 01:14
Bis(2-ethylhexyl)phthalate	U		110	640	µg/Kg-dry	10	7/14/2016 01:14
Butyl benzyl phthalate	U		110	640	µg/Kg-dry	10	7/14/2016 01:14
Caprolactam	U		220	640	µg/Kg-dry	10	7/14/2016 01:14
Carbazole	12,000		70	640	µg/Kg-dry	10	7/14/2016 01:14
Chrysene	100,000		1,000	1,300	µg/Kg-dry	100	7/15/2016 03:23
Dibenzo(a,h)anthracene	16,000		70	130	µg/Kg-dry	10	7/14/2016 01:14
Dibenzofuran	3,300		95	640	µg/Kg-dry	10	7/14/2016 01:14
Diethyl phthalate	U		99	640	µg/Kg-dry	10	7/14/2016 01:14
Dimethyl phthalate	U		130	640	µg/Kg-dry	10	7/14/2016 01:14
Di-n-butyl phthalate	U		120	640	µg/Kg-dry	10	7/14/2016 01:14
Di-n-octyl phthalate	U		120	640	µg/Kg-dry	10	7/14/2016 01:14
Fluoranthene	220,000		620	1,300	µg/Kg-dry	100	7/15/2016 03:23
Fluorene	8,400		94	130	µg/Kg-dry	10	7/14/2016 01:14
Hexachlorobenzene	U		190	640	µg/Kg-dry	10	7/14/2016 01:14
Hexachlorobutadiene	U		350	640	µg/Kg-dry	10	7/14/2016 01:14
Hexachlorocyclopentadiene	U		220	640	µg/Kg-dry	10	7/14/2016 01:14
Hexachloroethane	U		270	640	µg/Kg-dry	10	7/14/2016 01:14
Indeno(1,2,3-cd)pyrene	75,000		900	1,300	µg/Kg-dry	100	7/15/2016 03:23
Isophorone	U		130	3,200	µg/Kg-dry	10	7/14/2016 01:14
Naphthalene	1,100		83	130	µg/Kg-dry	10	7/14/2016 01:14
Nitrobenzene	U		220	3,200	µg/Kg-dry	10	7/14/2016 01:14
N-Nitrosodi-n-propylamine	U		110	640	µg/Kg-dry	10	7/14/2016 01:14
N-Nitrosodiphenylamine	U		62	640	µg/Kg-dry	10	7/14/2016 01:14
Pentachlorophenol	U		240	640	µg/Kg-dry	10	7/14/2016 01:14
Phenanthrene	110,000		600	1,300	µg/Kg-dry	100	7/15/2016 03:23
Phenol	U		160	640	µg/Kg-dry	10	7/14/2016 01:14
Pyrene	190,000		240	1,300	µg/Kg-dry	100	7/15/2016 03:23
Surr: 2,4,6-Tribromophenol	77.8			34-140	%REC	10	7/14/2016 01:14
Surr: 2-Fluorobiphenyl	68.8			12-100	%REC	10	7/14/2016 01:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: DU-08

Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792

Lab ID: 16061792-22

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	73.0			33-117	%REC	10	7/14/2016 01:14
Surr: 4-Terphenyl-d14	69.0			25-137	%REC	10	7/14/2016 01:14
Surr: Nitrobenzene-d5	70.2			37-107	%REC	10	7/14/2016 01:14
Surr: Phenol-d6	65.4			40-106	%REC	10	7/14/2016 01:14
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	0.86		0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-08-DUP
Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792
Lab ID: 16061792-23
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.23		0.0023	0.014	mg/Kg-dry	1	7/15/2016 13:19
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	7.2		0.48	1.8	mg/Kg-dry	5	7/18/2016 11:15
Barium	130		0.74	1.8	mg/Kg-dry	5	7/18/2016 11:15
Cadmium	2.4	J	0.18	3.7	mg/Kg-dry	5	7/18/2016 11:15
Chromium	23		0.10	1.8	mg/Kg-dry	5	7/18/2016 11:15
Lead	530		0.39	1.8	mg/Kg-dry	5	7/18/2016 11:15
Selenium	1.4	J	1.0	3.7	mg/Kg-dry	5	7/18/2016 11:15
Silver	U		0.23	1.8	mg/Kg-dry	5	7/18/2016 11:15
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	300	J	210	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,4,5-Trichlorophenol	U		360	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,4,6-Trichlorophenol	U		350	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,4-Dichlorophenol	U		280	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,4-Dimethylphenol	U		270	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,4-Dinitrophenol	U		710	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,4-Dinitrotoluene	U		340	1,300	µg/Kg-dry	20	7/15/2016 04:18
2,6-Dinitrotoluene	U		220	1,300	µg/Kg-dry	20	7/15/2016 04:18
2-Chloronaphthalene	U		180	260	µg/Kg-dry	20	7/15/2016 04:18
2-Chlorophenol	U		410	1,300	µg/Kg-dry	20	7/15/2016 04:18
2-Methylnaphthalene	980		130	260	µg/Kg-dry	20	7/15/2016 04:18
2-Methylphenol	U		350	1,300	µg/Kg-dry	20	7/15/2016 04:18
2-Nitroaniline	U		300	1,300	µg/Kg-dry	20	7/15/2016 04:18
2-Nitrophenol	U		370	1,300	µg/Kg-dry	20	7/15/2016 04:18
3&4-Methylphenol	U		260	1,300	µg/Kg-dry	20	7/15/2016 04:18
3,3'-Dichlorobenzidine	U		190	6,600	µg/Kg-dry	20	7/15/2016 04:18
3-Nitroaniline	U		300	1,300	µg/Kg-dry	20	7/15/2016 04:18
4,6-Dinitro-2-methylphenol	U		330	1,300	µg/Kg-dry	20	7/15/2016 04:18
4-Bromophenyl phenyl ether	U		350	1,300	µg/Kg-dry	20	7/15/2016 04:18
4-Chloro-3-methylphenol	U		370	1,300	µg/Kg-dry	20	7/15/2016 04:18
4-Chloroaniline	U		210	2,600	µg/Kg-dry	20	7/15/2016 04:18
4-Chlorophenyl phenyl ether	U		360	1,300	µg/Kg-dry	20	7/15/2016 04:18
4-Nitroaniline	U		2,000	6,600	µg/Kg-dry	20	7/15/2016 04:18
4-Nitrophenol	U		1,200	1,300	µg/Kg-dry	20	7/15/2016 04:18
Acenaphthene	15,000		190	260	µg/Kg-dry	20	7/15/2016 04:18
Acenaphthylene	250	J	230	260	µg/Kg-dry	20	7/15/2016 04:18
Acetophenone	U		210	1,300	µg/Kg-dry	20	7/15/2016 04:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-08-DUP
Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792
Lab ID: 16061792-23
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	41,000		190	260	µg/Kg-dry	20	7/15/2016 04:18
Atrazine	U		210	1,300	µg/Kg-dry	20	7/15/2016 04:18
Benzaldehyde	U		2,000	2,600	µg/Kg-dry	20	7/15/2016 04:18
Benzo(a)anthracene	170,000		2,300	2,600	µg/Kg-dry	200	7/14/2016 23:14
Benzo(a)pyrene	170,000		1,600	2,600	µg/Kg-dry	200	7/14/2016 23:14
Benzo(b)fluoranthene	230,000		2,000	2,600	µg/Kg-dry	200	7/14/2016 23:14
Benzo(g,h,i)perylene	110,000		2,000	2,600	µg/Kg-dry	200	7/14/2016 23:14
Benzo(k)fluoranthene	69,000		200	260	µg/Kg-dry	20	7/15/2016 04:18
Bis(2-chloroethoxy)methane	U		130	1,300	µg/Kg-dry	20	7/15/2016 04:18
Bis(2-chloroethyl)ether	U		370	1,300	µg/Kg-dry	20	7/15/2016 04:18
Bis(2-chloroisopropyl)ether	U		310	1,300	µg/Kg-dry	20	7/15/2016 04:18
Bis(2-ethylhexyl)phthalate	U		230	1,300	µg/Kg-dry	20	7/15/2016 04:18
Butyl benzyl phthalate	U		220	1,300	µg/Kg-dry	20	7/15/2016 04:18
Caprolactam	U		450	1,300	µg/Kg-dry	20	7/15/2016 04:18
Carbazole	22,000		140	1,300	µg/Kg-dry	20	7/15/2016 04:18
Chrysene	180,000		2,100	2,600	µg/Kg-dry	200	7/14/2016 23:14
Dibenzo(a,h)anthracene	27,000		140	260	µg/Kg-dry	20	7/15/2016 04:18
Dibenzofuran	5,600		190	1,300	µg/Kg-dry	20	7/15/2016 04:18
Diethyl phthalate	U		200	1,300	µg/Kg-dry	20	7/15/2016 04:18
Dimethyl phthalate	U		260	1,300	µg/Kg-dry	20	7/15/2016 04:18
Di-n-butyl phthalate	U		240	1,300	µg/Kg-dry	20	7/15/2016 04:18
Di-n-octyl phthalate	U		250	1,300	µg/Kg-dry	20	7/15/2016 04:18
Fluoranthene	380,000		1,300	2,600	µg/Kg-dry	200	7/14/2016 23:14
Fluorene	14,000		190	260	µg/Kg-dry	20	7/15/2016 04:18
Hexachlorobenzene	U		380	1,300	µg/Kg-dry	20	7/15/2016 04:18
Hexachlorobutadiene	U		710	1,300	µg/Kg-dry	20	7/15/2016 04:18
Hexachlorocyclopentadiene	U		450	1,300	µg/Kg-dry	20	7/15/2016 04:18
Hexachloroethane	U		540	1,300	µg/Kg-dry	20	7/15/2016 04:18
Indeno(1,2,3-cd)pyrene	140,000		1,800	2,600	µg/Kg-dry	200	7/14/2016 23:14
Isophorone	U		260	6,600	µg/Kg-dry	20	7/15/2016 04:18
Naphthalene	1,400		170	260	µg/Kg-dry	20	7/15/2016 04:18
Nitrobenzene	U		440	6,600	µg/Kg-dry	20	7/15/2016 04:18
N-Nitrosodi-n-propylamine	U		220	1,300	µg/Kg-dry	20	7/15/2016 04:18
N-Nitrosodiphenylamine	U		130	1,300	µg/Kg-dry	20	7/15/2016 04:18
Pentachlorophenol	U		480	1,300	µg/Kg-dry	20	7/15/2016 04:18
Phenanthrene	210,000		1,200	2,600	µg/Kg-dry	200	7/14/2016 23:14
Phenol	U		330	1,300	µg/Kg-dry	20	7/15/2016 04:18
Pyrene	350,000		480	2,600	µg/Kg-dry	200	7/14/2016 23:14
Surr: 2,4,6-Tribromophenol	78.4			34-140	%REC	20	7/15/2016 04:18
Surr: 2-Fluorobiphenyl	69.6			12-100	%REC	20	7/15/2016 04:18

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-08-DUP**Lab ID:** 16061792-23**Collection Date:** 6/29/2016 10:10 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	76.4			33-117	%REC	20	7/15/2016 04:18
Surr: 4-Terphenyl-d14	97.6			25-137	%REC	20	7/15/2016 04:18
Surr: Nitrobenzene-d5	78.0			37-107	%REC	20	7/15/2016 04:18
Surr: Phenol-d6	64.0			40-106	%REC	20	7/15/2016 04:18
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	1.2		0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-08-TRIP
Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792
Lab ID: 16061792-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.18		0.0024	0.015	mg/Kg-dry	1	7/15/2016 13:21
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	11		0.44	1.7	mg/Kg-dry	5	7/18/2016 11:21
Barium	140		0.67	1.7	mg/Kg-dry	5	7/18/2016 11:21
Cadmium	2.9	J	0.16	3.4	mg/Kg-dry	5	7/18/2016 11:21
Chromium	56		0.094	1.7	mg/Kg-dry	5	7/18/2016 11:21
Lead	500		0.36	1.7	mg/Kg-dry	5	7/18/2016 11:21
Selenium	1.4	J	0.94	3.4	mg/Kg-dry	5	7/18/2016 11:21
Silver	U		0.21	1.7	mg/Kg-dry	5	7/18/2016 11:21
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	550	J	210	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,4,5-Trichlorophenol	U		360	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,4,6-Trichlorophenol	U		350	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,4-Dichlorophenol	U		280	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,4-Dimethylphenol	U		270	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,4-Dinitrophenol	U		710	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,4-Dinitrotoluene	U		340	1,300	µg/Kg-dry	20	7/15/2016 03:50
2,6-Dinitrotoluene	U		220	1,300	µg/Kg-dry	20	7/15/2016 03:50
2-Chloronaphthalene	U		180	260	µg/Kg-dry	20	7/15/2016 03:50
2-Chlorophenol	U		410	1,300	µg/Kg-dry	20	7/15/2016 03:50
2-Methylnaphthalene	1,900		130	260	µg/Kg-dry	20	7/15/2016 03:50
2-Methylphenol	U		350	1,300	µg/Kg-dry	20	7/15/2016 03:50
2-Nitroaniline	U		300	1,300	µg/Kg-dry	20	7/15/2016 03:50
2-Nitrophenol	U		370	1,300	µg/Kg-dry	20	7/15/2016 03:50
3&4-Methylphenol	U		260	1,300	µg/Kg-dry	20	7/15/2016 03:50
3,3'-Dichlorobenzidine	U		190	6,500	µg/Kg-dry	20	7/15/2016 03:50
3-Nitroaniline	U		300	1,300	µg/Kg-dry	20	7/15/2016 03:50
4,6-Dinitro-2-methylphenol	U		330	1,300	µg/Kg-dry	20	7/15/2016 03:50
4-Bromophenyl phenyl ether	U		350	1,300	µg/Kg-dry	20	7/15/2016 03:50
4-Chloro-3-methylphenol	U		370	1,300	µg/Kg-dry	20	7/15/2016 03:50
4-Chloroaniline	U		210	2,600	µg/Kg-dry	20	7/15/2016 03:50
4-Chlorophenyl phenyl ether	U		360	1,300	µg/Kg-dry	20	7/15/2016 03:50
4-Nitroaniline	U		2,000	6,500	µg/Kg-dry	20	7/15/2016 03:50
4-Nitrophenol	U		1,200	1,300	µg/Kg-dry	20	7/15/2016 03:50
Acenaphthene	28,000		190	260	µg/Kg-dry	20	7/15/2016 03:50
Acenaphthylene	390		230	260	µg/Kg-dry	20	7/15/2016 03:50
Acetophenone	U		200	1,300	µg/Kg-dry	20	7/15/2016 03:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-08-TRIP
Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792
Lab ID: 16061792-24
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	75,000		180	260	µg/Kg-dry	20	7/15/2016 03:50
Atrazine	U		210	1,300	µg/Kg-dry	20	7/15/2016 03:50
Benzaldehyde	U		2,000	2,600	µg/Kg-dry	20	7/15/2016 03:50
Benzo(a)anthracene	210,000		2,300	2,600	µg/Kg-dry	200	7/14/2016 22:47
Benzo(a)pyrene	210,000		1,600	2,600	µg/Kg-dry	200	7/14/2016 22:47
Benzo(b)fluoranthene	270,000		1,900	2,600	µg/Kg-dry	200	7/14/2016 22:47
Benzo(g,h,i)perylene	120,000		2,000	2,600	µg/Kg-dry	200	7/14/2016 22:47
Benzo(k)fluoranthene	75,000		200	260	µg/Kg-dry	20	7/15/2016 03:50
Bis(2-chloroethoxy)methane	U		130	1,300	µg/Kg-dry	20	7/15/2016 03:50
Bis(2-chloroethyl)ether	U		370	1,300	µg/Kg-dry	20	7/15/2016 03:50
Bis(2-chloroisopropyl)ether	U		310	1,300	µg/Kg-dry	20	7/15/2016 03:50
Bis(2-ethylhexyl)phthalate	U		230	1,300	µg/Kg-dry	20	7/15/2016 03:50
Butyl benzyl phthalate	U		220	1,300	µg/Kg-dry	20	7/15/2016 03:50
Caprolactam	U		450	1,300	µg/Kg-dry	20	7/15/2016 03:50
Carbazole	28,000		140	1,300	µg/Kg-dry	20	7/15/2016 03:50
Chrysene	220,000		2,100	2,600	µg/Kg-dry	200	7/14/2016 22:47
Dibenzo(a,h)anthracene	31,000		140	260	µg/Kg-dry	20	7/15/2016 03:50
Dibenzofuran	12,000		190	1,300	µg/Kg-dry	20	7/15/2016 03:50
Diethyl phthalate	U		200	1,300	µg/Kg-dry	20	7/15/2016 03:50
Dimethyl phthalate	U		250	1,300	µg/Kg-dry	20	7/15/2016 03:50
Di-n-butyl phthalate	U		240	1,300	µg/Kg-dry	20	7/15/2016 03:50
Di-n-octyl phthalate	U		250	1,300	µg/Kg-dry	20	7/15/2016 03:50
Fluoranthene	530,000		1,300	2,600	µg/Kg-dry	200	7/14/2016 22:47
Fluorene	24,000		190	260	µg/Kg-dry	20	7/15/2016 03:50
Hexachlorobenzene	U		380	1,300	µg/Kg-dry	20	7/15/2016 03:50
Hexachlorobutadiene	U		710	1,300	µg/Kg-dry	20	7/15/2016 03:50
Hexachlorocyclopentadiene	U		450	1,300	µg/Kg-dry	20	7/15/2016 03:50
Hexachloroethane	U		540	1,300	µg/Kg-dry	20	7/15/2016 03:50
Indeno(1,2,3-cd)pyrene	160,000		1,800	2,600	µg/Kg-dry	200	7/14/2016 22:47
Isophorone	U		260	6,500	µg/Kg-dry	20	7/15/2016 03:50
Naphthalene	2,700		170	260	µg/Kg-dry	20	7/15/2016 03:50
Nitrobenzene	U		440	6,500	µg/Kg-dry	20	7/15/2016 03:50
N-Nitrosodi-n-propylamine	U		220	1,300	µg/Kg-dry	20	7/15/2016 03:50
N-Nitrosodiphenylamine	U		130	1,300	µg/Kg-dry	20	7/15/2016 03:50
Pentachlorophenol	U		480	1,300	µg/Kg-dry	20	7/15/2016 03:50
Phenanthrene	310,000		1,200	2,600	µg/Kg-dry	200	7/14/2016 22:47
Phenol	U		320	1,300	µg/Kg-dry	20	7/15/2016 03:50
Pyrene	510,000		470	2,600	µg/Kg-dry	200	7/14/2016 22:47
Surr: 2,4,6-Tribromophenol	86.0			34-140	%REC	20	7/15/2016 03:50
Surr: 2-Fluorobiphenyl	74.4			12-100	%REC	20	7/15/2016 03:50

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: DU-08-TRIP

Collection Date: 6/29/2016 10:10 AM

Work Order: 16061792

Lab ID: 16061792-24

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	86.0			33-117	%REC	20	7/15/2016 03:50
Surr: 4-Terphenyl-d14	98.4			25-137	%REC	20	7/15/2016 03:50
Surr: Nitrobenzene-d5	86.4			37-107	%REC	20	7/15/2016 03:50
Surr: Phenol-d6	70.4			40-106	%REC	20	7/15/2016 03:50
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	0.90		0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-09
Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792
Lab ID: 16061792-25
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.034		0.0026	0.016	mg/Kg-dry	1	7/15/2016 13:23
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	16		0.53	2.0	mg/Kg-dry	5	7/18/2016 11:26
Barium	87		0.82	2.0	mg/Kg-dry	5	7/18/2016 11:26
Cadmium	1.7	J	0.20	4.1	mg/Kg-dry	5	7/18/2016 11:26
Chromium	57		0.11	2.0	mg/Kg-dry	5	7/18/2016 11:26
Lead	43		0.43	2.0	mg/Kg-dry	5	7/18/2016 11:26
Selenium	2.0	J	1.1	4.1	mg/Kg-dry	5	7/18/2016 11:26
Silver	U		0.25	2.0	mg/Kg-dry	5	7/18/2016 11:26
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	U	H	110	670	µg/Kg-dry	10	7/14/2016 02:19
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 02:19
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 02:19
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 02:19
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 02:19
2,4-Dinitrophenol	U	H	360	670	µg/Kg-dry	10	7/14/2016 02:19
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/14/2016 02:19
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/14/2016 02:19
2-Chloronaphthalene	U	H	94	140	µg/Kg-dry	10	7/14/2016 02:19
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/14/2016 02:19
2-Methylnaphthalene	510	H	69	140	µg/Kg-dry	10	7/14/2016 02:19
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 02:19
2-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 02:19
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 02:19
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 02:19
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 02:19
3-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 02:19
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 02:19
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/14/2016 02:19
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 02:19
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 02:19
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 02:19
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 02:19
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/14/2016 02:19
Acenaphthene	3,000	H	98	140	µg/Kg-dry	10	7/14/2016 02:19
Acenaphthylene	U	H	120	140	µg/Kg-dry	10	7/14/2016 02:19
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/14/2016 02:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-09
Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792
Lab ID: 16061792-25
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	7,200	H	95	140	µg/Kg-dry	10	7/14/2016 02:19
Atrazine	U	H	110	670	µg/Kg-dry	10	7/14/2016 02:19
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 02:19
Benzo(a)anthracene	25,000	H	120	140	µg/Kg-dry	10	7/14/2016 02:19
Benzo(a)pyrene	27,000	H	83	140	µg/Kg-dry	10	7/14/2016 02:19
Benzo(b)fluoranthene	36,000	H	100	140	µg/Kg-dry	10	7/14/2016 02:19
Benzo(g,h,i)perylene	19,000	H	100	140	µg/Kg-dry	10	7/14/2016 02:19
Benzo(k)fluoranthene	11,000	H	100	140	µg/Kg-dry	10	7/14/2016 02:19
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/14/2016 02:19
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 02:19
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/14/2016 02:19
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 02:19
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/14/2016 02:19
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/14/2016 02:19
Carbazole	7,400	H	73	670	µg/Kg-dry	10	7/14/2016 02:19
Chrysene	30,000	H	110	140	µg/Kg-dry	10	7/14/2016 02:19
Dibenzo(a,h)anthracene	6,400	H	73	140	µg/Kg-dry	10	7/14/2016 02:19
Dibenzofuran	1,200	H	99	670	µg/Kg-dry	10	7/14/2016 02:19
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/14/2016 02:19
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 02:19
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 02:19
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 02:19
Fluoranthene	38,000	H	160	340	µg/Kg-dry	25	7/15/2016 01:05
Fluorene	2,900	H	98	140	µg/Kg-dry	10	7/14/2016 02:19
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/14/2016 02:19
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/14/2016 02:19
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/14/2016 02:19
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/14/2016 02:19
Indeno(1,2,3-cd)pyrene	23,000	H	94	140	µg/Kg-dry	10	7/14/2016 02:19
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 02:19
Naphthalene	490	H	86	140	µg/Kg-dry	10	7/14/2016 02:19
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 02:19
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/14/2016 02:19
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/14/2016 02:19
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/14/2016 02:19
Phenanthrene	35,000	H	63	140	µg/Kg-dry	10	7/14/2016 02:19
Phenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 02:19
Pyrene	36,000	H	61	340	µg/Kg-dry	25	7/15/2016 01:05
Surr: 2,4,6-Tribromophenol	73.8			34-140	%REC	10	7/14/2016 02:19
Surr: 2-Fluorobiphenyl	68.0			12-100	%REC	10	7/14/2016 02:19

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: DU-09

Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792

Lab ID: 16061792-25

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	65.2			33-117	%REC	10	7/14/2016 02:19
Surr: 4-Terphenyl-d14	59.8			25-137	%REC	10	7/14/2016 02:19
Surr: Nitrobenzene-d5	63.6			37-107	%REC	10	7/14/2016 02:19
Surr: Phenol-d6	57.6			40-106	%REC	10	7/14/2016 02:19
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	2.5	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-09-DUP
Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792
Lab ID: 16061792-26
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.033		0.0026	0.016	mg/Kg-dry	1	7/15/2016 13:26
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	14		0.43	1.6	mg/Kg-dry	5	7/18/2016 11:31
Barium	73		0.66	1.6	mg/Kg-dry	5	7/18/2016 11:31
Cadmium	1.8	J	0.16	3.3	mg/Kg-dry	5	7/18/2016 11:31
Chromium	54		0.092	1.6	mg/Kg-dry	5	7/18/2016 11:31
Lead	43		0.35	1.6	mg/Kg-dry	5	7/18/2016 11:31
Selenium	2.4	J	0.92	3.3	mg/Kg-dry	5	7/18/2016 11:31
Silver	U		0.20	1.6	mg/Kg-dry	5	7/18/2016 11:31
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	U	H	110	680	µg/Kg-dry	10	7/14/2016 19:51
2,4,5-Trichlorophenol	U	H	190	680	µg/Kg-dry	10	7/14/2016 19:51
2,4,6-Trichlorophenol	U	H	180	680	µg/Kg-dry	10	7/14/2016 19:51
2,4-Dichlorophenol	U	H	140	680	µg/Kg-dry	10	7/14/2016 19:51
2,4-Dimethylphenol	U	H	140	680	µg/Kg-dry	10	7/14/2016 19:51
2,4-Dinitrophenol	U	H	370	680	µg/Kg-dry	10	7/14/2016 19:51
2,4-Dinitrotoluene	U	H	180	680	µg/Kg-dry	10	7/14/2016 19:51
2,6-Dinitrotoluene	U	H	110	680	µg/Kg-dry	10	7/14/2016 19:51
2-Chloronaphthalene	U	H	96	140	µg/Kg-dry	10	7/14/2016 19:51
2-Chlorophenol	U	H	220	680	µg/Kg-dry	10	7/14/2016 19:51
2-Methylnaphthalene	220	H	69	140	µg/Kg-dry	10	7/14/2016 19:51
2-Methylphenol	U	H	180	680	µg/Kg-dry	10	7/14/2016 19:51
2-Nitroaniline	U	H	160	680	µg/Kg-dry	10	7/14/2016 19:51
2-Nitrophenol	U	H	190	680	µg/Kg-dry	10	7/14/2016 19:51
3&4-Methylphenol	U	H	140	680	µg/Kg-dry	10	7/14/2016 19:51
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 19:51
3-Nitroaniline	U	H	160	680	µg/Kg-dry	10	7/14/2016 19:51
4,6-Dinitro-2-methylphenol	U	H	170	680	µg/Kg-dry	10	7/14/2016 19:51
4-Bromophenyl phenyl ether	U	H	180	680	µg/Kg-dry	10	7/14/2016 19:51
4-Chloro-3-methylphenol	U	H	190	680	µg/Kg-dry	10	7/14/2016 19:51
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 19:51
4-Chlorophenyl phenyl ether	U	H	190	680	µg/Kg-dry	10	7/14/2016 19:51
4-Nitroaniline	U	H	1,100	3,400	µg/Kg-dry	10	7/14/2016 19:51
4-Nitrophenol	U	H	610	680	µg/Kg-dry	10	7/14/2016 19:51
Acenaphthene	510	H	99	140	µg/Kg-dry	10	7/14/2016 19:51
Acenaphthylene	U	H	120	140	µg/Kg-dry	10	7/14/2016 19:51
Acetophenone	U	H	110	680	µg/Kg-dry	10	7/14/2016 19:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-09-DUP
Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792
Lab ID: 16061792-26
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,300	H	96	140	µg/Kg-dry	10	7/14/2016 19:51
Atrazine	U	H	110	680	µg/Kg-dry	10	7/14/2016 19:51
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 19:51
Benzo(a)anthracene	6,400	H	120	140	µg/Kg-dry	10	7/14/2016 19:51
Benzo(a)pyrene	6,000	H	84	140	µg/Kg-dry	10	7/14/2016 19:51
Benzo(b)fluoranthene	8,600	H	100	140	µg/Kg-dry	10	7/14/2016 19:51
Benzo(g,h,i)perylene	4,600	H	100	140	µg/Kg-dry	10	7/14/2016 19:51
Benzo(k)fluoranthene	3,000	H	100	140	µg/Kg-dry	10	7/14/2016 19:51
Bis(2-chloroethoxy)methane	U	H	66	680	µg/Kg-dry	10	7/14/2016 19:51
Bis(2-chloroethyl)ether	U	H	190	680	µg/Kg-dry	10	7/14/2016 19:51
Bis(2-chloroisopropyl)ether	U	H	160	680	µg/Kg-dry	10	7/14/2016 19:51
Bis(2-ethylhexyl)phthalate	U	H	120	680	µg/Kg-dry	10	7/14/2016 19:51
Butyl benzyl phthalate	U	H	120	680	µg/Kg-dry	10	7/14/2016 19:51
Caprolactam	U	H	230	680	µg/Kg-dry	10	7/14/2016 19:51
Carbazole	1,200	H	74	680	µg/Kg-dry	10	7/14/2016 19:51
Chrysene	6,700	H	110	140	µg/Kg-dry	10	7/14/2016 19:51
Dibenzo(a,h)anthracene	660	H	74	140	µg/Kg-dry	10	7/14/2016 19:51
Dibenzofuran	160	JH	100	680	µg/Kg-dry	10	7/14/2016 19:51
Diethyl phthalate	U	H	100	680	µg/Kg-dry	10	7/14/2016 19:51
Dimethyl phthalate	U	H	130	680	µg/Kg-dry	10	7/14/2016 19:51
Di-n-butyl phthalate	U	H	130	680	µg/Kg-dry	10	7/14/2016 19:51
Di-n-octyl phthalate	U	H	130	680	µg/Kg-dry	10	7/14/2016 19:51
Fluoranthene	11,000	H	66	140	µg/Kg-dry	10	7/14/2016 19:51
Fluorene	640	H	99	140	µg/Kg-dry	10	7/14/2016 19:51
Hexachlorobenzene	U	H	200	680	µg/Kg-dry	10	7/14/2016 19:51
Hexachlorobutadiene	U	H	370	680	µg/Kg-dry	10	7/14/2016 19:51
Hexachlorocyclopentadiene	U	H	230	680	µg/Kg-dry	10	7/14/2016 19:51
Hexachloroethane	U	H	280	680	µg/Kg-dry	10	7/14/2016 19:51
Indeno(1,2,3-cd)pyrene	5,100	H	95	140	µg/Kg-dry	10	7/14/2016 19:51
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 19:51
Naphthalene	U	H	87	140	µg/Kg-dry	10	7/14/2016 19:51
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 19:51
N-Nitrosodi-n-propylamine	U	H	110	680	µg/Kg-dry	10	7/14/2016 19:51
N-Nitrosodiphenylamine	U	H	66	680	µg/Kg-dry	10	7/14/2016 19:51
Pentachlorophenol	U	H	250	680	µg/Kg-dry	10	7/14/2016 19:51
Phenanthrene	6,500	H	64	140	µg/Kg-dry	10	7/14/2016 19:51
Phenol	U	H	170	680	µg/Kg-dry	10	7/14/2016 19:51
Pyrene	13,000	H	25	140	µg/Kg-dry	10	7/14/2016 19:51
Surr: 2,4,6-Tribromophenol	58.8			34-140	%REC	10	7/14/2016 19:51
Surr: 2-Fluorobiphenyl	47.0			12-100	%REC	10	7/14/2016 19:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: DU-09-DUP

Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792

Lab ID: 16061792-26

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	31.2	S		33-117	%REC	10	7/14/2016 19:51
Surr: 4-Terphenyl-d14	53.8			25-137	%REC	10	7/14/2016 19:51
Surr: Nitrobenzene-d5	45.4			37-107	%REC	10	7/14/2016 19:51
Surr: Phenol-d6	36.2	S		40-106	%REC	10	7/14/2016 19:51
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	2.5	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-09-TRIP
Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792
Lab ID: 16061792-27
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.034		0.0027	0.016	mg/Kg-dry	1	7/15/2016 13:28
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	15		0.46	1.8	mg/Kg-dry	5	7/18/2016 12:04
Barium	130		0.71	1.8	mg/Kg-dry	5	7/18/2016 12:04
Cadmium	1.7	J	0.17	3.5	mg/Kg-dry	5	7/18/2016 12:04
Chromium	45		0.099	1.8	mg/Kg-dry	5	7/18/2016 12:04
Lead	51		0.38	1.8	mg/Kg-dry	5	7/18/2016 12:04
Selenium	1.5	J	0.99	3.5	mg/Kg-dry	5	7/18/2016 12:04
Silver	U		0.22	1.8	mg/Kg-dry	5	7/18/2016 12:04
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	390	JH	120	700	µg/Kg-dry	10	7/14/2016 20:40
2,4,5-Trichlorophenol	U	H	190	700	µg/Kg-dry	10	7/14/2016 20:40
2,4,6-Trichlorophenol	U	H	190	700	µg/Kg-dry	10	7/14/2016 20:40
2,4-Dichlorophenol	U	H	150	700	µg/Kg-dry	10	7/14/2016 20:40
2,4-Dimethylphenol	U	H	150	700	µg/Kg-dry	10	7/14/2016 20:40
2,4-Dinitrophenol	U	H	380	700	µg/Kg-dry	10	7/14/2016 20:40
2,4-Dinitrotoluene	U	H	180	700	µg/Kg-dry	10	7/14/2016 20:40
2,6-Dinitrotoluene	U	H	120	700	µg/Kg-dry	10	7/14/2016 20:40
2-Chloronaphthalene	U	H	99	140	µg/Kg-dry	10	7/14/2016 20:40
2-Chlorophenol	U	H	220	700	µg/Kg-dry	10	7/14/2016 20:40
2-Methylnaphthalene	160	H	72	140	µg/Kg-dry	10	7/14/2016 20:40
2-Methylphenol	U	H	190	700	µg/Kg-dry	10	7/14/2016 20:40
2-Nitroaniline	U	H	160	700	µg/Kg-dry	10	7/14/2016 20:40
2-Nitrophenol	U	H	200	700	µg/Kg-dry	10	7/14/2016 20:40
3&4-Methylphenol	U	H	140	700	µg/Kg-dry	10	7/14/2016 20:40
3,3'-Dichlorobenzidine	U	H	110	3,600	µg/Kg-dry	10	7/14/2016 20:40
3-Nitroaniline	U	H	160	700	µg/Kg-dry	10	7/14/2016 20:40
4,6-Dinitro-2-methylphenol	U	H	180	700	µg/Kg-dry	10	7/14/2016 20:40
4-Bromophenyl phenyl ether	U	H	190	700	µg/Kg-dry	10	7/14/2016 20:40
4-Chloro-3-methylphenol	U	H	200	700	µg/Kg-dry	10	7/14/2016 20:40
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 20:40
4-Chlorophenyl phenyl ether	U	H	200	700	µg/Kg-dry	10	7/14/2016 20:40
4-Nitroaniline	U	H	1,100	3,600	µg/Kg-dry	10	7/14/2016 20:40
4-Nitrophenol	U	H	630	700	µg/Kg-dry	10	7/14/2016 20:40
Acenaphthene	310	H	100	140	µg/Kg-dry	10	7/14/2016 20:40
Acenaphthylene	U	H	120	140	µg/Kg-dry	10	7/14/2016 20:40
Acetophenone	U	H	110	700	µg/Kg-dry	10	7/14/2016 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-09-TRIP
Collection Date: 6/28/2016 03:56 PM

Work Order: 16061792
Lab ID: 16061792-27
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	640	H	100	140	µg/Kg-dry	10	7/14/2016 20:40
Atrazine	U	H	110	700	µg/Kg-dry	10	7/14/2016 20:40
Benzaldehyde	U	H	1,100	1,400	µg/Kg-dry	10	7/14/2016 20:40
Benzo(a)anthracene	3,400	H	120	140	µg/Kg-dry	10	7/14/2016 20:40
Benzo(a)pyrene	3,400	H	87	140	µg/Kg-dry	10	7/14/2016 20:40
Benzo(b)fluoranthene	4,400	H	110	140	µg/Kg-dry	10	7/14/2016 20:40
Benzo(g,h,i)perylene	2,400	H	110	140	µg/Kg-dry	10	7/14/2016 20:40
Benzo(k)fluoranthene	1,600	H	110	140	µg/Kg-dry	10	7/14/2016 20:40
Bis(2-chloroethoxy)methane	U	H	68	700	µg/Kg-dry	10	7/14/2016 20:40
Bis(2-chloroethyl)ether	U	H	200	700	µg/Kg-dry	10	7/14/2016 20:40
Bis(2-chloroisopropyl)ether	U	H	170	700	µg/Kg-dry	10	7/14/2016 20:40
Bis(2-ethylhexyl)phthalate	U	H	120	700	µg/Kg-dry	10	7/14/2016 20:40
Butyl benzyl phthalate	U	H	120	700	µg/Kg-dry	10	7/14/2016 20:40
Caprolactam	U	H	240	700	µg/Kg-dry	10	7/14/2016 20:40
Carbazole	770	H	77	700	µg/Kg-dry	10	7/14/2016 20:40
Chrysene	3,600	H	110	140	µg/Kg-dry	10	7/14/2016 20:40
Dibenzo(a,h)anthracene	950	H	77	140	µg/Kg-dry	10	7/14/2016 20:40
Dibenzofuran	U	H	100	700	µg/Kg-dry	10	7/14/2016 20:40
Diethyl phthalate	U	H	110	700	µg/Kg-dry	10	7/14/2016 20:40
Dimethyl phthalate	U	H	140	700	µg/Kg-dry	10	7/14/2016 20:40
Di-n-butyl phthalate	U	H	130	700	µg/Kg-dry	10	7/14/2016 20:40
Di-n-octyl phthalate	U	H	140	700	µg/Kg-dry	10	7/14/2016 20:40
Fluoranthene	5,600	H	68	140	µg/Kg-dry	10	7/14/2016 20:40
Fluorene	460	H	100	140	µg/Kg-dry	10	7/14/2016 20:40
Hexachlorobenzene	U	H	210	700	µg/Kg-dry	10	7/14/2016 20:40
Hexachlorobutadiene	U	H	390	700	µg/Kg-dry	10	7/14/2016 20:40
Hexachlorocyclopentadiene	U	H	240	700	µg/Kg-dry	10	7/14/2016 20:40
Hexachloroethane	U	H	290	700	µg/Kg-dry	10	7/14/2016 20:40
Indeno(1,2,3-cd)pyrene	2,800	H	99	140	µg/Kg-dry	10	7/14/2016 20:40
Isophorone	U	H	140	3,600	µg/Kg-dry	10	7/14/2016 20:40
Naphthalene	U	H	91	140	µg/Kg-dry	10	7/14/2016 20:40
Nitrobenzene	U	H	240	3,600	µg/Kg-dry	10	7/14/2016 20:40
N-Nitrosodi-n-propylamine	U	H	120	700	µg/Kg-dry	10	7/14/2016 20:40
N-Nitrosodiphenylamine	U	H	68	700	µg/Kg-dry	10	7/14/2016 20:40
Pentachlorophenol	U	H	260	700	µg/Kg-dry	10	7/14/2016 20:40
Phenanthrene	3,100	H	66	140	µg/Kg-dry	10	7/14/2016 20:40
Phenol	U	H	180	700	µg/Kg-dry	10	7/14/2016 20:40
Pyrene	5,800	H	26	140	µg/Kg-dry	10	7/14/2016 20:40
Surr: 2,4,6-Tribromophenol	77.6			34-140	%REC	10	7/14/2016 20:40
Surr: 2-Fluorobiphenyl	66.0			12-100	%REC	10	7/14/2016 20:40

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-09-TRIP**Lab ID:** 16061792-27**Collection Date:** 6/28/2016 03:56 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	37.2			33-117	%REC	10	7/14/2016 20:40
Surr: 4-Terphenyl-d14	69.2			25-137	%REC	10	7/14/2016 20:40
Surr: Nitrobenzene-d5	59.4			37-107	%REC	10	7/14/2016 20:40
Surr: Phenol-d6	45.2			40-106	%REC	10	7/14/2016 20:40
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	7.1	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-28
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.030		0.0026	0.016	mg/Kg-dry	1	7/15/2016 13:30
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	8.4		0.56	2.2	mg/Kg-dry	5	7/18/2016 12:10
Barium	42		0.86	2.2	mg/Kg-dry	5	7/18/2016 12:10
Cadmium	1.4	J	0.21	4.3	mg/Kg-dry	5	7/18/2016 12:10
Chromium	110		0.12	2.2	mg/Kg-dry	5	7/18/2016 12:10
Lead	34		0.46	2.2	mg/Kg-dry	5	7/18/2016 12:10
Selenium	1.4	J	1.2	4.3	mg/Kg-dry	5	7/18/2016 12:10
Silver	U		0.27	2.2	mg/Kg-dry	5	7/18/2016 12:10
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	650	JH	110	670	µg/Kg-dry	10	7/14/2016 22:43
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 22:43
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 22:43
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 22:43
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 22:43
2,4-Dinitrophenol	U	H	360	670	µg/Kg-dry	10	7/14/2016 22:43
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/14/2016 22:43
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/14/2016 22:43
2-Chloronaphthalene	U	H	94	140	µg/Kg-dry	10	7/14/2016 22:43
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/14/2016 22:43
2-Methylnaphthalene	1,400	H	69	140	µg/Kg-dry	10	7/14/2016 22:43
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 22:43
2-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 22:43
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 22:43
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 22:43
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 22:43
3-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 22:43
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 22:43
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/14/2016 22:43
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 22:43
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 22:43
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 22:43
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 22:43
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/14/2016 22:43
Acenaphthene	15,000	H	98	140	µg/Kg-dry	10	7/14/2016 22:43
Acenaphthylene	140	H	120	140	µg/Kg-dry	10	7/14/2016 22:43
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/14/2016 22:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-28
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	43,000	H	480	680	µg/Kg-dry	50	7/16/2016 02:49
Atrazine	U	H	110	670	µg/Kg-dry	10	7/14/2016 22:43
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 22:43
Benzo(a)anthracene	91,000	H	580	680	µg/Kg-dry	50	7/16/2016 02:49
Benzo(a)pyrene	86,000	H	410	680	µg/Kg-dry	50	7/16/2016 02:49
Benzo(b)fluoranthene	110,000	H	500	680	µg/Kg-dry	50	7/16/2016 02:49
Benzo(g,h,i)perylene	63,000	H	520	680	µg/Kg-dry	50	7/16/2016 02:49
Benzo(k)fluoranthene	31,000	H	100	140	µg/Kg-dry	10	7/14/2016 22:43
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/14/2016 22:43
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 22:43
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/14/2016 22:43
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 22:43
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/14/2016 22:43
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/14/2016 22:43
Carbazole	18,000	H	73	670	µg/Kg-dry	10	7/14/2016 22:43
Chrysene	100,000	H	550	680	µg/Kg-dry	50	7/16/2016 02:49
Dibenzo(a,h)anthracene	12,000	H	73	140	µg/Kg-dry	10	7/14/2016 22:43
Dibenzofuran	7,000	H	99	670	µg/Kg-dry	10	7/14/2016 22:43
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/14/2016 22:43
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 22:43
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 22:43
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 22:43
Fluoranthene	200,000	H	320	680	µg/Kg-dry	50	7/16/2016 02:49
Fluorene	16,000	H	98	140	µg/Kg-dry	10	7/14/2016 22:43
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/14/2016 22:43
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/14/2016 22:43
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/14/2016 22:43
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/14/2016 22:43
Indeno(1,2,3-cd)pyrene	70,000	H	470	680	µg/Kg-dry	50	7/16/2016 02:49
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 22:43
Naphthalene	1,800	H	86	140	µg/Kg-dry	10	7/14/2016 22:43
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 22:43
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/14/2016 22:43
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/14/2016 22:43
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/14/2016 22:43
Phenanthrene	170,000	H	310	680	µg/Kg-dry	50	7/16/2016 02:49
Phenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 22:43
Pyrene	180,000	H	120	680	µg/Kg-dry	50	7/16/2016 02:49
Surr: 2,4,6-Tribromophenol	88.4			34-140	%REC	10	7/14/2016 22:43
Surr: 2-Fluorobiphenyl	71.6			12-100	%REC	10	7/14/2016 22:43

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-10**Lab ID:** 16061792-28**Collection Date:** 6/28/2016 03:25 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	67.4			33-117	%REC	10	7/14/2016 22:43
Surr: 4-Terphenyl-d14	70.2			25-137	%REC	10	7/14/2016 22:43
Surr: Nitrobenzene-d5	63.2			37-107	%REC	10	7/14/2016 22:43
Surr: Phenol-d6	68.6			40-106	%REC	10	7/14/2016 22:43
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	4.5	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-DUP
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-29
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.023		0.0026	0.016	mg/Kg-dry	1	7/15/2016 13:32
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.0		0.43	1.6	mg/Kg-dry	5	7/18/2016 12:15
Barium	59		0.66	1.6	mg/Kg-dry	5	7/18/2016 12:15
Cadmium	1.6	J	0.16	3.3	mg/Kg-dry	5	7/18/2016 12:15
Chromium	47		0.092	1.6	mg/Kg-dry	5	7/18/2016 12:15
Lead	42		0.35	1.6	mg/Kg-dry	5	7/18/2016 12:15
Selenium	U		0.92	3.3	mg/Kg-dry	5	7/18/2016 12:15
Silver	U		0.20	1.6	mg/Kg-dry	5	7/18/2016 12:15
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	500	JH	110	670	µg/Kg-dry	10	7/14/2016 23:07
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:07
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:07
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 23:07
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 23:07
2,4-Dinitrophenol	U	H	360	670	µg/Kg-dry	10	7/14/2016 23:07
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:07
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:07
2-Chloronaphthalene	U	H	94	140	µg/Kg-dry	10	7/14/2016 23:07
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/14/2016 23:07
2-Methylnaphthalene	670	H	69	140	µg/Kg-dry	10	7/14/2016 23:07
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:07
2-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 23:07
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:07
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 23:07
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 23:07
3-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 23:07
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 23:07
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:07
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:07
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 23:07
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:07
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/14/2016 23:07
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/14/2016 23:07
Acenaphthene	4,100	H	98	140	µg/Kg-dry	10	7/14/2016 23:07
Acenaphthylene	U	H	120	140	µg/Kg-dry	10	7/14/2016 23:07
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-DUP
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-29
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	12,000	H	95	140	µg/Kg-dry	10	7/14/2016 23:07
Atrazine	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:07
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 23:07
Benzo(a)anthracene	30,000	H	120	140	µg/Kg-dry	10	7/14/2016 23:07
Benzo(a)pyrene	26,000	H	83	140	µg/Kg-dry	10	7/14/2016 23:07
Benzo(b)fluoranthene	37,000	H	100	140	µg/Kg-dry	10	7/14/2016 23:07
Benzo(g,h,i)perylene	19,000	H	100	140	µg/Kg-dry	10	7/14/2016 23:07
Benzo(k)fluoranthene	11,000	H	100	140	µg/Kg-dry	10	7/14/2016 23:07
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/14/2016 23:07
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:07
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/14/2016 23:07
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 23:07
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:07
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/14/2016 23:07
Carbazole	4,800	H	73	670	µg/Kg-dry	10	7/14/2016 23:07
Chrysene	31,000	H	110	140	µg/Kg-dry	10	7/14/2016 23:07
Dibenzo(a,h)anthracene	5,300	H	73	140	µg/Kg-dry	10	7/14/2016 23:07
Dibenzofuran	2,000	H	99	670	µg/Kg-dry	10	7/14/2016 23:07
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/14/2016 23:07
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 23:07
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 23:07
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 23:07
Fluoranthene	68,000	H	320	680	µg/Kg-dry	50	7/16/2016 03:09
Fluorene	4,200	H	98	140	µg/Kg-dry	10	7/14/2016 23:07
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/14/2016 23:07
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/14/2016 23:07
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/14/2016 23:07
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/14/2016 23:07
Indeno(1,2,3-cd)pyrene	21,000	H	94	140	µg/Kg-dry	10	7/14/2016 23:07
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 23:07
Naphthalene	1,300	H	86	140	µg/Kg-dry	10	7/14/2016 23:07
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 23:07
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:07
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/14/2016 23:07
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/14/2016 23:07
Phenanthrene	50,000	H	310	680	µg/Kg-dry	50	7/16/2016 03:09
Phenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 23:07
Pyrene	60,000	H	120	680	µg/Kg-dry	50	7/16/2016 03:09
Surr: 2,4,6-Tribromophenol	84.0			34-140	%REC	10	7/14/2016 23:07
Surr: 2-Fluorobiphenyl	67.4			12-100	%REC	10	7/14/2016 23:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-10-DUP**Lab ID:** 16061792-29**Collection Date:** 6/28/2016 03:25 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	47.0			33-117	%REC	10	7/14/2016 23:07
Surr: 4-Terphenyl-d14	69.4			25-137	%REC	10	7/14/2016 23:07
Surr: Nitrobenzene-d5	59.6			37-107	%REC	10	7/14/2016 23:07
Surr: Phenol-d6	62.4			40-106	%REC	10	7/14/2016 23:07
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	2.1	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-TRIP A
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-30
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.031		0.0025	0.015	mg/Kg-dry	1	7/15/2016 13:35
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	5.0		0.48	1.9	mg/Kg-dry	5	7/18/2016 12:20
Barium	42		0.75	1.9	mg/Kg-dry	5	7/18/2016 12:20
Cadmium	1.3	J	0.18	3.7	mg/Kg-dry	5	7/18/2016 12:20
Chromium	34		0.10	1.9	mg/Kg-dry	5	7/18/2016 12:20
Lead	36		0.40	1.9	mg/Kg-dry	5	7/18/2016 12:20
Selenium	U		1.0	3.7	mg/Kg-dry	5	7/18/2016 12:20
Silver	U		0.23	1.9	mg/Kg-dry	5	7/18/2016 12:20
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	510	JH	100	640	µg/Kg-dry	10	7/14/2016 23:31
2,4,5-Trichlorophenol	U	H	180	640	µg/Kg-dry	10	7/14/2016 23:31
2,4,6-Trichlorophenol	U	H	170	640	µg/Kg-dry	10	7/14/2016 23:31
2,4-Dichlorophenol	U	H	140	640	µg/Kg-dry	10	7/14/2016 23:31
2,4-Dimethylphenol	U	H	130	640	µg/Kg-dry	10	7/14/2016 23:31
2,4-Dinitrophenol	U	H	350	640	µg/Kg-dry	10	7/14/2016 23:31
2,4-Dinitrotoluene	U	H	170	640	µg/Kg-dry	10	7/14/2016 23:31
2,6-Dinitrotoluene	U	H	110	640	µg/Kg-dry	10	7/14/2016 23:31
2-Chloronaphthalene	U	H	90	130	µg/Kg-dry	10	7/14/2016 23:31
2-Chlorophenol	U	H	200	640	µg/Kg-dry	10	7/14/2016 23:31
2-Methylnaphthalene	790	H	66	130	µg/Kg-dry	10	7/14/2016 23:31
2-Methylphenol	U	H	170	640	µg/Kg-dry	10	7/14/2016 23:31
2-Nitroaniline	U	H	150	640	µg/Kg-dry	10	7/14/2016 23:31
2-Nitrophenol	U	H	180	640	µg/Kg-dry	10	7/14/2016 23:31
3&4-Methylphenol	U	H	130	640	µg/Kg-dry	10	7/14/2016 23:31
3,3'-Dichlorobenzidine	U	H	96	3,200	µg/Kg-dry	10	7/14/2016 23:31
3-Nitroaniline	U	H	150	640	µg/Kg-dry	10	7/14/2016 23:31
4,6-Dinitro-2-methylphenol	U	H	160	640	µg/Kg-dry	10	7/14/2016 23:31
4-Bromophenyl phenyl ether	U	H	170	640	µg/Kg-dry	10	7/14/2016 23:31
4-Chloro-3-methylphenol	U	H	180	640	µg/Kg-dry	10	7/14/2016 23:31
4-Chloroaniline	U	H	100	1,300	µg/Kg-dry	10	7/14/2016 23:31
4-Chlorophenyl phenyl ether	U	H	180	640	µg/Kg-dry	10	7/14/2016 23:31
4-Nitroaniline	U	H	1,000	3,200	µg/Kg-dry	10	7/14/2016 23:31
4-Nitrophenol	U	H	580	640	µg/Kg-dry	10	7/14/2016 23:31
Acenaphthene	7,200	H	93	130	µg/Kg-dry	10	7/14/2016 23:31
Acenaphthylene	U	H	110	130	µg/Kg-dry	10	7/14/2016 23:31
Acetophenone	U	H	100	640	µg/Kg-dry	10	7/14/2016 23:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-TRIP A
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-30
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	20,000	H	91	130	µg/Kg-dry	10	7/14/2016 23:31
Atrazine	U	H	100	640	µg/Kg-dry	10	7/14/2016 23:31
Benzaldehyde	U	H	990	1,300	µg/Kg-dry	10	7/14/2016 23:31
Benzo(a)anthracene	47,000	H	560	650	µg/Kg-dry	50	7/16/2016 03:30
Benzo(a)pyrene	37,000	H	79	130	µg/Kg-dry	10	7/14/2016 23:31
Benzo(b)fluoranthene	59,000	H	480	650	µg/Kg-dry	50	7/16/2016 03:30
Benzo(g,h,i)perylene	26,000	H	99	130	µg/Kg-dry	10	7/14/2016 23:31
Benzo(k)fluoranthene	18,000	H	98	130	µg/Kg-dry	10	7/14/2016 23:31
Bis(2-chloroethoxy)methane	U	H	62	640	µg/Kg-dry	10	7/14/2016 23:31
Bis(2-chloroethyl)ether	U	H	180	640	µg/Kg-dry	10	7/14/2016 23:31
Bis(2-chloroisopropyl)ether	U	H	150	640	µg/Kg-dry	10	7/14/2016 23:31
Bis(2-ethylhexyl)phthalate	U	H	110	640	µg/Kg-dry	10	7/14/2016 23:31
Butyl benzyl phthalate	U	H	110	640	µg/Kg-dry	10	7/14/2016 23:31
Caprolactam	U	H	220	640	µg/Kg-dry	10	7/14/2016 23:31
Carbazole	8,900	H	70	640	µg/Kg-dry	10	7/14/2016 23:31
Chrysene	51,000	H	520	650	µg/Kg-dry	50	7/16/2016 03:30
Dibenzo(a,h)anthracene	6,800	H	70	130	µg/Kg-dry	10	7/14/2016 23:31
Dibenzofuran	3,100	H	95	640	µg/Kg-dry	10	7/14/2016 23:31
Diethyl phthalate	U	H	99	640	µg/Kg-dry	10	7/14/2016 23:31
Dimethyl phthalate	U	H	130	640	µg/Kg-dry	10	7/14/2016 23:31
Di-n-butyl phthalate	U	H	120	640	µg/Kg-dry	10	7/14/2016 23:31
Di-n-octyl phthalate	U	H	120	640	µg/Kg-dry	10	7/14/2016 23:31
Fluoranthene	100,000	H	310	650	µg/Kg-dry	50	7/16/2016 03:30
Fluorene	6,500	H	94	130	µg/Kg-dry	10	7/14/2016 23:31
Hexachlorobenzene	U	H	190	640	µg/Kg-dry	10	7/14/2016 23:31
Hexachlorobutadiene	U	H	350	640	µg/Kg-dry	10	7/14/2016 23:31
Hexachlorocyclopentadiene	U	H	220	640	µg/Kg-dry	10	7/14/2016 23:31
Hexachloroethane	U	H	270	640	µg/Kg-dry	10	7/14/2016 23:31
Indeno(1,2,3-cd)pyrene	28,000	H	90	130	µg/Kg-dry	10	7/14/2016 23:31
Isophorone	U	H	130	3,200	µg/Kg-dry	10	7/14/2016 23:31
Naphthalene	1,100	H	82	130	µg/Kg-dry	10	7/14/2016 23:31
Nitrobenzene	U	H	220	3,200	µg/Kg-dry	10	7/14/2016 23:31
N-Nitrosodi-n-propylamine	U	H	110	640	µg/Kg-dry	10	7/14/2016 23:31
N-Nitrosodiphenylamine	U	H	62	640	µg/Kg-dry	10	7/14/2016 23:31
Pentachlorophenol	U	H	240	640	µg/Kg-dry	10	7/14/2016 23:31
Phenanthrene	82,000	H	300	650	µg/Kg-dry	50	7/16/2016 03:30
Phenol	U	H	160	640	µg/Kg-dry	10	7/14/2016 23:31
Pyrene	94,000	H	120	650	µg/Kg-dry	50	7/16/2016 03:30
Surr: 2,4,6-Tribromophenol	81.2			34-140	%REC	10	7/14/2016 23:31
Surr: 2-Fluorobiphenyl	72.0			12-100	%REC	10	7/14/2016 23:31

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Work Order: 16061792

Sample ID: DU-10-TRIP A

Lab ID: 16061792-30

Collection Date: 6/28/2016 03:25 PM

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	56.2			33-117	%REC	10	7/14/2016 23:31
Surr: 4-Terphenyl-d14	74.4			25-137	%REC	10	7/14/2016 23:31
Surr: Nitrobenzene-d5	62.6			37-107	%REC	10	7/14/2016 23:31
Surr: Phenol-d6	60.6			40-106	%REC	10	7/14/2016 23:31
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.2	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-31
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.074		0.0026	0.016	mg/Kg-dry	1	7/15/2016 13:37
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	4.9		0.53	2.0	mg/Kg-dry	5	7/18/2016 12:26
Barium	73		0.82	2.0	mg/Kg-dry	5	7/18/2016 12:26
Cadmium	1.8	J	0.20	4.1	mg/Kg-dry	5	7/18/2016 12:26
Chromium	35		0.11	2.0	mg/Kg-dry	5	7/18/2016 12:26
Lead	57		0.43	2.0	mg/Kg-dry	5	7/18/2016 12:26
Selenium	1.2	J	1.1	4.1	mg/Kg-dry	5	7/18/2016 12:26
Silver	U		0.25	2.0	mg/Kg-dry	5	7/18/2016 12:26
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:55
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:55
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:55
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 23:55
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 23:55
2,4-Dinitrophenol	U	H	360	670	µg/Kg-dry	10	7/14/2016 23:55
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:55
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:55
2-Chloronaphthalene	U	H	94	130	µg/Kg-dry	10	7/14/2016 23:55
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/14/2016 23:55
2-Methylnaphthalene	81	JH	69	130	µg/Kg-dry	10	7/14/2016 23:55
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:55
2-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 23:55
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:55
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/14/2016 23:55
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/14/2016 23:55
3-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/14/2016 23:55
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 23:55
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/14/2016 23:55
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:55
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/14/2016 23:55
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:55
4-Nitroaniline	1,300	JH	1,000	3,400	µg/Kg-dry	10	7/14/2016 23:55
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/14/2016 23:55
Acenaphthene	1,200	H	98	130	µg/Kg-dry	10	7/14/2016 23:55
Acenaphthylene	U	H	120	130	µg/Kg-dry	10	7/14/2016 23:55
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-31
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	3,100	H	95	130	µg/Kg-dry	10	7/14/2016 23:55
Atrazine	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:55
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/14/2016 23:55
Benzo(a)anthracene	13,000	H	120	130	µg/Kg-dry	10	7/14/2016 23:55
Benzo(a)pyrene	9,000	H	83	130	µg/Kg-dry	10	7/14/2016 23:55
Benzo(b)fluoranthene	16,000	H	100	130	µg/Kg-dry	10	7/14/2016 23:55
Benzo(g,h,i)perylene	7,100	H	100	130	µg/Kg-dry	10	7/14/2016 23:55
Benzo(k)fluoranthene	4,800	H	100	130	µg/Kg-dry	10	7/14/2016 23:55
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/14/2016 23:55
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/14/2016 23:55
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/14/2016 23:55
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 23:55
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:55
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/14/2016 23:55
Carbazole	1,800	H	73	670	µg/Kg-dry	10	7/14/2016 23:55
Chrysene	17,000	H	110	130	µg/Kg-dry	10	7/14/2016 23:55
Dibenzo(a,h)anthracene	2,200	H	73	130	µg/Kg-dry	10	7/14/2016 23:55
Dibenzofuran	440	JH	99	670	µg/Kg-dry	10	7/14/2016 23:55
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/14/2016 23:55
Dimethyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 23:55
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/14/2016 23:55
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/14/2016 23:55
Fluoranthene	25,000	H	65	130	µg/Kg-dry	10	7/14/2016 23:55
Fluorene	1,200	H	98	130	µg/Kg-dry	10	7/14/2016 23:55
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/14/2016 23:55
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/14/2016 23:55
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/14/2016 23:55
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/14/2016 23:55
Indeno(1,2,3-cd)pyrene	8,000	H	94	130	µg/Kg-dry	10	7/14/2016 23:55
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/14/2016 23:55
Naphthalene	U	H	86	130	µg/Kg-dry	10	7/14/2016 23:55
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/14/2016 23:55
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/14/2016 23:55
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/14/2016 23:55
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/14/2016 23:55
Phenanthrene	15,000	H	63	130	µg/Kg-dry	10	7/14/2016 23:55
Phenol	U	H	170	670	µg/Kg-dry	10	7/14/2016 23:55
Pyrene	27,000	H	24	130	µg/Kg-dry	10	7/14/2016 23:55
Surr: 2,4,6-Tribromophenol	36.0			34-140	%REC	10	7/14/2016 23:55
Surr: 2-Fluorobiphenyl	16.4			12-100	%REC	10	7/14/2016 23:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-11**Lab ID:** 16061792-31**Collection Date:** 6/28/2016 10:15 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	20.2	S		33-117	%REC	10	7/14/2016 23:55
<i>Surr: 4-Terphenyl-d14</i>	8.00	S		25-137	%REC	10	7/14/2016 23:55
<i>Surr: Nitrobenzene-d5</i>	16.8	S		37-107	%REC	10	7/14/2016 23:55
<i>Surr: Phenol-d6</i>	10.2	S		40-106	%REC	10	7/14/2016 23:55
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	1.5	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-DUP A
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-32
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.053		0.0024	0.015	mg/Kg-dry	1	7/15/2016 13:39
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	6.2		0.53	2.1	mg/Kg-dry	5	7/18/2016 12:31
Barium	85		0.82	2.1	mg/Kg-dry	5	7/18/2016 12:31
Cadmium	1.7	J	0.20	4.1	mg/Kg-dry	5	7/18/2016 12:31
Chromium	28		0.11	2.1	mg/Kg-dry	5	7/18/2016 12:31
Lead	74		0.43	2.1	mg/Kg-dry	5	7/18/2016 12:31
Selenium	1.7	J	1.1	4.1	mg/Kg-dry	5	7/18/2016 12:31
Silver	U		0.25	2.1	mg/Kg-dry	5	7/18/2016 12:31
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	450	JH	110	660	µg/Kg-dry	10	7/15/2016 12:20
2,4,5-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/15/2016 12:20
2,4,6-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/15/2016 12:20
2,4-Dichlorophenol	U	H	140	660	µg/Kg-dry	10	7/15/2016 12:20
2,4-Dimethylphenol	U	H	140	660	µg/Kg-dry	10	7/15/2016 12:20
2,4-Dinitrophenol	U	H	360	660	µg/Kg-dry	10	7/15/2016 12:20
2,4-Dinitrotoluene	U	H	170	660	µg/Kg-dry	10	7/15/2016 12:20
2,6-Dinitrotoluene	U	H	110	660	µg/Kg-dry	10	7/15/2016 12:20
2-Chloronaphthalene	U	H	93	130	µg/Kg-dry	10	7/15/2016 12:20
2-Chlorophenol	U	H	210	660	µg/Kg-dry	10	7/15/2016 12:20
2-Methylnaphthalene	420	H	68	130	µg/Kg-dry	10	7/15/2016 12:20
2-Methylphenol	U	H	180	660	µg/Kg-dry	10	7/15/2016 12:20
2-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/15/2016 12:20
2-Nitrophenol	U	H	190	660	µg/Kg-dry	10	7/15/2016 12:20
3&4-Methylphenol	U	H	130	660	µg/Kg-dry	10	7/15/2016 12:20
3,3'-Dichlorobenzidine	U	H	99	3,300	µg/Kg-dry	10	7/15/2016 12:20
3-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/15/2016 12:20
4,6-Dinitro-2-methylphenol	U	H	170	660	µg/Kg-dry	10	7/15/2016 12:20
4-Bromophenyl phenyl ether	U	H	180	660	µg/Kg-dry	10	7/15/2016 12:20
4-Chloro-3-methylphenol	U	H	190	660	µg/Kg-dry	10	7/15/2016 12:20
4-Chloroaniline	U	H	110	1,300	µg/Kg-dry	10	7/15/2016 12:20
4-Chlorophenyl phenyl ether	U	H	180	660	µg/Kg-dry	10	7/15/2016 12:20
4-Nitroaniline	U	H	1,000	3,300	µg/Kg-dry	10	7/15/2016 12:20
4-Nitrophenol	U	H	600	660	µg/Kg-dry	10	7/15/2016 12:20
Acenaphthene	5,100	H	96	130	µg/Kg-dry	10	7/15/2016 12:20
Acenaphthylene	U	H	120	130	µg/Kg-dry	10	7/15/2016 12:20
Acetophenone	U	H	100	660	µg/Kg-dry	10	7/15/2016 12:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-DUP A
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-32
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	11,000	H	94	130	µg/Kg-dry	10	7/15/2016 12:20
Atrazine	U	H	100	660	µg/Kg-dry	10	7/15/2016 12:20
Benzaldehyde	U	H	1,000	1,300	µg/Kg-dry	10	7/15/2016 12:20
Benzo(a)anthracene	52,000	H	580	670	µg/Kg-dry	50	7/16/2016 03:50
Benzo(a)pyrene	32,000	H	82	130	µg/Kg-dry	10	7/15/2016 12:20
Benzo(b)fluoranthene	78,000	H	500	670	µg/Kg-dry	50	7/16/2016 03:50
Benzo(g,h,i)perylene	28,000	H	100	130	µg/Kg-dry	10	7/15/2016 12:20
Benzo(k)fluoranthene	17,000	H	100	130	µg/Kg-dry	10	7/15/2016 12:20
Bis(2-chloroethoxy)methane	U	H	64	660	µg/Kg-dry	10	7/15/2016 12:20
Bis(2-chloroethyl)ether	U	H	190	660	µg/Kg-dry	10	7/15/2016 12:20
Bis(2-chloroisopropyl)ether	U	H	160	660	µg/Kg-dry	10	7/15/2016 12:20
Bis(2-ethylhexyl)phthalate	U	H	120	660	µg/Kg-dry	10	7/15/2016 12:20
Butyl benzyl phthalate	U	H	110	660	µg/Kg-dry	10	7/15/2016 12:20
Caprolactam	U	H	230	660	µg/Kg-dry	10	7/15/2016 12:20
Carbazole	4,200	H	72	660	µg/Kg-dry	10	7/15/2016 12:20
Chrysene	82,000	H	540	670	µg/Kg-dry	50	7/16/2016 03:50
Dibenzo(a,h)anthracene	8,000	H	72	130	µg/Kg-dry	10	7/15/2016 12:20
Dibenzofuran	1,700	H	98	660	µg/Kg-dry	10	7/15/2016 12:20
Diethyl phthalate	U	H	100	660	µg/Kg-dry	10	7/15/2016 12:20
Dimethyl phthalate	U	H	130	660	µg/Kg-dry	10	7/15/2016 12:20
Di-n-butyl phthalate	U	H	120	660	µg/Kg-dry	10	7/15/2016 12:20
Di-n-octyl phthalate	U	H	130	660	µg/Kg-dry	10	7/15/2016 12:20
Fluoranthene	130,000	H	320	670	µg/Kg-dry	50	7/16/2016 03:50
Fluorene	3,600	H	97	130	µg/Kg-dry	10	7/15/2016 12:20
Hexachlorobenzene	U	H	190	660	µg/Kg-dry	10	7/15/2016 12:20
Hexachlorobutadiene	U	H	360	660	µg/Kg-dry	10	7/15/2016 12:20
Hexachlorocyclopentadiene	U	H	230	660	µg/Kg-dry	10	7/15/2016 12:20
Hexachloroethane	U	H	280	660	µg/Kg-dry	10	7/15/2016 12:20
Indeno(1,2,3-cd)pyrene	30,000	H	93	130	µg/Kg-dry	10	7/15/2016 12:20
Isophorone	U	H	130	3,300	µg/Kg-dry	10	7/15/2016 12:20
Naphthalene	U	H	85	130	µg/Kg-dry	10	7/15/2016 12:20
Nitrobenzene	U	H	220	3,300	µg/Kg-dry	10	7/15/2016 12:20
N-Nitrosodi-n-propylamine	U	H	110	660	µg/Kg-dry	10	7/15/2016 12:20
N-Nitrosodiphenylamine	U	H	64	660	µg/Kg-dry	10	7/15/2016 12:20
Pentachlorophenol	U	H	250	660	µg/Kg-dry	10	7/15/2016 12:20
Phenanthrene	78,000	H	310	670	µg/Kg-dry	50	7/16/2016 03:50
Phenol	U	H	170	660	µg/Kg-dry	10	7/15/2016 12:20
Pyrene	110,000	H	120	670	µg/Kg-dry	50	7/16/2016 03:50
Surr: 2,4,6-Tribromophenol	47.0			34-140	%REC	10	7/15/2016 12:20
Surr: 2-Fluorobiphenyl	41.6			12-100	%REC	10	7/15/2016 12:20

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-11-DUP A**Lab ID:** 16061792-32**Collection Date:** 6/28/2016 10:15 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	30.4	S		33-117	%REC	10	7/15/2016 12:20
<i>Surr: 4-Terphenyl-d14</i>	34.8			25-137	%REC	10	7/15/2016 12:20
<i>Surr: Nitrobenzene-d5</i>	27.8	S		37-107	%REC	10	7/15/2016 12:20
<i>Surr: Phenol-d6</i>	22.0	S		40-106	%REC	10	7/15/2016 12:20
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	1.5	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-TRIP
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-33
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.049		0.0026	0.016	mg/Kg-dry	1	7/15/2016 13:48
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	5.6		0.55	2.1	mg/Kg-dry	5	7/18/2016 12:37
Barium	70		0.85	2.1	mg/Kg-dry	5	7/18/2016 12:37
Cadmium	1.9	J	0.20	4.2	mg/Kg-dry	5	7/18/2016 12:37
Chromium	54		0.12	2.1	mg/Kg-dry	5	7/18/2016 12:37
Lead	68		0.45	2.1	mg/Kg-dry	5	7/18/2016 12:37
Selenium	1.6	J	1.2	4.2	mg/Kg-dry	5	7/18/2016 12:37
Silver	U		0.26	2.1	mg/Kg-dry	5	7/18/2016 12:37
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	440	JH	110	670	µg/Kg-dry	10	7/15/2016 12:44
2,4,5-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/15/2016 12:44
2,4,6-Trichlorophenol	U	H	180	670	µg/Kg-dry	10	7/15/2016 12:44
2,4-Dichlorophenol	U	H	140	670	µg/Kg-dry	10	7/15/2016 12:44
2,4-Dimethylphenol	U	H	140	670	µg/Kg-dry	10	7/15/2016 12:44
2,4-Dinitrophenol	U	H	360	670	µg/Kg-dry	10	7/15/2016 12:44
2,4-Dinitrotoluene	U	H	180	670	µg/Kg-dry	10	7/15/2016 12:44
2,6-Dinitrotoluene	U	H	110	670	µg/Kg-dry	10	7/15/2016 12:44
2-Chloronaphthalene	U	H	94	130	µg/Kg-dry	10	7/15/2016 12:44
2-Chlorophenol	U	H	210	670	µg/Kg-dry	10	7/15/2016 12:44
2-Methylnaphthalene	410	H	68	130	µg/Kg-dry	10	7/15/2016 12:44
2-Methylphenol	U	H	180	670	µg/Kg-dry	10	7/15/2016 12:44
2-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/15/2016 12:44
2-Nitrophenol	U	H	190	670	µg/Kg-dry	10	7/15/2016 12:44
3&4-Methylphenol	U	H	140	670	µg/Kg-dry	10	7/15/2016 12:44
3,3'-Dichlorobenzidine	U	H	100	3,400	µg/Kg-dry	10	7/15/2016 12:44
3-Nitroaniline	U	H	150	670	µg/Kg-dry	10	7/15/2016 12:44
4,6-Dinitro-2-methylphenol	U	H	170	670	µg/Kg-dry	10	7/15/2016 12:44
4-Bromophenyl phenyl ether	U	H	180	670	µg/Kg-dry	10	7/15/2016 12:44
4-Chloro-3-methylphenol	U	H	190	670	µg/Kg-dry	10	7/15/2016 12:44
4-Chloroaniline	U	H	110	1,400	µg/Kg-dry	10	7/15/2016 12:44
4-Chlorophenyl phenyl ether	U	H	190	670	µg/Kg-dry	10	7/15/2016 12:44
4-Nitroaniline	U	H	1,000	3,400	µg/Kg-dry	10	7/15/2016 12:44
4-Nitrophenol	U	H	600	670	µg/Kg-dry	10	7/15/2016 12:44
Acenaphthene	4,700	H	97	130	µg/Kg-dry	10	7/15/2016 12:44
Acenaphthylene	150	H	120	130	µg/Kg-dry	10	7/15/2016 12:44
Acetophenone	U	H	110	670	µg/Kg-dry	10	7/15/2016 12:44

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-TRIP
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-33
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	13,000	H	95	130	µg/Kg-dry	10	7/15/2016 12:44
Atrazine	U	H	110	670	µg/Kg-dry	10	7/15/2016 12:44
Benzaldehyde	U	H	1,000	1,400	µg/Kg-dry	10	7/15/2016 12:44
Benzo(a)anthracene	52,000	H	580	670	µg/Kg-dry	50	7/16/2016 04:11
Benzo(a)pyrene	32,000	H	82	130	µg/Kg-dry	10	7/15/2016 12:44
Benzo(b)fluoranthene	68,000	H	500	670	µg/Kg-dry	50	7/16/2016 04:11
Benzo(g,h,i)perylene	24,000	H	100	130	µg/Kg-dry	10	7/15/2016 12:44
Benzo(k)fluoranthene	18,000	H	100	130	µg/Kg-dry	10	7/15/2016 12:44
Bis(2-chloroethoxy)methane	U	H	65	670	µg/Kg-dry	10	7/15/2016 12:44
Bis(2-chloroethyl)ether	U	H	190	670	µg/Kg-dry	10	7/15/2016 12:44
Bis(2-chloroisopropyl)ether	U	H	160	670	µg/Kg-dry	10	7/15/2016 12:44
Bis(2-ethylhexyl)phthalate	U	H	120	670	µg/Kg-dry	10	7/15/2016 12:44
Butyl benzyl phthalate	U	H	110	670	µg/Kg-dry	10	7/15/2016 12:44
Caprolactam	U	H	230	670	µg/Kg-dry	10	7/15/2016 12:44
Carbazole	7,200	H	73	670	µg/Kg-dry	10	7/15/2016 12:44
Chrysene	73,000	H	540	670	µg/Kg-dry	50	7/16/2016 04:11
Dibenzo(a,h)anthracene	6,500	H	73	130	µg/Kg-dry	10	7/15/2016 12:44
Dibenzofuran	1,900	H	99	670	µg/Kg-dry	10	7/15/2016 12:44
Diethyl phthalate	U	H	100	670	µg/Kg-dry	10	7/15/2016 12:44
Dimethyl phthalate	580	JH	130	670	µg/Kg-dry	10	7/15/2016 12:44
Di-n-butyl phthalate	U	H	120	670	µg/Kg-dry	10	7/15/2016 12:44
Di-n-octyl phthalate	U	H	130	670	µg/Kg-dry	10	7/15/2016 12:44
Fluoranthene	110,000	H	320	670	µg/Kg-dry	50	7/16/2016 04:11
Fluorene	4,000	H	98	130	µg/Kg-dry	10	7/15/2016 12:44
Hexachlorobenzene	U	H	200	670	µg/Kg-dry	10	7/15/2016 12:44
Hexachlorobutadiene	U	H	370	670	µg/Kg-dry	10	7/15/2016 12:44
Hexachlorocyclopentadiene	U	H	230	670	µg/Kg-dry	10	7/15/2016 12:44
Hexachloroethane	U	H	280	670	µg/Kg-dry	10	7/15/2016 12:44
Indeno(1,2,3-cd)pyrene	26,000	H	94	130	µg/Kg-dry	10	7/15/2016 12:44
Isophorone	U	H	130	3,400	µg/Kg-dry	10	7/15/2016 12:44
Naphthalene	U	H	86	130	µg/Kg-dry	10	7/15/2016 12:44
Nitrobenzene	U	H	230	3,400	µg/Kg-dry	10	7/15/2016 12:44
N-Nitrosodi-n-propylamine	U	H	110	670	µg/Kg-dry	10	7/15/2016 12:44
N-Nitrosodiphenylamine	U	H	65	670	µg/Kg-dry	10	7/15/2016 12:44
Pentachlorophenol	U	H	250	670	µg/Kg-dry	10	7/15/2016 12:44
Phenanthrene	64,000	H	310	670	µg/Kg-dry	50	7/16/2016 04:11
Phenol	U	H	170	670	µg/Kg-dry	10	7/15/2016 12:44
Pyrene	100,000	H	120	670	µg/Kg-dry	50	7/16/2016 04:11
Surr: 2,4,6-Tribromophenol	45.4			34-140	%REC	10	7/15/2016 12:44
Surr: 2-Fluorobiphenyl	27.2			12-100	%REC	10	7/15/2016 12:44

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-11-TRIP**Lab ID:** 16061792-33**Collection Date:** 6/28/2016 10:15 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	30.4	S		33-117	%REC	10	7/15/2016 12:44
Surr: 4-Terphenyl-d14	18.6	S		25-137	%REC	10	7/15/2016 12:44
Surr: Nitrobenzene-d5	27.2	S		37-107	%REC	10	7/15/2016 12:44
Surr: Phenol-d6	24.4	S		40-106	%REC	10	7/15/2016 12:44
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	2.1	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-12
Collection Date: 6/28/2016 08:45 AM

Work Order: 16061792
Lab ID: 16061792-34
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.018		0.0023	0.014	mg/Kg-dry	1	7/15/2016 13:50
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	14		0.51	2.0	mg/Kg-dry	5	7/18/2016 12:42
Barium	70		0.78	2.0	mg/Kg-dry	5	7/18/2016 12:42
Cadmium	0.33	J	0.19	3.9	mg/Kg-dry	5	7/18/2016 12:42
Chromium	270		0.11	2.0	mg/Kg-dry	5	7/18/2016 12:42
Lead	14		0.41	2.0	mg/Kg-dry	5	7/18/2016 12:42
Selenium	1.2	J	1.1	3.9	mg/Kg-dry	5	7/18/2016 12:42
Silver	0.37	J	0.24	2.0	mg/Kg-dry	5	7/18/2016 12:42
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	400	JH	110	650	µg/Kg-dry	10	7/15/2016 01:08
2,4,5-Trichlorophenol	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:08
2,4,6-Trichlorophenol	U	H	170	650	µg/Kg-dry	10	7/15/2016 01:08
2,4-Dichlorophenol	U	H	140	650	µg/Kg-dry	10	7/15/2016 01:08
2,4-Dimethylphenol	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:08
2,4-Dinitrophenol	U	H	350	650	µg/Kg-dry	10	7/15/2016 01:08
2,4-Dinitrotoluene	U	H	170	650	µg/Kg-dry	10	7/15/2016 01:08
2,6-Dinitrotoluene	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:08
2-Chloronaphthalene	U	H	92	130	µg/Kg-dry	10	7/15/2016 01:08
2-Chlorophenol	U	H	210	650	µg/Kg-dry	10	7/15/2016 01:08
2-Methylnaphthalene	1,100	H	67	130	µg/Kg-dry	10	7/15/2016 01:08
2-Methylphenol	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:08
2-Nitroaniline	U	H	150	650	µg/Kg-dry	10	7/15/2016 01:08
2-Nitrophenol	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:08
3&4-Methylphenol	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:08
3,3'-Dichlorobenzidine	U	H	97	3,300	µg/Kg-dry	10	7/15/2016 01:08
3-Nitroaniline	U	H	150	650	µg/Kg-dry	10	7/15/2016 01:08
4,6-Dinitro-2-methylphenol	U	H	160	650	µg/Kg-dry	10	7/15/2016 01:08
4-Bromophenyl phenyl ether	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:08
4-Chloro-3-methylphenol	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:08
4-Chloroaniline	U	H	100	1,300	µg/Kg-dry	10	7/15/2016 01:08
4-Chlorophenyl phenyl ether	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:08
4-Nitroaniline	U	H	1,000	3,300	µg/Kg-dry	10	7/15/2016 01:08
4-Nitrophenol	U	H	590	650	µg/Kg-dry	10	7/15/2016 01:08
Acenaphthene	U	H	95	130	µg/Kg-dry	10	7/15/2016 01:08
Acenaphthylene	U	H	110	130	µg/Kg-dry	10	7/15/2016 01:08
Acetophenone	U	H	100	650	µg/Kg-dry	10	7/15/2016 01:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-12
Collection Date: 6/28/2016 08:45 AM

Work Order: 16061792
Lab ID: 16061792-34
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	570	H	92	130	µg/Kg-dry	10	7/15/2016 01:08
Atrazine	U	H	100	650	µg/Kg-dry	10	7/15/2016 01:08
Benzaldehyde	U	H	1,000	1,300	µg/Kg-dry	10	7/15/2016 01:08
Benzo(a)anthracene	2,900	H	110	130	µg/Kg-dry	10	7/15/2016 01:08
Benzo(a)pyrene	3,100	H	80	130	µg/Kg-dry	10	7/15/2016 01:08
Benzo(b)fluoranthene	2,500	H	98	130	µg/Kg-dry	10	7/15/2016 01:08
Benzo(g,h,i)perylene	2,800	H	100	130	µg/Kg-dry	10	7/15/2016 01:08
Benzo(k)fluoranthene	780	H	99	130	µg/Kg-dry	10	7/15/2016 01:08
Bis(2-chloroethoxy)methane	U	H	63	650	µg/Kg-dry	10	7/15/2016 01:08
Bis(2-chloroethyl)ether	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:08
Bis(2-chloroisopropyl)ether	U	H	150	650	µg/Kg-dry	10	7/15/2016 01:08
Bis(2-ethylhexyl)phthalate	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:08
Butyl benzyl phthalate	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:08
Caprolactam	U	H	220	650	µg/Kg-dry	10	7/15/2016 01:08
Carbazole	640	JH	71	650	µg/Kg-dry	10	7/15/2016 01:08
Chrysene	3,500	H	110	130	µg/Kg-dry	10	7/15/2016 01:08
Dibenzo(a,h)anthracene	1,900	H	71	130	µg/Kg-dry	10	7/15/2016 01:08
Dibenzofuran	110	JH	96	650	µg/Kg-dry	10	7/15/2016 01:08
Diethyl phthalate	U	H	100	650	µg/Kg-dry	10	7/15/2016 01:08
Dimethyl phthalate	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:08
Di-n-butyl phthalate	U	H	120	650	µg/Kg-dry	10	7/15/2016 01:08
Di-n-octyl phthalate	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:08
Fluoranthene	1,600	H	63	130	µg/Kg-dry	10	7/15/2016 01:08
Fluorene	400	H	95	130	µg/Kg-dry	10	7/15/2016 01:08
Hexachlorobenzene	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:08
Hexachlorobutadiene	U	H	360	650	µg/Kg-dry	10	7/15/2016 01:08
Hexachlorocyclopentadiene	U	H	220	650	µg/Kg-dry	10	7/15/2016 01:08
Hexachloroethane	U	H	270	650	µg/Kg-dry	10	7/15/2016 01:08
Indeno(1,2,3-cd)pyrene	2,000	H	91	130	µg/Kg-dry	10	7/15/2016 01:08
Isophorone	U	H	130	3,300	µg/Kg-dry	10	7/15/2016 01:08
Naphthalene	U	H	84	130	µg/Kg-dry	10	7/15/2016 01:08
Nitrobenzene	U	H	220	3,300	µg/Kg-dry	10	7/15/2016 01:08
N-Nitrosodi-n-propylamine	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:08
N-Nitrosodiphenylamine	U	H	63	650	µg/Kg-dry	10	7/15/2016 01:08
Pentachlorophenol	U	H	240	650	µg/Kg-dry	10	7/15/2016 01:08
Phenanthrene	2,100	H	61	130	µg/Kg-dry	10	7/15/2016 01:08
Phenol	U	H	160	650	µg/Kg-dry	10	7/15/2016 01:08
Pyrene	2,400	H	24	130	µg/Kg-dry	10	7/15/2016 01:08
Surr: 2,4,6-Tribromophenol	66.2			34-140	%REC	10	7/15/2016 01:08
Surr: 2-Fluorobiphenyl	63.8			12-100	%REC	10	7/15/2016 01:08

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Work Order: 16061792

Sample ID: DU-12

Lab ID: 16061792-34

Collection Date: 6/28/2016 08:45 AM

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	44.8			33-117	%REC	10	7/15/2016 01:08
Surr: 4-Terphenyl-d14	73.8			25-137	%REC	10	7/15/2016 01:08
Surr: Nitrobenzene-d5	59.8			37-107	%REC	10	7/15/2016 01:08
Surr: Phenol-d6	52.6			40-106	%REC	10	7/15/2016 01:08
MOISTURE		Method: SW3550C					Analyst: EDL
Moisture	1.8	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-12-DUP
Collection Date: 6/28/2016 08:45 AM

Work Order: 16061792
Lab ID: 16061792-35
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.017	J	0.0031	0.019	mg/Kg-dry	1	7/15/2016 13:52
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	11		0.48	1.8	mg/Kg-dry	5	7/18/2016 12:48
Barium	74		0.74	1.8	mg/Kg-dry	5	7/18/2016 12:48
Cadmium	0.88	J	0.18	3.7	mg/Kg-dry	5	7/18/2016 12:48
Chromium	170		0.10	1.8	mg/Kg-dry	5	7/18/2016 12:48
Lead	19		0.39	1.8	mg/Kg-dry	5	7/18/2016 12:48
Selenium	1.4	J	1.0	3.7	mg/Kg-dry	5	7/18/2016 12:48
Silver	U		0.23	1.8	mg/Kg-dry	5	7/18/2016 12:48
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	400	JH	110	660	µg/Kg-dry	10	7/15/2016 01:32
2,4,5-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/15/2016 01:32
2,4,6-Trichlorophenol	U	H	180	660	µg/Kg-dry	10	7/15/2016 01:32
2,4-Dichlorophenol	U	H	140	660	µg/Kg-dry	10	7/15/2016 01:32
2,4-Dimethylphenol	U	H	140	660	µg/Kg-dry	10	7/15/2016 01:32
2,4-Dinitrophenol	U	H	360	660	µg/Kg-dry	10	7/15/2016 01:32
2,4-Dinitrotoluene	U	H	170	660	µg/Kg-dry	10	7/15/2016 01:32
2,6-Dinitrotoluene	U	H	110	660	µg/Kg-dry	10	7/15/2016 01:32
2-Chloronaphthalene	U	H	93	130	µg/Kg-dry	10	7/15/2016 01:32
2-Chlorophenol	U	H	210	660	µg/Kg-dry	10	7/15/2016 01:32
2-Methylnaphthalene	950	H	67	130	µg/Kg-dry	10	7/15/2016 01:32
2-Methylphenol	U	H	180	660	µg/Kg-dry	10	7/15/2016 01:32
2-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/15/2016 01:32
2-Nitrophenol	U	H	190	660	µg/Kg-dry	10	7/15/2016 01:32
3&4-Methylphenol	U	H	130	660	µg/Kg-dry	10	7/15/2016 01:32
3,3'-Dichlorobenzidine	U	H	98	3,300	µg/Kg-dry	10	7/15/2016 01:32
3-Nitroaniline	U	H	150	660	µg/Kg-dry	10	7/15/2016 01:32
4,6-Dinitro-2-methylphenol	U	H	170	660	µg/Kg-dry	10	7/15/2016 01:32
4-Bromophenyl phenyl ether	U	H	180	660	µg/Kg-dry	10	7/15/2016 01:32
4-Chloro-3-methylphenol	U	H	190	660	µg/Kg-dry	10	7/15/2016 01:32
4-Chloroaniline	U	H	100	1,300	µg/Kg-dry	10	7/15/2016 01:32
4-Chlorophenyl phenyl ether	U	H	180	660	µg/Kg-dry	10	7/15/2016 01:32
4-Nitroaniline	U	H	1,000	3,300	µg/Kg-dry	10	7/15/2016 01:32
4-Nitrophenol	U	H	590	660	µg/Kg-dry	10	7/15/2016 01:32
Acenaphthene	U	H	96	130	µg/Kg-dry	10	7/15/2016 01:32
Acenaphthylene	U	H	110	130	µg/Kg-dry	10	7/15/2016 01:32
Acetophenone	U	H	100	660	µg/Kg-dry	10	7/15/2016 01:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-12-DUP
Collection Date: 6/28/2016 08:45 AM

Work Order: 16061792
Lab ID: 16061792-35
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	720	H	93	130	µg/Kg-dry	10	7/15/2016 01:32
Atrazine	U	H	100	660	µg/Kg-dry	10	7/15/2016 01:32
Benzaldehyde	U	H	1,000	1,300	µg/Kg-dry	10	7/15/2016 01:32
Benzo(a)anthracene	3,100	H	110	130	µg/Kg-dry	10	7/15/2016 01:32
Benzo(a)pyrene	3,200	H	81	130	µg/Kg-dry	10	7/15/2016 01:32
Benzo(b)fluoranthene	2,700	H	99	130	µg/Kg-dry	10	7/15/2016 01:32
Benzo(g,h,i)perylene	2,900	H	100	130	µg/Kg-dry	10	7/15/2016 01:32
Benzo(k)fluoranthene	1,000	H	100	130	µg/Kg-dry	10	7/15/2016 01:32
Bis(2-chloroethoxy)methane	U	H	64	660	µg/Kg-dry	10	7/15/2016 01:32
Bis(2-chloroethyl)ether	U	H	190	660	µg/Kg-dry	10	7/15/2016 01:32
Bis(2-chloroisopropyl)ether	U	H	160	660	µg/Kg-dry	10	7/15/2016 01:32
Bis(2-ethylhexyl)phthalate	U	H	110	660	µg/Kg-dry	10	7/15/2016 01:32
Butyl benzyl phthalate	U	H	110	660	µg/Kg-dry	10	7/15/2016 01:32
Caprolactam	U	H	230	660	µg/Kg-dry	10	7/15/2016 01:32
Carbazole	700	H	72	660	µg/Kg-dry	10	7/15/2016 01:32
Chrysene	4,000	H	110	130	µg/Kg-dry	10	7/15/2016 01:32
Dibenzo(a,h)anthracene	1,900	H	72	130	µg/Kg-dry	10	7/15/2016 01:32
Dibenzofuran	U	H	97	660	µg/Kg-dry	10	7/15/2016 01:32
Diethyl phthalate	U	H	100	660	µg/Kg-dry	10	7/15/2016 01:32
Dimethyl phthalate	U	H	130	660	µg/Kg-dry	10	7/15/2016 01:32
Di-n-butyl phthalate	U	H	120	660	µg/Kg-dry	10	7/15/2016 01:32
Di-n-octyl phthalate	U	H	130	660	µg/Kg-dry	10	7/15/2016 01:32
Fluoranthene	2,200	H	64	130	µg/Kg-dry	10	7/15/2016 01:32
Fluorene	430	H	96	130	µg/Kg-dry	10	7/15/2016 01:32
Hexachlorobenzene	U	H	190	660	µg/Kg-dry	10	7/15/2016 01:32
Hexachlorobutadiene	U	H	360	660	µg/Kg-dry	10	7/15/2016 01:32
Hexachlorocyclopentadiene	U	H	230	660	µg/Kg-dry	10	7/15/2016 01:32
Hexachloroethane	U	H	270	660	µg/Kg-dry	10	7/15/2016 01:32
Indeno(1,2,3-cd)pyrene	2,100	H	92	130	µg/Kg-dry	10	7/15/2016 01:32
Isophorone	U	H	130	3,300	µg/Kg-dry	10	7/15/2016 01:32
Naphthalene	U	H	85	130	µg/Kg-dry	10	7/15/2016 01:32
Nitrobenzene	U	H	220	3,300	µg/Kg-dry	10	7/15/2016 01:32
N-Nitrosodi-n-propylamine	U	H	110	660	µg/Kg-dry	10	7/15/2016 01:32
N-Nitrosodiphenylamine	U	H	64	660	µg/Kg-dry	10	7/15/2016 01:32
Pentachlorophenol	U	H	240	660	µg/Kg-dry	10	7/15/2016 01:32
Phenanthrene	2,400	H	62	130	µg/Kg-dry	10	7/15/2016 01:32
Phenol	U	H	160	660	µg/Kg-dry	10	7/15/2016 01:32
Pyrene	2,900	H	24	130	µg/Kg-dry	10	7/15/2016 01:32
Surr: 2,4,6-Tribromophenol	81.0			34-140	%REC	10	7/15/2016 01:32
Surr: 2-Fluorobiphenyl	76.4			12-100	%REC	10	7/15/2016 01:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Work Order: 16061792

Sample ID: DU-12-DUP

Lab ID: 16061792-35

Collection Date: 6/28/2016 08:45 AM

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	77.0			33-117	%REC	10	7/15/2016 01:32
Surr: 4-Terphenyl-d14	82.0			25-137	%REC	10	7/15/2016 01:32
Surr: Nitrobenzene-d5	68.4			37-107	%REC	10	7/15/2016 01:32
Surr: Phenol-d6	72.4			40-106	%REC	10	7/15/2016 01:32
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	2.5	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-12-TRIP
Collection Date: 6/28/2016 08:45 AM

Work Order: 16061792
Lab ID: 16061792-36
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/15/16		Analyst: LR
Mercury	0.012	J	0.0025	0.015	mg/Kg-dry	1	7/15/2016 13:55
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/14/16		Analyst: JEC
Arsenic	13		0.47	1.8	mg/Kg-dry	5	7/18/2016 12:53
Barium	73		0.72	1.8	mg/Kg-dry	5	7/18/2016 12:53
Cadmium	0.37	J	0.17	3.6	mg/Kg-dry	5	7/18/2016 12:53
Chromium	390		0.10	1.8	mg/Kg-dry	5	7/18/2016 12:53
Lead	19		0.38	1.8	mg/Kg-dry	5	7/18/2016 12:53
Selenium	2.2	J	1.0	3.6	mg/Kg-dry	5	7/18/2016 12:53
Silver	0.24	J	0.22	1.8	mg/Kg-dry	5	7/18/2016 12:53
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3546 / 7/13/16		Analyst: RS
1,1'-Biphenyl	420	JH	110	650	µg/Kg-dry	10	7/15/2016 01:56
2,4,5-Trichlorophenol	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:56
2,4,6-Trichlorophenol	U	H	170	650	µg/Kg-dry	10	7/15/2016 01:56
2,4-Dichlorophenol	U	H	140	650	µg/Kg-dry	10	7/15/2016 01:56
2,4-Dimethylphenol	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:56
2,4-Dinitrophenol	U	H	350	650	µg/Kg-dry	10	7/15/2016 01:56
2,4-Dinitrotoluene	U	H	170	650	µg/Kg-dry	10	7/15/2016 01:56
2,6-Dinitrotoluene	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:56
2-Chloronaphthalene	U	H	91	130	µg/Kg-dry	10	7/15/2016 01:56
2-Chlorophenol	U	H	210	650	µg/Kg-dry	10	7/15/2016 01:56
2-Methylnaphthalene	1,500	H	66	130	µg/Kg-dry	10	7/15/2016 01:56
2-Methylphenol	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:56
2-Nitroaniline	U	H	150	650	µg/Kg-dry	10	7/15/2016 01:56
2-Nitrophenol	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:56
3&4-Methylphenol	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:56
3,3'-Dichlorobenzidine	U	H	97	3,300	µg/Kg-dry	10	7/15/2016 01:56
3-Nitroaniline	U	H	150	650	µg/Kg-dry	10	7/15/2016 01:56
4,6-Dinitro-2-methylphenol	U	H	160	650	µg/Kg-dry	10	7/15/2016 01:56
4-Bromophenyl phenyl ether	U	H	170	650	µg/Kg-dry	10	7/15/2016 01:56
4-Chloro-3-methylphenol	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:56
4-Chloroaniline	U	H	100	1,300	µg/Kg-dry	10	7/15/2016 01:56
4-Chlorophenyl phenyl ether	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:56
4-Nitroaniline	U	H	1,000	3,300	µg/Kg-dry	10	7/15/2016 01:56
4-Nitrophenol	U	H	580	650	µg/Kg-dry	10	7/15/2016 01:56
Acenaphthene	160	H	94	130	µg/Kg-dry	10	7/15/2016 01:56
Acenaphthylene	U	H	110	130	µg/Kg-dry	10	7/15/2016 01:56
Acetophenone	U	H	100	650	µg/Kg-dry	10	7/15/2016 01:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-12-TRIP
Collection Date: 6/28/2016 08:45 AM

Work Order: 16061792
Lab ID: 16061792-36
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,200	H	92	130	µg/Kg-dry	10	7/15/2016 01:56
Atrazine	U	H	100	650	µg/Kg-dry	10	7/15/2016 01:56
Benzaldehyde	U	H	1,000	1,300	µg/Kg-dry	10	7/15/2016 01:56
Benzo(a)anthracene	4,800	H	110	130	µg/Kg-dry	10	7/15/2016 01:56
Benzo(a)pyrene	4,900	H	80	130	µg/Kg-dry	10	7/15/2016 01:56
Benzo(b)fluoranthene	4,400	H	97	130	µg/Kg-dry	10	7/15/2016 01:56
Benzo(g,h,i)perylene	4,400	H	100	130	µg/Kg-dry	10	7/15/2016 01:56
Benzo(k)fluoranthene	1,400	H	99	130	µg/Kg-dry	10	7/15/2016 01:56
Bis(2-chloroethoxy)methane	U	H	63	650	µg/Kg-dry	10	7/15/2016 01:56
Bis(2-chloroethyl)ether	U	H	180	650	µg/Kg-dry	10	7/15/2016 01:56
Bis(2-chloroisopropyl)ether	U	H	150	650	µg/Kg-dry	10	7/15/2016 01:56
Bis(2-ethylhexyl)phthalate	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:56
Butyl benzyl phthalate	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:56
Caprolactam	U	H	220	650	µg/Kg-dry	10	7/15/2016 01:56
Carbazole	940	H	70	650	µg/Kg-dry	10	7/15/2016 01:56
Chrysene	6,000	H	110	130	µg/Kg-dry	10	7/15/2016 01:56
Dibenzo(a,h)anthracene	2,600	H	70	130	µg/Kg-dry	10	7/15/2016 01:56
Dibenzofuran	140	JH	96	650	µg/Kg-dry	10	7/15/2016 01:56
Diethyl phthalate	U	H	100	650	µg/Kg-dry	10	7/15/2016 01:56
Dimethyl phthalate	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:56
Di-n-butyl phthalate	U	H	120	650	µg/Kg-dry	10	7/15/2016 01:56
Di-n-octyl phthalate	U	H	130	650	µg/Kg-dry	10	7/15/2016 01:56
Fluoranthene	4,300	H	63	130	µg/Kg-dry	10	7/15/2016 01:56
Fluorene	500	H	95	130	µg/Kg-dry	10	7/15/2016 01:56
Hexachlorobenzene	U	H	190	650	µg/Kg-dry	10	7/15/2016 01:56
Hexachlorobutadiene	U	H	350	650	µg/Kg-dry	10	7/15/2016 01:56
Hexachlorocyclopentadiene	U	H	220	650	µg/Kg-dry	10	7/15/2016 01:56
Hexachloroethane	U	H	270	650	µg/Kg-dry	10	7/15/2016 01:56
Indeno(1,2,3-cd)pyrene	3,300	H	91	130	µg/Kg-dry	10	7/15/2016 01:56
Isophorone	U	H	130	3,300	µg/Kg-dry	10	7/15/2016 01:56
Naphthalene	U	H	83	130	µg/Kg-dry	10	7/15/2016 01:56
Nitrobenzene	U	H	220	3,300	µg/Kg-dry	10	7/15/2016 01:56
N-Nitrosodi-n-propylamine	U	H	110	650	µg/Kg-dry	10	7/15/2016 01:56
N-Nitrosodiphenylamine	U	H	63	650	µg/Kg-dry	10	7/15/2016 01:56
Pentachlorophenol	U	H	240	650	µg/Kg-dry	10	7/15/2016 01:56
Phenanthrene	4,100	H	61	130	µg/Kg-dry	10	7/15/2016 01:56
Phenol	U	H	160	650	µg/Kg-dry	10	7/15/2016 01:56
Pyrene	5,600	H	24	130	µg/Kg-dry	10	7/15/2016 01:56
Surr: 2,4,6-Tribromophenol	83.8			34-140	%REC	10	7/15/2016 01:56
Surr: 2-Fluorobiphenyl	76.8			12-100	%REC	10	7/15/2016 01:56

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Work Order: 16061792

Sample ID: DU-12-TRIP

Lab ID: 16061792-36

Collection Date: 6/28/2016 08:45 AM

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	73.2			33-117	%REC	10	7/15/2016 01:56
Surr: 4-Terphenyl-d14	81.4			25-137	%REC	10	7/15/2016 01:56
Surr: Nitrobenzene-d5	69.6			37-107	%REC	10	7/15/2016 01:56
Surr: Phenol-d6	77.4			40-106	%REC	10	7/15/2016 01:56
MOISTURE				Method: SW3550C			Analyst: EDL
Moisture	0.98	H	0.025	0.050	% of sample	1	7/13/2016 17:13

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
 Project: Elkem Carbide X9025-14-0002-019-017
 Sample ID: SED-67
 Collection Date: 6/28/2016 11:15 AM

Work Order: 16061792
 Lab ID: 16061792-37
 Matrix: SEDIMENT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS							
			Method: SW8082		Prep: SW3541 / 7/14/16		Analyst: EB
Aroclor 1016	U	H	20	120	µg/Kg-dry	1	7/14/2016 22:25
Aroclor 1221	U	H	20	120	µg/Kg-dry	1	7/14/2016 22:25
Aroclor 1232	U	H	20	120	µg/Kg-dry	1	7/14/2016 22:25
Aroclor 1242	U	H	20	120	µg/Kg-dry	1	7/14/2016 22:25
Aroclor 1248	U	H	20	120	µg/Kg-dry	1	7/14/2016 22:25
Aroclor 1254	U	H	32	120	µg/Kg-dry	1	7/14/2016 22:25
Aroclor 1260	U	H	32	120	µg/Kg-dry	1	7/14/2016 22:25
PCBs, Total	U	H	32	120	µg/Kg-dry	1	7/14/2016 22:25
Surr: Decachlorobiphenyl	73.1			40-140	%REC	1	7/14/2016 22:25
Surr: Tetrachloro-m-xylene	71.1			45-124	%REC	1	7/14/2016 22:25
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	32	H	0.025	0.050	% of sample	1	7/14/2016 15:41

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-DUP B
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-38
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.027		0.0026	0.016	mg/Kg-dry	1	7/20/2016 18:51
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	8.2		0.54	2.1	mg/Kg-dry	5	7/20/2016 22:12
Barium	79		0.84	2.1	mg/Kg-dry	5	7/20/2016 22:12
Cadmium	1.2	J	0.20	4.2	mg/Kg-dry	5	7/20/2016 22:12
Chromium	12		0.12	2.1	mg/Kg-dry	5	7/20/2016 22:12
Lead	46		0.44	2.1	mg/Kg-dry	5	7/20/2016 22:12
Selenium	U		1.2	4.2	mg/Kg-dry	5	7/20/2016 22:12
Silver	U		0.26	2.1	mg/Kg-dry	5	7/20/2016 22:12
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	U	H	54	330	µg/Kg-dry	10	7/21/2016 12:07
2,4,5-Trichlorophenol	U	H	90	330	µg/Kg-dry	10	7/21/2016 12:07
2,4,6-Trichlorophenol	U	H	88	330	µg/Kg-dry	10	7/21/2016 12:07
2,4-Dichlorophenol	U	H	70	330	µg/Kg-dry	10	7/21/2016 12:07
2,4-Dimethylphenol	U	H	68	330	µg/Kg-dry	10	7/21/2016 12:07
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 12:07
2,4-Dinitrotoluene	U	H	86	330	µg/Kg-dry	10	7/21/2016 12:07
2,6-Dinitrotoluene	U	H	55	330	µg/Kg-dry	10	7/21/2016 12:07
2-Chloronaphthalene	U	H	46	66	µg/Kg-dry	10	7/21/2016 12:07
2-Chlorophenol	U	H	100	330	µg/Kg-dry	10	7/21/2016 12:07
2-Methylnaphthalene	50	JH	34	66	µg/Kg-dry	10	7/21/2016 12:07
2-Methylphenol	U	H	89	330	µg/Kg-dry	10	7/21/2016 12:07
2-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/21/2016 12:07
2-Nitrophenol	U	H	94	330	µg/Kg-dry	10	7/21/2016 12:07
3&4-Methylphenol	U	H	66	330	µg/Kg-dry	10	7/21/2016 12:07
3,3'-Dichlorobenzidine	U	H	49	1,700	µg/Kg-dry	10	7/21/2016 12:07
3-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/21/2016 12:07
4,6-Dinitro-2-methylphenol	U	H	83	330	µg/Kg-dry	10	7/21/2016 12:07
4-Bromophenyl phenyl ether	U	H	89	330	µg/Kg-dry	10	7/21/2016 12:07
4-Chloro-3-methylphenol	U	H	94	330	µg/Kg-dry	10	7/21/2016 12:07
4-Chloroaniline	U	H	52	660	µg/Kg-dry	10	7/21/2016 12:07
4-Chlorophenyl phenyl ether	U	H	91	330	µg/Kg-dry	10	7/21/2016 12:07
4-Nitroaniline	U	H	510	1,700	µg/Kg-dry	10	7/21/2016 12:07
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 12:07
Acenaphthene	390	H	48	66	µg/Kg-dry	10	7/21/2016 12:07
Acenaphthylene	U	H	57	66	µg/Kg-dry	10	7/21/2016 12:07
Acetophenone	U	H	52	330	µg/Kg-dry	10	7/21/2016 12:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-DUP B
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-38
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,000	H	47	66	µg/Kg-dry	10	7/21/2016 12:07
Atrazine	U	H	52	330	µg/Kg-dry	10	7/21/2016 12:07
Benzaldehyde	U	H	510	660	µg/Kg-dry	10	7/21/2016 12:07
Benzo(a)anthracene	6,000	H	57	66	µg/Kg-dry	10	7/21/2016 12:07
Benzo(a)pyrene	6,700	H	41	66	µg/Kg-dry	10	7/21/2016 12:07
Benzo(b)fluoranthene	10,000	H	49	66	µg/Kg-dry	10	7/21/2016 12:07
Benzo(g,h,i)perylene	5,100	H	51	66	µg/Kg-dry	10	7/21/2016 12:07
Benzo(k)fluoranthene	3,700	H	50	66	µg/Kg-dry	10	7/21/2016 12:07
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 12:07
Bis(2-chloroethyl)ether	U	H	94	330	µg/Kg-dry	10	7/21/2016 12:07
Bis(2-chloroisopropyl)ether	U	H	77	330	µg/Kg-dry	10	7/21/2016 12:07
Bis(2-ethylhexyl)phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 12:07
Butyl benzyl phthalate	U	H	56	330	µg/Kg-dry	10	7/21/2016 12:07
Caprolactam	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:07
Carbazole	580	H	36	330	µg/Kg-dry	10	7/21/2016 12:07
Chrysene	7,300	H	53	66	µg/Kg-dry	10	7/21/2016 12:07
Dibenzo(a,h)anthracene	1,100	H	36	66	µg/Kg-dry	10	7/21/2016 12:07
Dibenzofuran	130	JH	49	330	µg/Kg-dry	10	7/21/2016 12:07
Diethyl phthalate	U	H	51	330	µg/Kg-dry	10	7/21/2016 12:07
Dimethyl phthalate	U	H	64	330	µg/Kg-dry	10	7/21/2016 12:07
Di-n-butyl phthalate	U	H	61	330	µg/Kg-dry	10	7/21/2016 12:07
Di-n-octyl phthalate	U	H	63	330	µg/Kg-dry	10	7/21/2016 12:07
Fluoranthene	14,000	H	32	66	µg/Kg-dry	10	7/21/2016 12:07
Fluorene	290	H	48	66	µg/Kg-dry	10	7/21/2016 12:07
Hexachlorobenzene	U	H	96	330	µg/Kg-dry	10	7/21/2016 12:07
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 12:07
Hexachlorocyclopentadiene	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:07
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 12:07
Indeno(1,2,3-cd)pyrene	5,700	H	46	66	µg/Kg-dry	10	7/21/2016 12:07
Isophorone	U	H	65	1,700	µg/Kg-dry	10	7/21/2016 12:07
Naphthalene	U	H	42	66	µg/Kg-dry	10	7/21/2016 12:07
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 12:07
N-Nitrosodi-n-propylamine	U	H	55	330	µg/Kg-dry	10	7/21/2016 12:07
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 12:07
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 12:07
Phenanthrene	5,200	H	31	66	µg/Kg-dry	10	7/21/2016 12:07
Phenol	U	H	82	330	µg/Kg-dry	10	7/21/2016 12:07
Pyrene	12,000	H	12	66	µg/Kg-dry	10	7/21/2016 12:07
Surr: 2,4,6-Tribromophenol	55.6			34-140	%REC	10	7/21/2016 12:07
Surr: 2-Fluorobiphenyl	64.4			12-100	%REC	10	7/21/2016 12:07

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-02-DUP B**Lab ID:** 16061792-38**Collection Date:** 6/28/2016 11:30 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	62.8			33-117	%REC	10	7/21/2016 12:07
<i>Surr: 4-Terphenyl-d14</i>	70.6			25-137	%REC	10	7/21/2016 12:07
<i>Surr: Nitrobenzene-d5</i>	51.6			37-107	%REC	10	7/21/2016 12:07
<i>Surr: Phenol-d6</i>	61.8			40-106	%REC	10	7/21/2016 12:07
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	1.6	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-DUP C
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-39
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.029		0.0026	0.016	mg/Kg-dry	1	7/20/2016 18:53
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	8.4		0.55	2.1	mg/Kg-dry	5	7/20/2016 22:18
Barium	96		0.84	2.1	mg/Kg-dry	5	7/20/2016 22:18
Cadmium	1.3	J	0.20	4.2	mg/Kg-dry	5	7/20/2016 22:18
Chromium	12		0.12	2.1	mg/Kg-dry	5	7/20/2016 22:18
Lead	42		0.45	2.1	mg/Kg-dry	5	7/20/2016 22:18
Selenium	U		1.2	4.2	mg/Kg-dry	5	7/20/2016 22:18
Silver	0.27	J	0.26	2.1	mg/Kg-dry	5	7/20/2016 22:18
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	U	H	54	330	µg/Kg-dry	10	7/21/2016 12:28
2,4,5-Trichlorophenol	U	H	90	330	µg/Kg-dry	10	7/21/2016 12:28
2,4,6-Trichlorophenol	U	H	88	330	µg/Kg-dry	10	7/21/2016 12:28
2,4-Dichlorophenol	U	H	70	330	µg/Kg-dry	10	7/21/2016 12:28
2,4-Dimethylphenol	U	H	68	330	µg/Kg-dry	10	7/21/2016 12:28
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 12:28
2,4-Dinitrotoluene	U	H	86	330	µg/Kg-dry	10	7/21/2016 12:28
2,6-Dinitrotoluene	U	H	55	330	µg/Kg-dry	10	7/21/2016 12:28
2-Chloronaphthalene	U	H	46	66	µg/Kg-dry	10	7/21/2016 12:28
2-Chlorophenol	U	H	100	330	µg/Kg-dry	10	7/21/2016 12:28
2-Methylnaphthalene	60	JH	34	66	µg/Kg-dry	10	7/21/2016 12:28
2-Methylphenol	U	H	89	330	µg/Kg-dry	10	7/21/2016 12:28
2-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/21/2016 12:28
2-Nitrophenol	U	H	94	330	µg/Kg-dry	10	7/21/2016 12:28
3&4-Methylphenol	U	H	67	330	µg/Kg-dry	10	7/21/2016 12:28
3,3'-Dichlorobenzidine	U	H	49	1,700	µg/Kg-dry	10	7/21/2016 12:28
3-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/21/2016 12:28
4,6-Dinitro-2-methylphenol	U	H	83	330	µg/Kg-dry	10	7/21/2016 12:28
4-Bromophenyl phenyl ether	U	H	89	330	µg/Kg-dry	10	7/21/2016 12:28
4-Chloro-3-methylphenol	U	H	94	330	µg/Kg-dry	10	7/21/2016 12:28
4-Chloroaniline	U	H	52	670	µg/Kg-dry	10	7/21/2016 12:28
4-Chlorophenyl phenyl ether	U	H	91	330	µg/Kg-dry	10	7/21/2016 12:28
4-Nitroaniline	U	H	510	1,700	µg/Kg-dry	10	7/21/2016 12:28
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 12:28
Acenaphthene	540	H	48	66	µg/Kg-dry	10	7/21/2016 12:28
Acenaphthylene	U	H	57	66	µg/Kg-dry	10	7/21/2016 12:28
Acetophenone	U	H	52	330	µg/Kg-dry	10	7/21/2016 12:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-02-DUP C
Collection Date: 6/28/2016 11:30 AM

Work Order: 16061792
Lab ID: 16061792-39
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,300	H	47	66	µg/Kg-dry	10	7/21/2016 12:28
Atrazine	U	H	52	330	µg/Kg-dry	10	7/21/2016 12:28
Benzaldehyde	U	H	510	670	µg/Kg-dry	10	7/21/2016 12:28
Benzo(a)anthracene	7,100	H	57	66	µg/Kg-dry	10	7/21/2016 12:28
Benzo(a)pyrene	7,800	H	41	66	µg/Kg-dry	10	7/21/2016 12:28
Benzo(b)fluoranthene	12,000	H	49	66	µg/Kg-dry	10	7/21/2016 12:28
Benzo(g,h,i)perylene	5,900	H	51	66	µg/Kg-dry	10	7/21/2016 12:28
Benzo(k)fluoranthene	3,500	H	50	66	µg/Kg-dry	10	7/21/2016 12:28
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 12:28
Bis(2-chloroethyl)ether	U	H	94	330	µg/Kg-dry	10	7/21/2016 12:28
Bis(2-chloroisopropyl)ether	U	H	78	330	µg/Kg-dry	10	7/21/2016 12:28
Bis(2-ethylhexyl)phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 12:28
Butyl benzyl phthalate	U	H	56	330	µg/Kg-dry	10	7/21/2016 12:28
Caprolactam	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:28
Carbazole	740	H	36	330	µg/Kg-dry	10	7/21/2016 12:28
Chrysene	8,600	H	54	66	µg/Kg-dry	10	7/21/2016 12:28
Dibenzo(a,h)anthracene	1,300	H	36	66	µg/Kg-dry	10	7/21/2016 12:28
Dibenzofuran	170	JH	49	330	µg/Kg-dry	10	7/21/2016 12:28
Diethyl phthalate	U	H	51	330	µg/Kg-dry	10	7/21/2016 12:28
Dimethyl phthalate	U	H	65	330	µg/Kg-dry	10	7/21/2016 12:28
Di-n-butyl phthalate	U	H	61	330	µg/Kg-dry	10	7/21/2016 12:28
Di-n-octyl phthalate	U	H	64	330	µg/Kg-dry	10	7/21/2016 12:28
Fluoranthene	17,000	H	32	66	µg/Kg-dry	10	7/21/2016 12:28
Fluorene	370	H	48	66	µg/Kg-dry	10	7/21/2016 12:28
Hexachlorobenzene	U	H	96	330	µg/Kg-dry	10	7/21/2016 12:28
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 12:28
Hexachlorocyclopentadiene	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:28
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 12:28
Indeno(1,2,3-cd)pyrene	6,700	H	46	66	µg/Kg-dry	10	7/21/2016 12:28
Isophorone	U	H	65	1,700	µg/Kg-dry	10	7/21/2016 12:28
Naphthalene	U	H	42	66	µg/Kg-dry	10	7/21/2016 12:28
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 12:28
N-Nitrosodi-n-propylamine	U	H	55	330	µg/Kg-dry	10	7/21/2016 12:28
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 12:28
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 12:28
Phenanthrene	6,500	H	31	66	µg/Kg-dry	10	7/21/2016 12:28
Phenol	U	H	82	330	µg/Kg-dry	10	7/21/2016 12:28
Pyrene	14,000	H	12	66	µg/Kg-dry	10	7/21/2016 12:28
Surr: 2,4,6-Tribromophenol	60.2			34-140	%REC	10	7/21/2016 12:28
Surr: 2-Fluorobiphenyl	67.0			12-100	%REC	10	7/21/2016 12:28

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-02-DUP C**Lab ID:** 16061792-39**Collection Date:** 6/28/2016 11:30 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	64.2			33-117	%REC	10	7/21/2016 12:28
Surr: 4-Terphenyl-d14	74.8			25-137	%REC	10	7/21/2016 12:28
Surr: Nitrobenzene-d5	54.2			37-107	%REC	10	7/21/2016 12:28
Surr: Phenol-d6	65.0			40-106	%REC	10	7/21/2016 12:28
MOISTURE							
			Method: SW3550C				Analyst: LW
Moisture	1.6	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-TRIP B
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-40
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.026		0.0027	0.017	mg/Kg-dry	1	7/20/2016 18:56
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	6.1		0.45	1.7	mg/Kg-dry	5	7/20/2016 22:23
Barium	56		0.70	1.7	mg/Kg-dry	5	7/20/2016 22:23
Cadmium	1.1	J	0.17	3.5	mg/Kg-dry	5	7/20/2016 22:23
Chromium	36		0.097	1.7	mg/Kg-dry	5	7/20/2016 22:23
Lead	36		0.37	1.7	mg/Kg-dry	5	7/20/2016 22:23
Selenium	U		0.97	3.5	mg/Kg-dry	5	7/20/2016 22:23
Silver	U		0.22	1.7	mg/Kg-dry	5	7/20/2016 22:23
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	100	JH	55	330	µg/Kg-dry	10	7/21/2016 12:49
2,4,5-Trichlorophenol	U	H	92	330	µg/Kg-dry	10	7/21/2016 12:49
2,4,6-Trichlorophenol	U	H	89	330	µg/Kg-dry	10	7/21/2016 12:49
2,4-Dichlorophenol	U	H	71	330	µg/Kg-dry	10	7/21/2016 12:49
2,4-Dimethylphenol	U	H	69	330	µg/Kg-dry	10	7/21/2016 12:49
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 12:49
2,4-Dinitrotoluene	U	H	88	330	µg/Kg-dry	10	7/21/2016 12:49
2,6-Dinitrotoluene	U	H	55	330	µg/Kg-dry	10	7/21/2016 12:49
2-Chloronaphthalene	U	H	47	67	µg/Kg-dry	10	7/21/2016 12:49
2-Chlorophenol	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:49
2-Methylnaphthalene	300	H	34	67	µg/Kg-dry	10	7/21/2016 12:49
2-Methylphenol	U	H	91	330	µg/Kg-dry	10	7/21/2016 12:49
2-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 12:49
2-Nitrophenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 12:49
3&4-Methylphenol	U	H	68	330	µg/Kg-dry	10	7/21/2016 12:49
3,3'-Dichlorobenzidine	U	H	50	1,700	µg/Kg-dry	10	7/21/2016 12:49
3-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 12:49
4,6-Dinitro-2-methylphenol	U	H	84	330	µg/Kg-dry	10	7/21/2016 12:49
4-Bromophenyl phenyl ether	U	H	90	330	µg/Kg-dry	10	7/21/2016 12:49
4-Chloro-3-methylphenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 12:49
4-Chloroaniline	U	H	53	680	µg/Kg-dry	10	7/21/2016 12:49
4-Chlorophenyl phenyl ether	U	H	93	330	µg/Kg-dry	10	7/21/2016 12:49
4-Nitroaniline	U	H	520	1,700	µg/Kg-dry	10	7/21/2016 12:49
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 12:49
Acenaphthene	4,200	H	49	67	µg/Kg-dry	10	7/21/2016 12:49
Acenaphthylene	87	H	58	67	µg/Kg-dry	10	7/21/2016 12:49
Acetophenone	U	H	53	330	µg/Kg-dry	10	7/21/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-TRIP B
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-40
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	13,000	H	47	67	µg/Kg-dry	10	7/21/2016 12:49
Atrazine	U	H	53	330	µg/Kg-dry	10	7/21/2016 12:49
Benzaldehyde	U	H	520	680	µg/Kg-dry	10	7/21/2016 12:49
Benzo(a)anthracene	38,000	H	580	670	µg/Kg-dry	100	7/22/2016 03:43
Benzo(a)pyrene	38,000	H	410	670	µg/Kg-dry	100	7/22/2016 03:43
Benzo(b)fluoranthene	53,000	H	500	670	µg/Kg-dry	100	7/22/2016 03:43
Benzo(g,h,i)perylene	26,000	H	520	670	µg/Kg-dry	100	7/22/2016 03:43
Benzo(k)fluoranthene	17,000	H	51	67	µg/Kg-dry	10	7/21/2016 12:49
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 12:49
Bis(2-chloroethyl)ether	U	H	95	330	µg/Kg-dry	10	7/21/2016 12:49
Bis(2-chloroisopropyl)ether	U	H	79	330	µg/Kg-dry	10	7/21/2016 12:49
Bis(2-ethylhexyl)phthalate	U	H	58	330	µg/Kg-dry	10	7/21/2016 12:49
Butyl benzyl phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 12:49
Caprolactam	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:49
Carbazole	5,900	H	36	330	µg/Kg-dry	10	7/21/2016 12:49
Chrysene	43,000	H	540	670	µg/Kg-dry	100	7/22/2016 03:43
Dibenzo(a,h)anthracene	6,500	H	36	67	µg/Kg-dry	10	7/21/2016 12:49
Dibenzofuran	1,800	H	49	330	µg/Kg-dry	10	7/21/2016 12:49
Diethyl phthalate	U	H	51	330	µg/Kg-dry	10	7/21/2016 12:49
Dimethyl phthalate	U	H	66	330	µg/Kg-dry	10	7/21/2016 12:49
Di-n-butyl phthalate	U	H	62	330	µg/Kg-dry	10	7/21/2016 12:49
Di-n-octyl phthalate	U	H	65	330	µg/Kg-dry	10	7/21/2016 12:49
Fluoranthene	85,000	H	320	670	µg/Kg-dry	100	7/22/2016 03:43
Fluorene	4,400	H	49	67	µg/Kg-dry	10	7/21/2016 12:49
Hexachlorobenzene	U	H	98	330	µg/Kg-dry	10	7/21/2016 12:49
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 12:49
Hexachlorocyclopentadiene	U	H	110	330	µg/Kg-dry	10	7/21/2016 12:49
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 12:49
Indeno(1,2,3-cd)pyrene	31,000	H	470	670	µg/Kg-dry	100	7/22/2016 03:43
Isophorone	U	H	66	1,700	µg/Kg-dry	10	7/21/2016 12:49
Naphthalene	450	H	43	67	µg/Kg-dry	10	7/21/2016 12:49
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 12:49
N-Nitrosodi-n-propylamine	U	H	55	330	µg/Kg-dry	10	7/21/2016 12:49
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 12:49
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 12:49
Phenanthrene	50,000	H	310	670	µg/Kg-dry	100	7/22/2016 03:43
Phenol	U	H	84	330	µg/Kg-dry	10	7/21/2016 12:49
Pyrene	94,000	H	120	670	µg/Kg-dry	100	7/22/2016 03:43
Surr: 2,4,6-Tribromophenol	61.2			34-140	%REC	10	7/21/2016 12:49
Surr: 2-Fluorobiphenyl	68.0			12-100	%REC	10	7/21/2016 12:49

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-10-TRIP B**Lab ID:** 16061792-40**Collection Date:** 6/28/2016 03:25 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	67.4			33-117	%REC	10	7/21/2016 12:49
<i>Surr: 4-Terphenyl-d14</i>	77.6			25-137	%REC	10	7/21/2016 12:49
<i>Surr: Nitrobenzene-d5</i>	59.2			37-107	%REC	10	7/21/2016 12:49
<i>Surr: Phenol-d6</i>	69.0			40-106	%REC	10	7/21/2016 12:49
MOISTURE							
			Method: SW3550C				Analyst: LW
Moisture	1.2	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-TRIP C
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-41
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.029		0.0025	0.015	mg/Kg-dry	1	7/20/2016 18:58
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	6.3		0.54	2.1	mg/Kg-dry	5	7/20/2016 22:29
Barium	71		0.83	2.1	mg/Kg-dry	5	7/20/2016 22:29
Cadmium	0.89	J	0.20	4.2	mg/Kg-dry	5	7/20/2016 22:29
Chromium	82		0.12	2.1	mg/Kg-dry	5	7/20/2016 22:29
Lead	30		0.44	2.1	mg/Kg-dry	5	7/20/2016 22:29
Selenium	1.2	J	1.2	4.2	mg/Kg-dry	5	7/20/2016 22:29
Silver	U		0.26	2.1	mg/Kg-dry	5	7/20/2016 22:29
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	130	JH	55	330	µg/Kg-dry	10	7/21/2016 01:10
2,4,5-Trichlorophenol	U	H	92	330	µg/Kg-dry	10	7/21/2016 01:10
2,4,6-Trichlorophenol	U	H	90	330	µg/Kg-dry	10	7/21/2016 01:10
2,4-Dichlorophenol	U	H	71	330	µg/Kg-dry	10	7/21/2016 01:10
2,4-Dimethylphenol	U	H	69	330	µg/Kg-dry	10	7/21/2016 01:10
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 01:10
2,4-Dinitrotoluene	U	H	88	330	µg/Kg-dry	10	7/21/2016 01:10
2,6-Dinitrotoluene	U	H	56	330	µg/Kg-dry	10	7/21/2016 01:10
2-Chloronaphthalene	U	H	47	68	µg/Kg-dry	10	7/21/2016 01:10
2-Chlorophenol	U	H	110	330	µg/Kg-dry	10	7/21/2016 01:10
2-Methylnaphthalene	350	H	34	68	µg/Kg-dry	10	7/21/2016 01:10
2-Methylphenol	U	H	91	330	µg/Kg-dry	10	7/21/2016 01:10
2-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 01:10
2-Nitrophenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 01:10
3&4-Methylphenol	U	H	68	330	µg/Kg-dry	10	7/21/2016 01:10
3,3'-Dichlorobenzidine	U	H	50	1,700	µg/Kg-dry	10	7/21/2016 01:10
3-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 01:10
4,6-Dinitro-2-methylphenol	U	H	85	330	µg/Kg-dry	10	7/21/2016 01:10
4-Bromophenyl phenyl ether	U	H	91	330	µg/Kg-dry	10	7/21/2016 01:10
4-Chloro-3-methylphenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 01:10
4-Chloroaniline	U	H	53	680	µg/Kg-dry	10	7/21/2016 01:10
4-Chlorophenyl phenyl ether	U	H	93	330	µg/Kg-dry	10	7/21/2016 01:10
4-Nitroaniline	U	H	520	1,700	µg/Kg-dry	10	7/21/2016 01:10
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 01:10
Acenaphthene	5,000	H	49	68	µg/Kg-dry	10	7/21/2016 01:10
Acenaphthylene	100	H	59	68	µg/Kg-dry	10	7/21/2016 01:10
Acetophenone	U	H	53	330	µg/Kg-dry	10	7/21/2016 01:10

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-10-TRIP C
Collection Date: 6/28/2016 03:25 PM

Work Order: 16061792
Lab ID: 16061792-41
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	15,000	H	48	68	µg/Kg-dry	10	7/21/2016 01:10
Atrazine	U	H	53	330	µg/Kg-dry	10	7/21/2016 01:10
Benzaldehyde	U	H	520	680	µg/Kg-dry	10	7/21/2016 01:10
Benzo(a)anthracene	45,000	H	580	680	µg/Kg-dry	100	7/22/2016 02:19
Benzo(a)pyrene	44,000	H	410	680	µg/Kg-dry	100	7/22/2016 02:19
Benzo(b)fluoranthene	64,000	H	500	680	µg/Kg-dry	100	7/22/2016 02:19
Benzo(g,h,i)perylene	27,000	H	520	680	µg/Kg-dry	100	7/22/2016 02:19
Benzo(k)fluoranthene	17,000	H	51	68	µg/Kg-dry	10	7/21/2016 01:10
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 01:10
Bis(2-chloroethyl)ether	U	H	96	330	µg/Kg-dry	10	7/21/2016 01:10
Bis(2-chloroisopropyl)ether	U	H	79	330	µg/Kg-dry	10	7/21/2016 01:10
Bis(2-ethylhexyl)phthalate	U	H	59	330	µg/Kg-dry	10	7/21/2016 01:10
Butyl benzyl phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 01:10
Caprolactam	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:10
Carbazole	6,900	H	36	330	µg/Kg-dry	10	7/21/2016 01:10
Chrysene	47,000	H	550	680	µg/Kg-dry	100	7/22/2016 02:19
Dibenzo(a,h)anthracene	7,300	H	36	68	µg/Kg-dry	10	7/21/2016 01:10
Dibenzofuran	2,200	H	50	330	µg/Kg-dry	10	7/21/2016 01:10
Diethyl phthalate	U	H	52	330	µg/Kg-dry	10	7/21/2016 01:10
Dimethyl phthalate	U	H	66	330	µg/Kg-dry	10	7/21/2016 01:10
Di-n-butyl phthalate	U	H	62	330	µg/Kg-dry	10	7/21/2016 01:10
Di-n-octyl phthalate	U	H	65	330	µg/Kg-dry	10	7/21/2016 01:10
Fluoranthene	120,000	H	320	680	µg/Kg-dry	100	7/22/2016 02:19
Fluorene	5,300	H	49	68	µg/Kg-dry	10	7/21/2016 01:10
Hexachlorobenzene	U	H	98	330	µg/Kg-dry	10	7/21/2016 01:10
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 01:10
Hexachlorocyclopentadiene	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:10
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 01:10
Indeno(1,2,3-cd)pyrene	33,000	H	470	680	µg/Kg-dry	100	7/22/2016 02:19
Isophorone	U	H	66	1,700	µg/Kg-dry	10	7/21/2016 01:10
Naphthalene	510	H	43	68	µg/Kg-dry	10	7/21/2016 01:10
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 01:10
N-Nitrosodi-n-propylamine	U	H	56	330	µg/Kg-dry	10	7/21/2016 01:10
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 01:10
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:10
Phenanthrene	59,000	H	310	680	µg/Kg-dry	100	7/22/2016 02:19
Phenol	U	H	84	330	µg/Kg-dry	10	7/21/2016 01:10
Pyrene	90,000	H	120	680	µg/Kg-dry	100	7/22/2016 02:19
Surr: 2,4,6-Tribromophenol	69.8			34-140	%REC	10	7/21/2016 01:10
Surr: 2-Fluorobiphenyl	74.8			12-100	%REC	10	7/21/2016 01:10

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-10-TRIP C**Lab ID:** 16061792-41**Collection Date:** 6/28/2016 03:25 PM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	73.4			33-117	%REC	10	7/21/2016 01:10
<i>Surr: 4-Terphenyl-d14</i>	85.8			25-137	%REC	10	7/21/2016 01:10
<i>Surr: Nitrobenzene-d5</i>	65.2			37-107	%REC	10	7/21/2016 01:10
<i>Surr: Phenol-d6</i>	76.8			40-106	%REC	10	7/21/2016 01:10
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	1.2	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-DUP B
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-42
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.044		0.0025	0.015	mg/Kg-dry	1	7/20/2016 19:10
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	4.6		0.53	2.0	mg/Kg-dry	5	7/20/2016 22:34
Barium	50		0.82	2.0	mg/Kg-dry	5	7/20/2016 22:34
Cadmium	1.8	J	0.20	4.1	mg/Kg-dry	5	7/20/2016 22:34
Chromium	20		0.11	2.0	mg/Kg-dry	5	7/20/2016 22:34
Lead	8,100		0.43	2.0	mg/Kg-dry	5	7/20/2016 22:34
Selenium	U		1.1	4.1	mg/Kg-dry	5	7/20/2016 22:34
Silver	0.25	J	0.25	2.0	mg/Kg-dry	5	7/20/2016 22:34
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	180	JH	54	330	µg/Kg-dry	10	7/21/2016 01:30
2,4,5-Trichlorophenol	U	H	90	330	µg/Kg-dry	10	7/21/2016 01:30
2,4,6-Trichlorophenol	U	H	88	330	µg/Kg-dry	10	7/21/2016 01:30
2,4-Dichlorophenol	U	H	70	330	µg/Kg-dry	10	7/21/2016 01:30
2,4-Dimethylphenol	U	H	68	330	µg/Kg-dry	10	7/21/2016 01:30
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 01:30
2,4-Dinitrotoluene	U	H	86	330	µg/Kg-dry	10	7/21/2016 01:30
2,6-Dinitrotoluene	U	H	55	330	µg/Kg-dry	10	7/21/2016 01:30
2-Chloronaphthalene	U	H	46	66	µg/Kg-dry	10	7/21/2016 01:30
2-Chlorophenol	U	H	100	330	µg/Kg-dry	10	7/21/2016 01:30
2-Methylnaphthalene	510	H	34	66	µg/Kg-dry	10	7/21/2016 01:30
2-Methylphenol	U	H	89	330	µg/Kg-dry	10	7/21/2016 01:30
2-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/21/2016 01:30
2-Nitrophenol	U	H	94	330	µg/Kg-dry	10	7/21/2016 01:30
3&4-Methylphenol	150	JH	66	330	µg/Kg-dry	10	7/21/2016 01:30
3,3'-Dichlorobenzidine	U	H	49	1,700	µg/Kg-dry	10	7/21/2016 01:30
3-Nitroaniline	U	H	76	330	µg/Kg-dry	10	7/21/2016 01:30
4,6-Dinitro-2-methylphenol	U	H	83	330	µg/Kg-dry	10	7/21/2016 01:30
4-Bromophenyl phenyl ether	U	H	89	330	µg/Kg-dry	10	7/21/2016 01:30
4-Chloro-3-methylphenol	U	H	94	330	µg/Kg-dry	10	7/21/2016 01:30
4-Chloroaniline	U	H	52	660	µg/Kg-dry	10	7/21/2016 01:30
4-Chlorophenyl phenyl ether	U	H	91	330	µg/Kg-dry	10	7/21/2016 01:30
4-Nitroaniline	U	H	510	1,700	µg/Kg-dry	10	7/21/2016 01:30
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 01:30
Acenaphthene	13,000	H	48	66	µg/Kg-dry	10	7/21/2016 01:30
Acenaphthylene	210	H	57	66	µg/Kg-dry	10	7/21/2016 01:30
Acetophenone	U	H	52	330	µg/Kg-dry	10	7/21/2016 01:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-DUP B
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-42
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	40,000	H	1,200	1,700	µg/Kg-dry	250	7/22/2016 02:40
Atrazine	U	H	52	330	µg/Kg-dry	10	7/21/2016 01:30
Benzaldehyde	U	H	510	660	µg/Kg-dry	10	7/21/2016 01:30
Benzo(a)anthracene	190,000	H	1,400	1,700	µg/Kg-dry	250	7/22/2016 02:40
Benzo(a)pyrene	180,000	H	1,000	1,700	µg/Kg-dry	250	7/22/2016 02:40
Benzo(b)fluoranthene	270,000	H	1,200	1,700	µg/Kg-dry	250	7/22/2016 02:40
Benzo(g,h,i)perylene	120,000	H	1,300	1,700	µg/Kg-dry	250	7/22/2016 02:40
Benzo(k)fluoranthene	85,000	H	1,300	1,700	µg/Kg-dry	250	7/22/2016 02:40
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 01:30
Bis(2-chloroethyl)ether	U	H	94	330	µg/Kg-dry	10	7/21/2016 01:30
Bis(2-chloroisopropyl)ether	U	H	77	330	µg/Kg-dry	10	7/21/2016 01:30
Bis(2-ethylhexyl)phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 01:30
Butyl benzyl phthalate	U	H	56	330	µg/Kg-dry	10	7/21/2016 01:30
Caprolactam	U	H	110	330	µg/Kg-dry	10	7/21/2016 01:30
Carbazole	25,000	H	890	8,200	µg/Kg-dry	250	7/22/2016 02:40
Chrysene	250,000	H	1,300	1,700	µg/Kg-dry	250	7/22/2016 02:40
Dibenzo(a,h)anthracene	35,000	H	890	1,700	µg/Kg-dry	250	7/22/2016 02:40
Dibenzofuran	3,700	H	49	330	µg/Kg-dry	10	7/21/2016 01:30
Diethyl phthalate	U	H	51	330	µg/Kg-dry	10	7/21/2016 01:30
Dimethyl phthalate	U	H	64	330	µg/Kg-dry	10	7/21/2016 01:30
Di-n-butyl phthalate	U	H	61	330	µg/Kg-dry	10	7/21/2016 01:30
Di-n-octyl phthalate	U	H	63	330	µg/Kg-dry	10	7/21/2016 01:30
Fluoranthene	400,000	H	790	1,700	µg/Kg-dry	250	7/22/2016 02:40
Fluorene	10,000	H	48	66	µg/Kg-dry	10	7/21/2016 01:30
Hexachlorobenzene	U	H	96	330	µg/Kg-dry	10	7/21/2016 01:30
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 01:30
Hexachlorocyclopentadiene	U	H	110	330	µg/Kg-dry	10	7/21/2016 01:30
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 01:30
Indeno(1,2,3-cd)pyrene	140,000	H	1,200	1,700	µg/Kg-dry	250	7/22/2016 02:40
Isophorone	U	H	65	1,700	µg/Kg-dry	10	7/21/2016 01:30
Naphthalene	820	H	42	66	µg/Kg-dry	10	7/21/2016 01:30
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 01:30
N-Nitrosodi-n-propylamine	U	H	55	330	µg/Kg-dry	10	7/21/2016 01:30
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 01:30
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:30
Phenanthrene	170,000	H	770	1,700	µg/Kg-dry	250	7/22/2016 02:40
Phenol	U	H	82	330	µg/Kg-dry	10	7/21/2016 01:30
Pyrene	470,000	H	300	1,700	µg/Kg-dry	250	7/22/2016 02:40
Surr: 2,4,6-Tribromophenol	70.2			34-140	%REC	10	7/21/2016 01:30
Surr: 2-Fluorobiphenyl	71.8			12-100	%REC	10	7/21/2016 01:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-11-DUP B**Lab ID:** 16061792-42**Collection Date:** 6/28/2016 10:15 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	76.6			33-117	%REC	10	7/21/2016 01:30
<i>Surr: 4-Terphenyl-d14</i>	102			25-137	%REC	10	7/21/2016 01:30
<i>Surr: Nitrobenzene-d5</i>	67.0			37-107	%REC	10	7/21/2016 01:30
<i>Surr: Phenol-d6</i>	76.0			40-106	%REC	10	7/21/2016 01:30
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	1.5	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-DUP C
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-43
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.048		0.0027	0.016	mg/Kg-dry	1	7/20/2016 19:12
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	5.2		0.53	2.0	mg/Kg-dry	5	7/20/2016 22:39
Barium	80		0.82	2.0	mg/Kg-dry	5	7/20/2016 22:39
Cadmium	2.5	J	0.20	4.1	mg/Kg-dry	5	7/20/2016 22:39
Chromium	22		0.11	2.0	mg/Kg-dry	5	7/20/2016 22:39
Lead	56		0.43	2.0	mg/Kg-dry	5	7/20/2016 22:39
Selenium	1.4	J	1.1	4.1	mg/Kg-dry	5	7/20/2016 22:39
Silver	U		0.25	2.0	mg/Kg-dry	5	7/20/2016 22:39
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	160	JH	55	330	µg/Kg-dry	10	7/21/2016 01:51
2,4,5-Trichlorophenol	U	H	92	330	µg/Kg-dry	10	7/21/2016 01:51
2,4,6-Trichlorophenol	U	H	90	330	µg/Kg-dry	10	7/21/2016 01:51
2,4-Dichlorophenol	U	H	71	330	µg/Kg-dry	10	7/21/2016 01:51
2,4-Dimethylphenol	U	H	69	330	µg/Kg-dry	10	7/21/2016 01:51
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 01:51
2,4-Dinitrotoluene	U	H	88	330	µg/Kg-dry	10	7/21/2016 01:51
2,6-Dinitrotoluene	U	H	56	330	µg/Kg-dry	10	7/21/2016 01:51
2-Chloronaphthalene	U	H	47	67	µg/Kg-dry	10	7/21/2016 01:51
2-Chlorophenol	U	H	110	330	µg/Kg-dry	10	7/21/2016 01:51
2-Methylnaphthalene	470	H	34	67	µg/Kg-dry	10	7/21/2016 01:51
2-Methylphenol	U	H	91	330	µg/Kg-dry	10	7/21/2016 01:51
2-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 01:51
2-Nitrophenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 01:51
3&4-Methylphenol	100	JH	68	330	µg/Kg-dry	10	7/21/2016 01:51
3,3'-Dichlorobenzidine	U	H	50	1,700	µg/Kg-dry	10	7/21/2016 01:51
3-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 01:51
4,6-Dinitro-2-methylphenol	U	H	85	330	µg/Kg-dry	10	7/21/2016 01:51
4-Bromophenyl phenyl ether	U	H	91	330	µg/Kg-dry	10	7/21/2016 01:51
4-Chloro-3-methylphenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 01:51
4-Chloroaniline	U	H	53	680	µg/Kg-dry	10	7/21/2016 01:51
4-Chlorophenyl phenyl ether	U	H	93	330	µg/Kg-dry	10	7/21/2016 01:51
4-Nitroaniline	U	H	520	1,700	µg/Kg-dry	10	7/21/2016 01:51
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 01:51
Acenaphthene	12,000	H	49	67	µg/Kg-dry	10	7/21/2016 01:51
Acenaphthylene	200	H	58	67	µg/Kg-dry	10	7/21/2016 01:51
Acetophenone	U	H	53	330	µg/Kg-dry	10	7/21/2016 01:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-11-DUP C
Collection Date: 6/28/2016 10:15 AM

Work Order: 16061792
Lab ID: 16061792-43
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	35,000	H	1,200	1,700	µg/Kg-dry	250	7/22/2016 03:01
Atrazine	U	H	53	330	µg/Kg-dry	10	7/21/2016 01:51
Benzaldehyde	U	H	520	680	µg/Kg-dry	10	7/21/2016 01:51
Benzo(a)anthracene	170,000	H	1,500	1,700	µg/Kg-dry	250	7/22/2016 03:01
Benzo(a)pyrene	160,000	H	1,000	1,700	µg/Kg-dry	250	7/22/2016 03:01
Benzo(b)fluoranthene	240,000	H	1,300	1,700	µg/Kg-dry	250	7/22/2016 03:01
Benzo(g,h,i)perylene	110,000	H	1,300	1,700	µg/Kg-dry	250	7/22/2016 03:01
Benzo(k)fluoranthene	83,000	H	1,300	1,700	µg/Kg-dry	250	7/22/2016 03:01
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 01:51
Bis(2-chloroethyl)ether	U	H	95	330	µg/Kg-dry	10	7/21/2016 01:51
Bis(2-chloroisopropyl)ether	U	H	79	330	µg/Kg-dry	10	7/21/2016 01:51
Bis(2-ethylhexyl)phthalate	U	H	58	330	µg/Kg-dry	10	7/21/2016 01:51
Butyl benzyl phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 01:51
Caprolactam	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:51
Carbazole	22,000	H	910	8,300	µg/Kg-dry	250	7/22/2016 03:01
Chrysene	210,000	H	1,400	1,700	µg/Kg-dry	250	7/22/2016 03:01
Dibenzo(a,h)anthracene	32,000	H	910	1,700	µg/Kg-dry	250	7/22/2016 03:01
Dibenzofuran	3,200	H	50	330	µg/Kg-dry	10	7/21/2016 01:51
Diethyl phthalate	U	H	52	330	µg/Kg-dry	10	7/21/2016 01:51
Dimethyl phthalate	U	H	66	330	µg/Kg-dry	10	7/21/2016 01:51
Di-n-butyl phthalate	U	H	62	330	µg/Kg-dry	10	7/21/2016 01:51
Di-n-octyl phthalate	U	H	65	330	µg/Kg-dry	10	7/21/2016 01:51
Fluoranthene	390,000	H	810	1,700	µg/Kg-dry	250	7/22/2016 03:01
Fluorene	8,800	H	49	67	µg/Kg-dry	10	7/21/2016 01:51
Hexachlorobenzene	U	H	98	330	µg/Kg-dry	10	7/21/2016 01:51
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 01:51
Hexachlorocyclopentadiene	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:51
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 01:51
Indeno(1,2,3-cd)pyrene	120,000	H	1,200	1,700	µg/Kg-dry	250	7/22/2016 03:01
Isophorone	U	H	66	1,700	µg/Kg-dry	10	7/21/2016 01:51
Naphthalene	790	H	43	67	µg/Kg-dry	10	7/21/2016 01:51
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 01:51
N-Nitrosodi-n-propylamine	U	H	56	330	µg/Kg-dry	10	7/21/2016 01:51
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 01:51
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 01:51
Phenanthrene	150,000	H	780	1,700	µg/Kg-dry	250	7/22/2016 03:01
Phenol	U	H	84	330	µg/Kg-dry	10	7/21/2016 01:51
Pyrene	390,000	H	310	1,700	µg/Kg-dry	250	7/22/2016 03:01
Surr: 2,4,6-Tribromophenol	67.8			34-140	%REC	10	7/21/2016 01:51
Surr: 2-Fluorobiphenyl	65.6			12-100	%REC	10	7/21/2016 01:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Work Order: 16061792

Sample ID: DU-11-DUP C

Lab ID: 16061792-43

Collection Date: 6/28/2016 10:15 AM

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	71.6			33-117	%REC	10	7/21/2016 01:51
Surr: 4-Terphenyl-d14	88.8			25-137	%REC	10	7/21/2016 01:51
Surr: Nitrobenzene-d5	61.4			37-107	%REC	10	7/21/2016 01:51
Surr: Phenol-d6	69.8			40-106	%REC	10	7/21/2016 01:51
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	1.4	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06 B
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-44
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.030		0.0025	0.015	mg/Kg-dry	1	7/20/2016 19:14
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	7.5		0.53	2.0	mg/Kg-dry	5	7/20/2016 22:45
Barium	280		0.81	2.0	mg/Kg-dry	5	7/20/2016 22:45
Cadmium	0.98	J	0.19	4.0	mg/Kg-dry	5	7/20/2016 22:45
Chromium	18		0.11	2.0	mg/Kg-dry	5	7/20/2016 22:45
Lead	78		0.43	2.0	mg/Kg-dry	5	7/20/2016 22:45
Selenium	1.7	J	1.1	4.0	mg/Kg-dry	5	7/20/2016 22:45
Silver	U		0.25	2.0	mg/Kg-dry	5	7/20/2016 22:45
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	U	H	55	330	µg/Kg-dry	10	7/21/2016 02:12
2,4,5-Trichlorophenol	U	H	92	330	µg/Kg-dry	10	7/21/2016 02:12
2,4,6-Trichlorophenol	U	H	90	330	µg/Kg-dry	10	7/21/2016 02:12
2,4-Dichlorophenol	U	H	71	330	µg/Kg-dry	10	7/21/2016 02:12
2,4-Dimethylphenol	U	H	69	330	µg/Kg-dry	10	7/21/2016 02:12
2,4-Dinitrophenol	U	H	180	330	µg/Kg-dry	10	7/21/2016 02:12
2,4-Dinitrotoluene	U	H	88	330	µg/Kg-dry	10	7/21/2016 02:12
2,6-Dinitrotoluene	U	H	56	330	µg/Kg-dry	10	7/21/2016 02:12
2-Chloronaphthalene	U	H	47	68	µg/Kg-dry	10	7/21/2016 02:12
2-Chlorophenol	U	H	110	330	µg/Kg-dry	10	7/21/2016 02:12
2-Methylnaphthalene	150	H	34	68	µg/Kg-dry	10	7/21/2016 02:12
2-Methylphenol	U	H	91	330	µg/Kg-dry	10	7/21/2016 02:12
2-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 02:12
2-Nitrophenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 02:12
3&4-Methylphenol	U	H	68	330	µg/Kg-dry	10	7/21/2016 02:12
3,3'-Dichlorobenzidine	U	H	50	1,700	µg/Kg-dry	10	7/21/2016 02:12
3-Nitroaniline	U	H	77	330	µg/Kg-dry	10	7/21/2016 02:12
4,6-Dinitro-2-methylphenol	U	H	85	330	µg/Kg-dry	10	7/21/2016 02:12
4-Bromophenyl phenyl ether	U	H	91	330	µg/Kg-dry	10	7/21/2016 02:12
4-Chloro-3-methylphenol	U	H	96	330	µg/Kg-dry	10	7/21/2016 02:12
4-Chloroaniline	U	H	53	680	µg/Kg-dry	10	7/21/2016 02:12
4-Chlorophenyl phenyl ether	U	H	93	330	µg/Kg-dry	10	7/21/2016 02:12
4-Nitroaniline	U	H	520	1,700	µg/Kg-dry	10	7/21/2016 02:12
4-Nitrophenol	U	H	300	330	µg/Kg-dry	10	7/21/2016 02:12
Acenaphthene	820	H	49	68	µg/Kg-dry	10	7/21/2016 02:12
Acenaphthylene	110	H	59	68	µg/Kg-dry	10	7/21/2016 02:12
Acetophenone	U	H	53	330	µg/Kg-dry	10	7/21/2016 02:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06 B
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-44
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,900	H	48	68	µg/Kg-dry	10	7/21/2016 02:12
Atrazine	U	H	53	330	µg/Kg-dry	10	7/21/2016 02:12
Benzaldehyde	U	H	520	680	µg/Kg-dry	10	7/21/2016 02:12
Benzo(a)anthracene	6,300	H	58	68	µg/Kg-dry	10	7/21/2016 02:12
Benzo(a)pyrene	6,400	H	41	68	µg/Kg-dry	10	7/21/2016 02:12
Benzo(b)fluoranthene	8,900	H	50	68	µg/Kg-dry	10	7/21/2016 02:12
Benzo(g,h,i)perylene	4,400	H	52	68	µg/Kg-dry	10	7/21/2016 02:12
Benzo(k)fluoranthene	3,000	H	51	68	µg/Kg-dry	10	7/21/2016 02:12
Bis(2-chloroethoxy)methane	U	H	32	330	µg/Kg-dry	10	7/21/2016 02:12
Bis(2-chloroethyl)ether	U	H	96	330	µg/Kg-dry	10	7/21/2016 02:12
Bis(2-chloroisopropyl)ether	U	H	79	330	µg/Kg-dry	10	7/21/2016 02:12
Bis(2-ethylhexyl)phthalate	U	H	59	330	µg/Kg-dry	10	7/21/2016 02:12
Butyl benzyl phthalate	U	H	57	330	µg/Kg-dry	10	7/21/2016 02:12
Caprolactam	U	H	120	330	µg/Kg-dry	10	7/21/2016 02:12
Carbazole	1,100	H	36	330	µg/Kg-dry	10	7/21/2016 02:12
Chrysene	7,500	H	55	68	µg/Kg-dry	10	7/21/2016 02:12
Dibenzo(a,h)anthracene	1,400	H	36	68	µg/Kg-dry	10	7/21/2016 02:12
Dibenzofuran	380	H	50	330	µg/Kg-dry	10	7/21/2016 02:12
Diethyl phthalate	U	H	52	330	µg/Kg-dry	10	7/21/2016 02:12
Dimethyl phthalate	U	H	66	330	µg/Kg-dry	10	7/21/2016 02:12
Di-n-butyl phthalate	U	H	62	330	µg/Kg-dry	10	7/21/2016 02:12
Di-n-octyl phthalate	U	H	65	330	µg/Kg-dry	10	7/21/2016 02:12
Fluoranthene	14,000	H	32	68	µg/Kg-dry	10	7/21/2016 02:12
Fluorene	720	H	49	68	µg/Kg-dry	10	7/21/2016 02:12
Hexachlorobenzene	U	H	98	330	µg/Kg-dry	10	7/21/2016 02:12
Hexachlorobutadiene	U	H	180	330	µg/Kg-dry	10	7/21/2016 02:12
Hexachlorocyclopentadiene	U	H	120	330	µg/Kg-dry	10	7/21/2016 02:12
Hexachloroethane	U	H	140	330	µg/Kg-dry	10	7/21/2016 02:12
Indeno(1,2,3-cd)pyrene	5,300	H	47	68	µg/Kg-dry	10	7/21/2016 02:12
Isophorone	U	H	66	1,700	µg/Kg-dry	10	7/21/2016 02:12
Naphthalene	160	H	43	68	µg/Kg-dry	10	7/21/2016 02:12
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 02:12
N-Nitrosodi-n-propylamine	U	H	56	330	µg/Kg-dry	10	7/21/2016 02:12
N-Nitrosodiphenylamine	U	H	32	330	µg/Kg-dry	10	7/21/2016 02:12
Pentachlorophenol	U	H	120	330	µg/Kg-dry	10	7/21/2016 02:12
Phenanthrene	7,400	H	31	68	µg/Kg-dry	10	7/21/2016 02:12
Phenol	U	H	84	330	µg/Kg-dry	10	7/21/2016 02:12
Pyrene	11,000	H	12	68	µg/Kg-dry	10	7/21/2016 02:12
Surr: 2,4,6-Tribromophenol	80.0			34-140	%REC	10	7/21/2016 02:12
Surr: 2-Fluorobiphenyl	73.6			12-100	%REC	10	7/21/2016 02:12

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-06 B**Lab ID:** 16061792-44**Collection Date:** 6/28/2016 09:35 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<i>Surr: 2-Fluorophenol</i>	72.4			33-117	%REC	10	7/21/2016 02:12
<i>Surr: 4-Terphenyl-d14</i>	83.0			25-137	%REC	10	7/21/2016 02:12
<i>Surr: Nitrobenzene-d5</i>	61.0			37-107	%REC	10	7/21/2016 02:12
<i>Surr: Phenol-d6</i>	73.2			40-106	%REC	10	7/21/2016 02:12
MOISTURE				Method: SW3550C			Analyst: LW
Moisture	1.8	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06 C
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-45
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA							
			Method: SW7471B		Prep: SW7471 / 7/20/16		Analyst: LR
Mercury	0.030		0.0023	0.014	mg/Kg-dry	1	7/20/2016 19:16
METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3050B / 7/20/16		Analyst: JEC
Arsenic	7.5		0.52	2.0	mg/Kg-dry	5	7/20/2016 22:50
Barium	300		0.80	2.0	mg/Kg-dry	5	7/20/2016 22:50
Cadmium	0.81	J	0.19	4.0	mg/Kg-dry	5	7/20/2016 22:50
Chromium	14		0.11	2.0	mg/Kg-dry	5	7/20/2016 22:50
Lead	82		0.42	2.0	mg/Kg-dry	5	7/20/2016 22:50
Selenium	1.3	J	1.1	4.0	mg/Kg-dry	5	7/20/2016 22:50
Silver	U		0.25	2.0	mg/Kg-dry	5	7/20/2016 22:50
SEMI-VOLATILE ORGANIC COMPOUNDS							
			Method: SW846 8270D		Prep: SW3550 / 7/20/16		Analyst: RS
1,1'-Biphenyl	U	H	55	340	µg/Kg-dry	10	7/21/2016 02:32
2,4,5-Trichlorophenol	U	H	93	340	µg/Kg-dry	10	7/21/2016 02:32
2,4,6-Trichlorophenol	U	H	90	340	µg/Kg-dry	10	7/21/2016 02:32
2,4-Dichlorophenol	U	H	71	340	µg/Kg-dry	10	7/21/2016 02:32
2,4-Dimethylphenol	U	H	69	340	µg/Kg-dry	10	7/21/2016 02:32
2,4-Dinitrophenol	U	H	180	340	µg/Kg-dry	10	7/21/2016 02:32
2,4-Dinitrotoluene	U	H	88	340	µg/Kg-dry	10	7/21/2016 02:32
2,6-Dinitrotoluene	U	H	56	340	µg/Kg-dry	10	7/21/2016 02:32
2-Chloronaphthalene	U	H	47	68	µg/Kg-dry	10	7/21/2016 02:32
2-Chlorophenol	U	H	110	340	µg/Kg-dry	10	7/21/2016 02:32
2-Methylnaphthalene	140	H	34	68	µg/Kg-dry	10	7/21/2016 02:32
2-Methylphenol	U	H	92	340	µg/Kg-dry	10	7/21/2016 02:32
2-Nitroaniline	U	H	78	340	µg/Kg-dry	10	7/21/2016 02:32
2-Nitrophenol	U	H	97	340	µg/Kg-dry	10	7/21/2016 02:32
3&4-Methylphenol	U	H	68	340	µg/Kg-dry	10	7/21/2016 02:32
3,3'-Dichlorobenzidine	U	H	50	1,700	µg/Kg-dry	10	7/21/2016 02:32
3-Nitroaniline	U	H	78	340	µg/Kg-dry	10	7/21/2016 02:32
4,6-Dinitro-2-methylphenol	U	H	85	340	µg/Kg-dry	10	7/21/2016 02:32
4-Bromophenyl phenyl ether	U	H	91	340	µg/Kg-dry	10	7/21/2016 02:32
4-Chloro-3-methylphenol	U	H	97	340	µg/Kg-dry	10	7/21/2016 02:32
4-Chloroaniline	U	H	54	680	µg/Kg-dry	10	7/21/2016 02:32
4-Chlorophenyl phenyl ether	U	H	94	340	µg/Kg-dry	10	7/21/2016 02:32
4-Nitroaniline	U	H	530	1,700	µg/Kg-dry	10	7/21/2016 02:32
4-Nitrophenol	U	H	300	340	µg/Kg-dry	10	7/21/2016 02:32
Acenaphthene	570	H	49	68	µg/Kg-dry	10	7/21/2016 02:32
Acenaphthylene	81	H	59	68	µg/Kg-dry	10	7/21/2016 02:32
Acetophenone	U	H	53	340	µg/Kg-dry	10	7/21/2016 02:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 25-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: DU-06 C
Collection Date: 6/28/2016 09:35 AM

Work Order: 16061792
Lab ID: 16061792-45
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Anthracene	1,200	H	48	68	µg/Kg-dry	10	7/21/2016 02:32
Atrazine	U	H	53	340	µg/Kg-dry	10	7/21/2016 02:32
Benzaldehyde	U	H	520	680	µg/Kg-dry	10	7/21/2016 02:32
Benzo(a)anthracene	4,900	H	59	68	µg/Kg-dry	10	7/21/2016 02:32
Benzo(a)pyrene	5,100	H	42	68	µg/Kg-dry	10	7/21/2016 02:32
Benzo(b)fluoranthene	7,200	H	51	68	µg/Kg-dry	10	7/21/2016 02:32
Benzo(g,h,i)perylene	3,500	H	52	68	µg/Kg-dry	10	7/21/2016 02:32
Benzo(k)fluoranthene	2,200	H	51	68	µg/Kg-dry	10	7/21/2016 02:32
Bis(2-chloroethoxy)methane	U	H	33	340	µg/Kg-dry	10	7/21/2016 02:32
Bis(2-chloroethyl)ether	U	H	96	340	µg/Kg-dry	10	7/21/2016 02:32
Bis(2-chloroisopropyl)ether	U	H	79	340	µg/Kg-dry	10	7/21/2016 02:32
Bis(2-ethylhexyl)phthalate	U	H	59	340	µg/Kg-dry	10	7/21/2016 02:32
Butyl benzyl phthalate	U	H	57	340	µg/Kg-dry	10	7/21/2016 02:32
Caprolactam	U	H	120	340	µg/Kg-dry	10	7/21/2016 02:32
Carbazole	660	H	37	340	µg/Kg-dry	10	7/21/2016 02:32
Chrysene	5,800	H	55	68	µg/Kg-dry	10	7/21/2016 02:32
Dibenzo(a,h)anthracene	1,000	H	37	68	µg/Kg-dry	10	7/21/2016 02:32
Dibenzofuran	250	JH	50	340	µg/Kg-dry	10	7/21/2016 02:32
Diethyl phthalate	U	H	52	340	µg/Kg-dry	10	7/21/2016 02:32
Dimethyl phthalate	U	H	66	340	µg/Kg-dry	10	7/21/2016 02:32
Di-n-butyl phthalate	U	H	62	340	µg/Kg-dry	10	7/21/2016 02:32
Di-n-octyl phthalate	U	H	65	340	µg/Kg-dry	10	7/21/2016 02:32
Fluoranthene	11,000	H	33	68	µg/Kg-dry	10	7/21/2016 02:32
Fluorene	360	H	49	68	µg/Kg-dry	10	7/21/2016 02:32
Hexachlorobenzene	U	H	99	340	µg/Kg-dry	10	7/21/2016 02:32
Hexachlorobutadiene	U	H	180	340	µg/Kg-dry	10	7/21/2016 02:32
Hexachlorocyclopentadiene	U	H	120	340	µg/Kg-dry	10	7/21/2016 02:32
Hexachloroethane	U	H	140	340	µg/Kg-dry	10	7/21/2016 02:32
Indeno(1,2,3-cd)pyrene	4,200	H	47	68	µg/Kg-dry	10	7/21/2016 02:32
Isophorone	U	H	66	1,700	µg/Kg-dry	10	7/21/2016 02:32
Naphthalene	78	H	43	68	µg/Kg-dry	10	7/21/2016 02:32
Nitrobenzene	U	H	110	1,700	µg/Kg-dry	10	7/21/2016 02:32
N-Nitrosodi-n-propylamine	U	H	56	340	µg/Kg-dry	10	7/21/2016 02:32
N-Nitrosodiphenylamine	U	H	33	340	µg/Kg-dry	10	7/21/2016 02:32
Pentachlorophenol	U	H	130	340	µg/Kg-dry	10	7/21/2016 02:32
Phenanthrene	5,000	H	32	68	µg/Kg-dry	10	7/21/2016 02:32
Phenol	U	H	84	340	µg/Kg-dry	10	7/21/2016 02:32
Pyrene	8,900	H	12	68	µg/Kg-dry	10	7/21/2016 02:32
Surr: 2,4,6-Tribromophenol	76.4			34-140	%REC	10	7/21/2016 02:32
Surr: 2-Fluorobiphenyl	71.4			12-100	%REC	10	7/21/2016 02:32

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 25-Jul-16**Client:** Tetra Tech**Project:** Elkem Carbide X9025-14-0002-019-017**Work Order:** 16061792**Sample ID:** DU-06 C**Lab ID:** 16061792-45**Collection Date:** 6/28/2016 09:35 AM**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 2-Fluorophenol	72.8			33-117	%REC	10	7/21/2016 02:32
Surr: 4-Terphenyl-d14	77.8			25-137	%REC	10	7/21/2016 02:32
Surr: Nitrobenzene-d5	63.2			37-107	%REC	10	7/21/2016 02:32
Surr: Phenol-d6	75.0			40-106	%REC	10	7/21/2016 02:32
MOISTURE			Method: SW3550C				Analyst: LW
Moisture	1.8	H	0.025	0.050	% of sample	1	7/20/2016 12:15

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
WorkOrder: 16061792

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg-dry	Milligrams per Kilogram Dry Weight

Client: Tetra Tech

Work Order: 16061792

Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88607

Instrument ID GC14

Method: SW8082

MBLK		Sample ID: PBLKS1-88607-88607				Units: µg/Kg		Analysis Date: 7/14/2016 06:02 PM		
Client ID:		Run ID: GC14_160714A				SeqNo: 3925870		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	U	83								
Aroclor 1221	U	83								
Aroclor 1232	U	83								
Aroclor 1242	U	83								
Aroclor 1248	U	83								
Aroclor 1254	U	83								
Aroclor 1260	U	83								
PCBs, Total	U	83								
Surr: Decachlorobiphenyl	29	0	33.3	0	87.1	40-140	0			
Surr: Tetrachloro-m-xylene	29.67	0	33.3	0	89.1	45-124	0			

LCS		Sample ID: PLCSS1-88607-88607				Units: µg/Kg		Analysis Date: 7/14/2016 06:19 PM		
Client ID:		Run ID: GC14_160714A				SeqNo: 3925871		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	877	83	833	0	105	50-130	0			
Aroclor 1260	993.7	83	833	0	119	50-130	0			
Surr: Decachlorobiphenyl	29.33	0	33.3	0	88.1	40-140	0			
Surr: Tetrachloro-m-xylene	30	0	33.3	0	90.1	45-124	0			

MS		Sample ID: 1607641-01B MS				Units: µg/Kg		Analysis Date: 7/14/2016 09:49 PM		
Client ID:		Run ID: GC14_160714A				SeqNo: 3925873		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	933.9	83	826.1	0	113	40-140	0			
Aroclor 1260	1016	83	826.1	0	123	40-140	0			
Surr: Decachlorobiphenyl	28.43	0	33.02	0	86.1	40-140	0			
Surr: Tetrachloro-m-xylene	28.43	0	33.02	0	86.1	45-124	0			

MSD		Sample ID: 1607641-01B MSD				Units: µg/Kg		Analysis Date: 7/14/2016 10:07 PM		
Client ID:		Run ID: GC14_160714A				SeqNo: 3925874		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	921.8	83	824.8	0	112	40-140	933.9	1.3	50	
Aroclor 1260	1024	83	824.8	0	124	40-140	1016	0.813	50	
Surr: Decachlorobiphenyl	28.71	0	32.97	0	87.1	40-140	28.43	0.998	50	
Surr: Tetrachloro-m-xylene	28.71	0	32.97	0	87.1	45-124	28.43	0.998	50	

The following samples were analyzed in this batch:

16061792-37A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88596** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-88596-88596				Units: mg/Kg		Analysis Date: 7/15/2016 11:51 AM		
Client ID:		Run ID: HG1_160715A				SeqNo: 3925624		Prep Date: 7/15/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-88596-88596				Units: mg/Kg		Analysis Date: 7/15/2016 11:53 AM		
Client ID:		Run ID: HG1_160715A				SeqNo: 3925626		Prep Date: 7/15/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1817 0.020 0.1665 0 109 80-120 0

MS		Sample ID: 16061792-01BMS				Units: mg/Kg		Analysis Date: 7/15/2016 11:57 AM		
Client ID: DU-01		Run ID: HG1_160715A				SeqNo: 3925630		Prep Date: 7/15/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.16 0.014 0.1179 0.039 103 75-125 0

MSD		Sample ID: 16061792-01BMSD				Units: mg/Kg		Analysis Date: 7/15/2016 11:59 AM		
Client ID: DU-01		Run ID: HG1_160715A				SeqNo: 3925632		Prep Date: 7/15/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.2001 0.016 0.1302 0.039 124 75-125 0.16 22.3 35

The following samples were analyzed in this batch:

16061792-01B	16061792-02B	16061792-03B
16061792-04B	16061792-05B	16061792-06B
16061792-07B	16061792-08B	16061792-09B
16061792-10B	16061792-11B	16061792-12B
16061792-13B	16061792-14B	16061792-15B
16061792-16B	16061792-17B	16061792-18B
16061792-19B	16061792-20B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88597** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-88597-88597				Units: mg/Kg		Analysis Date: 7/15/2016 12:59 PM		
Client ID:		Run ID: HG1_160715A				SeqNo: 3925676		Prep Date: 7/15/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-88597-88597				Units: mg/Kg		Analysis Date: 7/15/2016 01:01 PM		
Client ID:		Run ID: HG1_160715A				SeqNo: 3925678		Prep Date: 7/15/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1825 0.020 0.1665 0 110 80-120 0

MS		Sample ID: 16061792-21BMS				Units: mg/Kg		Analysis Date: 7/15/2016 03:07 PM		
Client ID: DU-07-TRIP		Run ID: HG1_160715A				SeqNo: 3925867		Prep Date: 7/15/2016		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.8364 0.15 0.1229 0.7257 90.1 75-125 0 O

MSD		Sample ID: 16061792-21BMSD				Units: mg/Kg		Analysis Date: 7/15/2016 03:09 PM		
Client ID: DU-07-TRIP		Run ID: HG1_160715A				SeqNo: 3925868		Prep Date: 7/15/2016		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.723 0.15 0.1214 0.7257 -2.26 75-125 0.8364 14.5 35 SO

The following samples were analyzed in this batch:

16061792-21B	16061792-22B	16061792-23B
16061792-24B	16061792-25B	16061792-26B
16061792-27B	16061792-28B	16061792-29B
16061792-30B	16061792-31B	16061792-32B
16061792-33B	16061792-34B	16061792-35B
16061792-36B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88865** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-88865-88865				Units: mg/Kg		Analysis Date: 7/20/2016 06:01 PM		
Client ID:		Run ID: HG1_160720A				SeqNo: 3934185		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.020

LCS		Sample ID: LCS-88865-88865				Units: mg/Kg		Analysis Date: 7/20/2016 06:03 PM		
Client ID:		Run ID: HG1_160720A				SeqNo: 3934186		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1917 0.020 0.1665 0 115 80-120 0

MS		Sample ID: 1607728-08BMS				Units: mg/Kg		Analysis Date: 7/20/2016 06:29 PM		
Client ID:		Run ID: HG1_160720A				SeqNo: 3934198		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1278 0.013 0.1055 0.02562 96.8 75-125 0

MSD		Sample ID: 1607728-08BMSD				Units: mg/Kg		Analysis Date: 7/20/2016 06:32 PM		
Client ID:		Run ID: HG1_160720A				SeqNo: 3934199		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1353 0.012 0.1028 0.02562 107 75-125 0.1278 5.71 35

The following samples were analyzed in this batch:

16061792-38B	16061792-39B	16061792-40B
16061792-41B	16061792-42B	16061792-43B
16061792-44B	16061792-45B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88567** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-88567-88567				Units: mg/Kg		Analysis Date: 7/14/2016 09:31 PM		
Client ID:		Run ID: ICP2_160714B				SeqNo: 3924701		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.01824	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS		Sample ID: LCS-88567-88567				Units: mg/Kg		Analysis Date: 7/14/2016 09:37 PM		
Client ID:		Run ID: ICP2_160714B				SeqNo: 3924702		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.099	0.25	5	0	102	80-120	0			
Barium	5.126	0.25	5	0	103	80-120	0			
Cadmium	5.267	0.50	5	0	105	80-120	0			
Chromium	5.367	0.25	5	0	107	80-120	0			
Lead	5.172	0.25	5	0	103	80-120	0			
Selenium	5.046	0.50	5	0	101	80-120	0			
Silver	4.435	0.25	5	0	88.7	80-120	0			

MS		Sample ID: 16061792-01BMS				Units: mg/Kg		Analysis Date: 7/14/2016 09:48 PM		
Client ID: DU-01		Run ID: ICP2_160714B				SeqNo: 3924704		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.76	0.33	6.631	7.221	129	75-125	0			S
Barium	89.03	0.33	6.631	82.51	98.3	75-125	0			O
Cadmium	15.38	0.66	6.631	19.68	-64.9	75-125	0			S
Chromium	42.65	0.33	6.631	28.47	214	75-125	0			SO
Lead	186.8	0.33	6.631	532.7	-5220	75-125	0			SO
Selenium	10.49	0.66	6.631	0.5592	150	75-125	0			S
Silver	6.934	0.33	6.631	0.4683	97.5	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88567** Instrument ID **ICP2** Method: **SW846 6010C**

MSD				Sample ID: 16061792-01BMSD			Units: mg/Kg		Analysis Date: 7/14/2016 09:54 PM		
Client ID: DU-01			Run ID: ICP2_160714B			SeqNo: 3924705		Prep Date: 7/14/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	16.47	0.33	6.676	7.221	139	75-125	15.76	4.38	20	S	
Barium	71.34	0.33	6.676	82.51	-167	75-125	89.03	22.1	20	SRO	
Cadmium	15.97	0.67	6.676	19.68	-55.6	75-125	15.38	3.75	20	S	
Chromium	26.58	0.33	6.676	28.47	-28.4	75-125	42.65	46.4	20	SRO	
Lead	183.3	0.33	6.676	532.7	-5230	75-125	186.8	1.9	20	SO	
Selenium	11.05	0.67	6.676	0.5592	157	75-125	10.49	5.2	20	S	
Silver	6.949	0.33	6.676	0.4683	97.1	75-125	6.934	0.206	20		

The following samples were analyzed in this batch:

16061792-01B	16061792-02B	16061792-03B
16061792-04B	16061792-05B	16061792-06B
16061792-07B	16061792-08B	16061792-09B
16061792-10B	16061792-11B	16061792-12B
16061792-13B	16061792-14B	16061792-15B
16061792-16B	16061792-17B	16061792-18B
16061792-19B	16061792-20B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88589** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-88589-88589				Units: mg/Kg		Analysis Date: 7/18/2016 10:42 AM		
Client ID:		Run ID: ICP2_160718A				SeqNo: 3928397		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.04016	0.50								J
Chromium	0.02796	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS		Sample ID: LCS-88589-88589				Units: mg/Kg		Analysis Date: 7/18/2016 10:48 AM		
Client ID:		Run ID: ICP2_160718A				SeqNo: 3928398		Prep Date: 7/14/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.437	0.25	5	0	109	80-120	0			
Barium	5.498	0.25	5	0	110	80-120	0			
Cadmium	5.647	0.50	5	0	113	80-120	0			
Chromium	5.978	0.25	5	0	120	80-120	0			
Lead	5.456	0.25	5	0	109	80-120	0			
Selenium	5.342	0.50	5	0	107	80-120	0			
Silver	5.192	0.25	5	0	104	80-120	0			

MS		Sample ID: 16061792-21BMS				Units: mg/Kg		Analysis Date: 7/18/2016 10:59 AM		
Client ID: DU-07-TRIP		Run ID: ICP2_160718A				SeqNo: 3928400		Prep Date: 7/14/2016		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	18.56	2.0	7.937	9.803	110	75-125	0			
Barium	122.5	2.0	7.937	83.69	489	75-125	0			SO
Cadmium	41.43	4.0	7.937	8.897	410	75-125	0			S
Chromium	56.42	2.0	7.937	33.75	286	75-125	0			SO
Lead	1973	2.0	7.937	240.5	21800	75-125	0			SO
Selenium	10.63	4.0	7.937	2.491	103	75-125	0			
Silver	9.84	2.0	7.937	0.38	119	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88589** Instrument ID **ICP2** Method: **SW846 6010C**

MSD				Sample ID: 16061792-21BMSD			Units: mg/Kg		Analysis Date: 7/18/2016 11:04 AM		
Client ID: DU-07-TRIP				Run ID: ICP2_160718A			SeqNo: 3928401		Prep Date: 7/14/2016		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	18.3	2.0	7.987	9.803	106	75-125	18.56	1.45	20		
Barium	139.2	2.0	7.987	83.69	695	75-125	122.5	12.7	20	SO	
Cadmium	38.34	4.0	7.987	8.897	369	75-125	41.43	7.75	20	S	
Chromium	53.55	2.0	7.987	33.75	248	75-125	56.42	5.2	20	SO	
Lead	637.3	2.0	7.987	240.5	4970	75-125	1973	102	20	SRO	
Selenium	9.871	4.0	7.987	2.491	92.4	75-125	10.63	7.37	20		
Silver	9.707	2.0	7.987	0.38	117	75-125	9.84	1.36	20		

The following samples were analyzed in this batch:

16061792-21B	16061792-22B	16061792-23B
16061792-24B	16061792-25B	16061792-26B
16061792-27B	16061792-28B	16061792-29B
16061792-30B	16061792-31B	16061792-32B
16061792-33B	16061792-34B	16061792-35B
16061792-36B		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88871** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-88871-88871				Units: mg/Kg		Analysis Date: 7/20/2016 10:01 PM		
Client ID:		Run ID: ICP2_160720A				SeqNo: 3934321		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	0.04644	0.50								J
Chromium	0.02136	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS		Sample ID: LCS-88871-88871				Units: mg/Kg		Analysis Date: 7/20/2016 10:07 PM		
Client ID:		Run ID: ICP2_160720A				SeqNo: 3934322		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.974	0.25	5	0	99.5	80-120	0			
Barium	5.506	0.25	5	0	110	80-120	0			
Cadmium	5.226	0.50	5	0	105	80-120	0			
Chromium	5.749	0.25	5	0	115	80-120	0			
Lead	5.169	0.25	5	0	103	80-120	0			
Selenium	4.68	0.50	5	0	93.6	80-120	0			
Silver	5.265	0.25	5	0	105	80-120	0			

MS		Sample ID: 1607946-01AMS				Units: mg/Kg		Analysis Date: 7/20/2016 11:23 PM		
Client ID:		Run ID: ICP2_160720A				SeqNo: 3934337		Prep Date: 7/20/2016		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	12.25	4.0	7.937	4.998	91.4	75-125	0			
Barium	366.3	4.0	7.937	342.8	297	75-125	0			SO
Cadmium	8.447	7.9	7.937	-0.0094	107	75-125	0			
Chromium	43.92	4.0	7.937	37.89	76	75-125	0			O
Lead	19.48	4.0	7.937	10.75	110	75-125	0			
Selenium	7.415	7.9	7.937	-0.8267	104	75-125	0			J
Silver	9.479	4.0	7.937	-0.05727	120	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88871** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 1607946-01AMSD				Units: mg/Kg		Analysis Date: 7/20/2016 11:29 PM		
Client ID:		Run ID: ICP2_160720A				SeqNo: 3934338		Prep Date: 7/20/2016		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	13.93	3.9	7.874	4.998	113	75-125	12.25	12.8	20	
Barium	424	3.9	7.874	342.8	1030	75-125	366.3	14.6	20	SO
Cadmium	8.414	7.9	7.874	-0.0094	107	75-125	8.447	0.393	20	
Chromium	49.61	3.9	7.874	37.89	149	75-125	43.92	12.2	20	SO
Lead	19.05	3.9	7.874	10.75	105	75-125	19.48	2.22	20	
Selenium	5.978	7.9	7.874	-0.8267	86.4	75-125	7.415	0	20	J
Silver	9.433	3.9	7.874	-0.05727	121	75-125	9.479	0.484	20	

The following samples were analyzed in this batch:

16061792-38B	16061792-39B	16061792-40B
16061792-41B	16061792-42B	16061792-43B
16061792-44B	16061792-45B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88485** Instrument ID **SVMS7** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-88485-88485				Units: µg/Kg		Analysis Date: 7/13/2016 05:59 PM		
Client ID:		Run ID: SVMS7_160713A				SeqNo: 3923520		Prep Date: 7/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	66								
2,4,5-Trichlorophenol	U	66								
2,4,6-Trichlorophenol	U	66								
2,4-Dichlorophenol	U	66								
2,4-Dimethylphenol	U	66								
2,4-Dinitrophenol	U	66								
2,4-Dinitrotoluene	U	66								
2,6-Dinitrotoluene	U	66								
2-Chloronaphthalene	U	13								
2-Chlorophenol	U	66								
2-Methylnaphthalene	U	13								
2-Methylphenol	U	66								
2-Nitroaniline	U	66								
2-Nitrophenol	U	66								
3&4-Methylphenol	U	66								
3,3'-Dichlorobenzidine	U	330								
3-Nitroaniline	U	66								
4,6-Dinitro-2-methylphenol	U	66								
4-Bromophenyl phenyl ether	U	66								
4-Chloro-3-methylphenol	U	66								
4-Chloroaniline	U	130								
4-Chlorophenyl phenyl ether	U	66								
4-Nitroaniline	U	330								
4-Nitrophenol	U	66								
Acenaphthene	U	13								
Acenaphthylene	U	13								
Acetophenone	U	66								
Anthracene	U	13								
Atrazine	U	66								
Benzaldehyde	U	130								
Benzo(a)anthracene	U	13								
Benzo(a)pyrene	U	13								
Benzo(b)fluoranthene	U	13								
Benzo(g,h,i)perylene	U	13								
Benzo(k)fluoranthene	U	13								
Bis(2-chloroethoxy)methane	U	66								
Bis(2-chloroethyl)ether	U	66								
Bis(2-chloroisopropyl)ether	U	66								
Bis(2-ethylhexyl)phthalate	U	66								
Butyl benzyl phthalate	U	66								
Caprolactam	U	66								
Carbazole	U	66								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88485		Instrument ID SVMS7		Method: SW846 8270D			
Chrysene	U	13					
Dibenzo(a,h)anthracene	U	13					
Dibenzofuran	U	66					
Diethyl phthalate	U	66					
Dimethyl phthalate	U	66					
Di-n-butyl phthalate	U	66					
Di-n-octyl phthalate	U	66					
Fluoranthene	U	13					
Fluorene	U	13					
Hexachlorobenzene	U	66					
Hexachlorobutadiene	U	66					
Hexachlorocyclopentadiene	U	66					
Hexachloroethane	U	66					
Indeno(1,2,3-cd)pyrene	U	13					
Isophorone	U	330					
Naphthalene	U	13					
Nitrobenzene	U	330					
N-Nitrosodi-n-propylamine	U	66					
N-Nitrosodiphenylamine	U	66					
Pentachlorophenol	U	66					
Phenanthrene	U	13					
Phenol	U	66					
Pyrene	U	13					
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1957</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>58.7</i>	<i>34-140</i>	<i>0</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>2135</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>64</i>	<i>12-100</i>	<i>0</i>
<i>Surr: 2-Fluorophenol</i>	<i>2403</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>72.1</i>	<i>33-117</i>	<i>0</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>2352</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>70.6</i>	<i>25-137</i>	<i>0</i>
<i>Surr: Nitrobenzene-d5</i>	<i>2172</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>65.2</i>	<i>37-107</i>	<i>0</i>
<i>Surr: Phenol-d6</i>	<i>2210</i>	<i>0</i>	<i>3333</i>	<i>0</i>	<i>66.3</i>	<i>40-106</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88485** Instrument ID **SVMS7** Method: **SW846 8270D**

LCS		Sample ID: SLCSS1-88485-88485				Units: µg/Kg		Analysis Date: 7/13/2016 06:21 PM		
Client ID:		Run ID: SVMS7_160713A				SeqNo: 3923521		Prep Date: 7/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	1066	66	1333	0	79.9	30-120	0			
2,4,5-Trichlorophenol	1028	66	1333	0	77.1	50-110	0			
2,4,6-Trichlorophenol	1097	66	1333	0	82.2	45-110	0			
2,4-Dichlorophenol	1089	66	1333	0	81.6	45-110	0			
2,4-Dimethylphenol	1062	66	1333	0	79.6	30-105	0			
2,4-Dinitrophenol	700	66	1333	0	52.5	15-130	0			
2,4-Dinitrotoluene	1151	66	1333	0	86.3	50-115	0			
2,6-Dinitrotoluene	1151	66	1333	0	86.3	50-110	0			
2-Chloronaphthalene	1053	13	1333	0	78.9	45-105	0			
2-Chlorophenol	1100	66	1333	0	82.5	45-105	0			
2-Methylnaphthalene	1058	13	1333	0	79.3	45-105	0			
2-Methylphenol	940	66	1333	0	70.5	40-105	0			
2-Nitroaniline	1135	66	1333	0	85.1	45-120	0			
2-Nitrophenol	1031	66	1333	0	77.3	40-110	0			
3&4-Methylphenol	954	66	1333	0	71.5	40-105	0			
3,3'-Dichlorobenzidine	1272	330	1333	0	95.4	30-120	0			
3-Nitroaniline	1123	66	1333	0	84.2	25-150	0			
4,6-Dinitro-2-methylphenol	946	66	1333	0	70.9	40-130	0			
4-Bromophenyl phenyl ether	1188	66	1333	0	89.1	45-115	0			
4-Chloro-3-methylphenol	1117	66	1333	0	83.8	45-115	0			
4-Chloroaniline	1065	130	1333	0	79.8	15-110	0			
4-Chlorophenyl phenyl ether	1134	66	1333	0	85	45-110	0			
4-Nitroaniline	1172	330	1333	0	87.9	35-150	0			
4-Nitrophenol	1258	66	1333	0	94.3	15-140	0			
Acenaphthene	1017	13	1333	0	76.3	45-110	0			
Acenaphthylene	1132	13	1333	0	84.9	45-105	0			
Acetophenone	1008	66	1333	0	75.6	30-120	0			
Anthracene	1199	13	1333	0	89.9	55-105	0			
Atrazine	1440	66	1333	0	108	30-120	0			
Benzaldehyde	1268	130	1333	0	95.1	30-120	0			
Benzo(a)anthracene	1167	13	1333	0	87.5	50-110	0			
Benzo(a)pyrene	1198	13	1333	0	89.8	50-110	0			
Benzo(b)fluoranthene	1177	13	1333	0	88.3	45-115	0			
Benzo(g,h,i)perylene	1191	13	1333	0	89.3	40-125	0			
Benzo(k)fluoranthene	1125	13	1333	0	84.4	45-115	0			
Bis(2-chloroethoxy)methane	1085	66	1333	0	81.3	45-110	0			
Bis(2-chloroethyl)ether	1041	66	1333	0	78	40-105	0			
Bis(2-chloroisopropyl)ether	1044	66	1333	0	78.3	20-115	0			
Bis(2-ethylhexyl)phthalate	1019	66	1333	0	76.4	45-125	0			
Butyl benzyl phthalate	936	66	1333	0	70.2	50-125	0			
Caprolactam	1142	66	1333	0	85.6	30-120	0			
Carbazole	1243	66	1333	0	93.2	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88485		Instrument ID SVMS7		Method: SW846 8270D			
Chrysene	1148	13	1333	0	86.1	55-110	0
Dibenzo(a,h)anthracene	1216	13	1333	0	91.2	40-125	0
Dibenzofuran	1137	66	1333	0	85.2	50-105	0
Diethyl phthalate	1156	66	1333	0	86.7	50-115	0
Dimethyl phthalate	1127	66	1333	0	84.5	50-110	0
Di-n-butyl phthalate	1158	66	1333	0	86.8	55-110	0
Di-n-octyl phthalate	952.7	66	1333	0	71.4	40-130	0
Fluoranthene	1429	13	1333	0	107	55-115	0
Fluorene	1148	13	1333	0	86.1	50-110	0
Hexachlorobenzene	1177	66	1333	0	88.2	45-120	0
Hexachlorobutadiene	1077	66	1333	0	80.7	40-115	0
Hexachlorocyclopentadiene	1213	66	1333	0	91	40-115	0
Hexachloroethane	1021	66	1333	0	76.6	35-110	0
Indeno(1,2,3-cd)pyrene	1361	13	1333	0	102	40-120	0
Isophorone	1053	330	1333	0	78.9	45-110	0
Naphthalene	1018	13	1333	0	76.3	40-105	0
Nitrobenzene	1029	330	1333	0	77.2	40-115	0
N-Nitrosodi-n-propylamine	1096	66	1333	0	82.2	40-115	0
N-Nitrosodiphenylamine	1177	66	1333	0	88.3	50-115	0
Pentachlorophenol	1096	66	1333	0	82.2	25-120	0
Phenanthrene	1072	13	1333	0	80.4	50-110	0
Phenol	1127	66	1333	0	84.5	40-100	0
Pyrene	1125	13	1333	0	84.3	45-125	0
<i>Surr: 2,4,6-Tribromophenol</i>	2517	0	3333	0	75.5	34-140	0
<i>Surr: 2-Fluorobiphenyl</i>	2420	0	3333	0	72.6	12-100	0
<i>Surr: 2-Fluorophenol</i>	2497	0	3333	0	74.9	33-117	0
<i>Surr: 4-Terphenyl-d14</i>	2565	0	3333	0	77	25-137	0
<i>Surr: Nitrobenzene-d5</i>	2495	0	3333	0	74.8	37-107	0
<i>Surr: Phenol-d6</i>	2291	0	3333	0	68.7	40-106	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88485** Instrument ID **SVMS7** Method: **SW846 8270D**

MS				Sample ID: 16061792-21A MS			Units: µg/Kg		Analysis Date: 7/14/2016 05:34 PM	
Client ID: DU-07-TRIP				Run ID: SVMS4_160714A			SeqNo: 3925084		Prep Date: 7/13/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	805.7	64	1293	104.5	54.2	30-120	0			
2,4,5-Trichlorophenol	484.3	64	1293	0	37.4	50-110	0			S
2,4,6-Trichlorophenol	584.5	64	1293	0	45.2	45-110	0			
2,4-Dichlorophenol	560.6	64	1293	0	43.3	45-110	0			S
2,4-Dimethylphenol	530.9	64	1293	0	41	30-105	0			
2,4-Dinitrophenol	101.5	64	1293	0	7.85	15-130	0			S
2,4-Dinitrotoluene	598.8	64	1293	0	46.3	50-115	0			S
2,6-Dinitrotoluene	600.7	64	1293	0	46.4	50-110	0			S
2-Chloronaphthalene	682.8	13	1293	0	52.8	45-105	0			
2-Chlorophenol	642.7	64	1293	0	49.7	45-105	0			
2-Methylnaphthalene	1365	13	1293	515.9	65.7	45-105	0			
2-Methylphenol	646	64	1293	0	49.9	40-105	0			
2-Nitroaniline	627.9	64	1293	0	48.5	45-120	0			
2-Nitrophenol	616.2	64	1293	0	47.6	40-110	0			
3&4-Methylphenol	695.8	64	1293	0	53.8	40-105	0			
3,3'-Dichlorobenzidine	152.6	320	1293	0	11.8	30-120	0			JS
3-Nitroaniline	639.5	64	1293	0	49.4	25-150	0			
4,6-Dinitro-2-methylphenol	317.5	64	1293	0	24.5	40-130	0			S
4-Bromophenyl phenyl ether	775.9	64	1293	0	60	45-115	0			
4-Chloro-3-methylphenol	629.8	64	1293	0	48.7	45-115	0			
4-Chloroaniline	280.6	130	1293	0	21.7	15-110	0			
4-Chlorophenyl phenyl ether	682.2	64	1293	0	52.7	45-110	0			
4-Nitroaniline	503.1	320	1293	0	38.9	35-150	0			
4-Nitrophenol	474	64	1293	0	36.6	15-140	0			
Acenaphthene	2572	13	1293	1495	83.2	45-110	0			
Acenaphthylene	808.9	13	1293	130.6	52.4	45-105	0			
Acetophenone	713.2	64	1293	0	55.1	30-120	0			
Anthracene	4649	13	1293	3546	85.3	55-105	0			E
Atrazine	821.2	64	1293	0	63.5	30-120	0			
Benzaldehyde	1156	130	1293	0	89.4	30-120	0			
Benzo(a)anthracene	13430	13	1293	9835	278	50-110	0			SEO
Benzo(a)pyrene	9560	13	1293	10070	-39.4	50-110	0			SEO
Benzo(b)fluoranthene	13400	13	1293	13330	5.77	45-115	0			SEO
Benzo(g,h,i)perylene	8418	13	1293	6903	117	40-125	0			EO
Benzo(k)fluoranthene	5309	13	1293	4780	40.9	45-115	0			SE
Bis(2-chloroethoxy)methane	638.9	64	1293	0	49.4	45-110	0			
Bis(2-chloroethyl)ether	700.9	64	1293	0	54.2	40-105	0			
Bis(2-chloroisopropyl)ether	737.8	64	1293	0	57	20-115	0			
Bis(2-ethylhexyl)phthalate	1419	64	1293	0	110	45-125	0			
Butyl benzyl phthalate	942.8	64	1293	0	72.9	50-125	0			
Caprolactam	775.3	64	1293	0	59.9	30-120	0			
Carbazole	3459	64	1293	2129	103	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88485		Instrument ID SVMS7		Method: SW846 8270D					
Chrysene	14240	13	1293	10810	265	55-110	0	SEO	
Dibenzo(a,h)anthracene	2956	13	1293	2201	58.4	40-125	0		
Dibenzofuran	1576	64	1293	679.2	69.3	50-105	0		
Diethyl phthalate	713.9	64	1293	0	55.2	50-115	0		
Dimethyl phthalate	638.2	64	1293	0	49.3	50-110	0	S	
Di-n-butyl phthalate	825.1	64	1293	0	63.8	55-110	0		
Di-n-octyl phthalate	1059	64	1293	0	81.9	40-130	0		
Fluoranthene	10990	13	1293	21940	-847	55-115	0	SEO	
Fluorene	2416	13	1293	1234	91.4	50-110	0		
Hexachlorobenzene	645.3	64	1293	0	49.9	45-120	0		
Hexachlorobutadiene	502.4	64	1293	0	38.8	40-115	0	S	
Hexachlorocyclopentadiene	128	64	1293	0	9.9	40-115	0	S	
Hexachloroethane	571	64	1293	0	44.1	35-110	0		
Indeno(1,2,3-cd)pyrene	7650	13	1293	8424	-59.9	40-120	0	SEO	
Isophorone	647.3	320	1293	0	50	45-110	0		
Naphthalene	1779	13	1293	640	88.1	40-105	0		
Nitrobenzene	605.2	320	1293	0	46.8	40-115	0		
N-Nitrosodi-n-propylamine	711.9	64	1293	0	55	40-115	0		
N-Nitrosodiphenylamine	882	64	1293	0	68.2	50-115	0		
Pentachlorophenol	310.4	64	1293	0	24	25-120	0	S	
Phenanthrene	8679	13	1293	14770	-471	50-110	0	SEO	
Phenol	688	64	1293	0	53.2	40-100	0		
Pyrene	13450	13	1293	18980	-428	45-125	0	SEO	
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1485</i>	<i>0</i>	<i>3233</i>	<i>0</i>	<i>45.9</i>	<i>34-140</i>	<i>0</i>		
<i>Surr: 2-Fluorobiphenyl</i>	<i>1412</i>	<i>0</i>	<i>3233</i>	<i>0</i>	<i>43.7</i>	<i>12-100</i>	<i>0</i>		
<i>Surr: 2-Fluorophenol</i>	<i>1237</i>	<i>0</i>	<i>3233</i>	<i>0</i>	<i>38.3</i>	<i>33-117</i>	<i>0</i>		
<i>Surr: 4-Terphenyl-d14</i>	<i>1725</i>	<i>0</i>	<i>3233</i>	<i>0</i>	<i>53.4</i>	<i>25-137</i>	<i>0</i>		
<i>Surr: Nitrobenzene-d5</i>	<i>1322</i>	<i>0</i>	<i>3233</i>	<i>0</i>	<i>40.9</i>	<i>37-107</i>	<i>0</i>		
<i>Surr: Phenol-d6</i>	<i>1367</i>	<i>0</i>	<i>3233</i>	<i>0</i>	<i>42.3</i>	<i>40-106</i>	<i>0</i>		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88485** Instrument ID **SVMS7** Method: **SW846 8270D**

MSD				Sample ID: 16061792-21A MSD			Units: µg/Kg		Analysis Date: 7/13/2016 07:05 PM	
Client ID: DU-07-TRIP				Run ID: SVMS7_160713A			SeqNo: 3923523		Prep Date: 7/13/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	909	65	1311	101.9	61.6	30-120	819.9	10.3	30	
2,4,5-Trichlorophenol	542.7	65	1311	0	41.4	50-110	510.2	6.17	30	S
2,4,6-Trichlorophenol	642.9	65	1311	0	49	45-110	614.9	4.45	30	
2,4-Dichlorophenol	635.7	65	1311	0	48.5	45-110	600.7	5.66	30	
2,4-Dimethylphenol	637	65	1311	67.26	43.5	30-105	589.7	7.72	30	
2,4-Dinitrophenol	317.9	65	1311	0	24.2	15-130	369.2	14.9	30	
2,4-Dinitrotoluene	629.8	65	1311	0	48	50-115	638.2	1.32	30	S
2,6-Dinitrotoluene	629.8	65	1311	0	48	50-110	638.2	1.32	30	S
2-Chloronaphthalene	791.7	13	1311	48.98	56.7	45-105	715.8	10.1	30	
2-Chlorophenol	645.6	65	1311	0	49.2	45-105	614.9	4.86	30	
2-Methylnaphthalene	1926	13	1311	534.8	106	45-105	1367	33.9	30	SR
2-Methylphenol	568.9	65	1311	52.9	39.4	40-105	545.7	4.15	30	S
2-Nitroaniline	709.1	65	1311	0	54.1	45-120	668	5.98	30	
2-Nitrophenol	621.3	65	1311	0	47.4	40-110	600.1	3.48	30	
3&4-Methylphenol	631.1	65	1311	80.98	42	40-105	580	8.44	30	
3,3'-Dichlorobenzidine	544.6	330	1311	0	41.5	30-120	225	83.1	30	R
3-Nitroaniline	466	65	1311	0	35.5	25-110	300	43.3	30	R
4,6-Dinitro-2-methylphenol	371.6	65	1311	0	28.3	40-130	311.7	17.5	30	S
4-Bromophenyl phenyl ether	766.2	65	1311	0	58.4	45-115	725.5	5.45	30	
4-Chloro-3-methylphenol	623.3	65	1311	0	47.5	45-115	609.8	2.19	30	
4-Chloroaniline	350.6	130	1311	0	26.7	15-110	294.2	17.5	30	
4-Chlorophenyl phenyl ether	669.2	65	1311	0	51	45-110	715.8	6.74	30	
4-Nitroaniline	618	330	1311	0	47.1	35-150	569	8.26	30	
4-Nitrophenol	544	65	1311	0	41.5	15-140	461.7	16.4	30	
Acenaphthene	7198	13	1311	1366	445	45-110	2655	92.2	30	SRE
Acenaphthylene	842.8	13	1311	116.9	55.4	45-105	808.9	4.11	30	
Acetophenone	653.4	65	1311	0	49.8	30-120	666.7	2.01	30	
Anthracene	14800	13	1311	3146	889	55-105	5000	99	30	SRE
Atrazine	996.9	65	1311	0	76	30-120	990	0.692	30	
Benzaldehyde	1022	130	1311	0	77.9	30-120	999	2.25	30	
Benzo(a)anthracene	36110	13	1311	9205	2050	50-110	14310	86.5	30	SREO
Benzo(a)pyrene	15830	13	1311	6647	701	50-110	9112	53.9	30	SREO
Benzo(b)fluoranthene	24610	13	1311	9964	1120	45-115	13510	58.3	30	SREO
Benzo(g,h,i)perylene	11310	13	1311	5030	479	40-125	7192	44.5	30	SRE
Benzo(k)fluoranthene	8788	13	1311	3241	423	45-115	5084	53.4	30	SRE
Bis(2-chloroethoxy)methane	639.7	65	1311	0	48.8	45-110	649.2	1.48	30	
Bis(2-chloroethyl)ether	631.1	65	1311	0	48.1	40-105	650.5	3.02	30	
Bis(2-chloroisopropyl)ether	637.7	65	1311	0	48.6	20-115	634.3	0.529	30	
Bis(2-ethylhexyl)phthalate	1018	65	1311	0	77.7	45-125	988.7	2.97	30	
Butyl benzyl phthalate	708.5	65	1311	0	54	50-125	650.5	8.53	30	
Caprolactam	565.6	65	1311	0	43.1	30-120	599.4	5.8	30	
Carbazole	11600	65	1311	1841	744	50-150	3732	103	30	SRE

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88485		Instrument ID SVMS7		Method: SW846 8270D						
Chrysene	35200	13	1311	9820	1940	55-110	14480	83.4	30	SREO
Dibenzo(a,h)anthracene	5967	13	1311	2051	299	40-125	3167	61.3	30	SRE
Dibenzofuran	4688	65	1311	739.9	301	50-105	1699	93.6	30	SRE
Diethyl phthalate	694.7	65	1311	0	53	50-115	731.3	5.13	30	
Dimethyl phthalate	687.5	65	1311	0	52.4	50-110	695.8	1.19	30	
Di-n-butyl phthalate	763.5	65	1311	0	58.2	55-110	752.7	1.43	30	
Di-n-octyl phthalate	721.6	65	1311	0	55	40-130	664.7	8.2	30	
Fluoranthene	66040	13	1311	20380	3480	55-115	28150	80.4	30	SREO
Fluorene	8685	13	1311	1324	562	50-110	2543	109	30	SRE
Hexachlorobenzene	711.1	65	1311	0	54.2	45-120	692.5	2.65	30	
Hexachlorobutadiene	631.8	65	1311	0	48.2	40-115	629.8	0.316	30	
Hexachlorocyclopentadiene	36.7	65	1311	0	2.8	40-115	99.58	0	30	JS
Hexachloroethane	564.9	65	1311	0	43.1	35-110	550.3	2.63	30	
Indeno(1,2,3-cd)pyrene	10660	13	1311	5169	419	40-120	7056	40.7	30	SRE
Isophorone	636.4	330	1311	0	48.5	45-110	650.5	2.19	30	
Naphthalene	1800	13	1311	638	88.7	40-105	1831	1.7	30	
Nitrobenzene	625.2	330	1311	0	47.7	40-115	597.5	4.54	30	
N-Nitrosodi-n-propylamine	638.4	65	1311	0	48.7	40-115	651.1	1.98	30	
N-Nitrosodiphenylamine	1085	65	1311	0	82.7	50-115	851	24.1	30	
Pentachlorophenol	501.4	65	1311	0	38.2	25-120	365.3	31.4	30	R
Phenanthrene	39740	13	1311	10790	2210	50-110	14140	95	30	SREO
Phenol	694.1	65	1311	56.16	48.7	40-100	657	5.49	30	
Pyrene	46290	13	1311	12970	2540	45-125	19210	82.7	30	SREO
<i>Surr: 2,4,6-Tribromophenol</i>	1432	0	3277	0	43.7	34-140	1382	3.52	40	
<i>Surr: 2-Fluorobiphenyl</i>	1435	0	3277	0	43.8	12-100	1472	2.59	40	
<i>Surr: 2-Fluorophenol</i>	1433	0	3277	0	43.7	33-117	1360	5.26	40	
<i>Surr: 4-Terphenyl-d14</i>	1735	0	3277	0	53	25-137	1635	5.98	40	
<i>Surr: Nitrobenzene-d5</i>	1465	0	3277	0	44.7	37-107	1490	1.74	40	
<i>Surr: Phenol-d6</i>	1217	0	3277	0	37.1	40-106	1197	1.67	40	S

The following samples were analyzed in this batch:

16061792-06A	16061792-07A	16061792-08A
16061792-09A	16061792-10A	16061792-11A
16061792-12A	16061792-13A	16061792-14A
16061792-15A	16061792-16A	16061792-17A
16061792-18A	16061792-19A	16061792-20A
16061792-21A	16061792-22A	16061792-23A
16061792-24A	16061792-25A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88486** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-88486-88486				Units: µg/Kg		Analysis Date: 7/14/2016 04:21 PM		
Client ID:		Run ID: SVMS5_160714A				SeqNo: 3925287		Prep Date: 7/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	66								
2,4,5-Trichlorophenol	U	66								
2,4,6-Trichlorophenol	U	66								
2,4-Dichlorophenol	U	66								
2,4-Dimethylphenol	U	66								
2,4-Dinitrophenol	U	66								
2,4-Dinitrotoluene	U	66								
2,6-Dinitrotoluene	U	66								
2-Chloronaphthalene	U	13								
2-Chlorophenol	U	66								
2-Methylnaphthalene	U	13								
2-Methylphenol	U	66								
2-Nitroaniline	U	66								
2-Nitrophenol	U	66								
3&4-Methylphenol	U	66								
3,3'-Dichlorobenzidine	U	330								
3-Nitroaniline	U	66								
4,6-Dinitro-2-methylphenol	U	66								
4-Bromophenyl phenyl ether	U	66								
4-Chloro-3-methylphenol	U	66								
4-Chloroaniline	U	130								
4-Chlorophenyl phenyl ether	U	66								
4-Nitroaniline	U	330								
4-Nitrophenol	U	66								
Acenaphthene	U	13								
Acenaphthylene	U	13								
Acetophenone	U	66								
Anthracene	U	13								
Atrazine	U	66								
Benzaldehyde	U	130								
Benzo(a)anthracene	U	13								
Benzo(a)pyrene	U	13								
Benzo(b)fluoranthene	U	13								
Benzo(g,h,i)perylene	U	13								
Benzo(k)fluoranthene	U	13								
Bis(2-chloroethoxy)methane	U	66								
Bis(2-chloroethyl)ether	U	66								
Bis(2-chloroisopropyl)ether	U	66								
Bis(2-ethylhexyl)phthalate	U	66								
Butyl benzyl phthalate	U	66								
Caprolactam	U	66								
Carbazole	U	66								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88486	Instrument ID SVMS5	Method: SW846 8270D
Chrysene	U	13
Dibenzo(a,h)anthracene	U	13
Dibenzofuran	U	66
Diethyl phthalate	U	66
Dimethyl phthalate	U	66
Di-n-butyl phthalate	U	66
Di-n-octyl phthalate	U	66
Fluoranthene	U	13
Fluorene	U	13
Hexachlorobenzene	U	66
Hexachlorobutadiene	U	66
Hexachlorocyclopentadiene	U	66
Hexachloroethane	U	66
Indeno(1,2,3-cd)pyrene	U	13
Isophorone	U	330
Naphthalene	U	13
Nitrobenzene	U	330
N-Nitrosodi-n-propylamine	U	66
N-Nitrosodiphenylamine	U	66
Pentachlorophenol	U	66
Phenanthrene	U	13
Phenol	U	66
Pyrene	U	13
<i>Surr: 2,4,6-Tribromophenol</i>	2267	0 3333 0 68 34-140 0
<i>Surr: 2-Fluorobiphenyl</i>	2306	0 3333 0 69.2 12-100 0
<i>Surr: 2-Fluorophenol</i>	2757	0 3333 0 82.7 33-117 0
<i>Surr: 4-Terphenyl-d14</i>	3124	0 3333 0 93.7 25-137 0
<i>Surr: Nitrobenzene-d5</i>	2288	0 3333 0 68.6 37-107 0
<i>Surr: Phenol-d6</i>	2546	0 3333 0 76.4 40-106 0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88486** Instrument ID **SVMS5** Method: **SW846 8270D**

LCS				Sample ID: SLCSS1-88486-88486			Units: µg/Kg		Analysis Date: 7/14/2016 05:11 PM		
Client ID:		Run ID: SVMS5_160714A			SeqNo: 3925301		Prep Date: 7/13/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1`-Biphenyl	940.7	66	1333	0	70.5	30-120		0			
2,4,5-Trichlorophenol	999.3	66	1333	0	74.9	50-110		0			
2,4,6-Trichlorophenol	972	66	1333	0	72.9	45-110		0			
2,4-Dichlorophenol	966	66	1333	0	72.4	45-110		0			
2,4-Dimethylphenol	940.7	66	1333	0	70.5	30-105		0			
2,4-Dinitrophenol	544	66	1333	0	40.8	15-130		0			
2,4-Dinitrotoluene	1032	66	1333	0	77.4	50-115		0			
2,6-Dinitrotoluene	1032	66	1333	0	77.4	50-110		0			
2-Chloronaphthalene	1005	13	1333	0	75.4	45-105		0			
2-Chlorophenol	1165	66	1333	0	87.3	45-105		0			
2-Methylnaphthalene	1039	13	1333	0	77.9	45-105		0			
2-Methylphenol	1131	66	1333	0	84.8	40-105		0			
2-Nitroaniline	986.7	66	1333	0	74	45-120		0			
2-Nitrophenol	999.3	66	1333	0	74.9	40-110		0			
3&4-Methylphenol	1108	66	1333	0	83.1	40-105		0			
3,3`-Dichlorobenzidine	1347	330	1333	0	101	30-120		0			
3-Nitroaniline	1023	66	1333	0	76.7	25-150		0			
4,6-Dinitro-2-methylphenol	876.7	66	1333	0	65.7	40-130		0			
4-Bromophenyl phenyl ether	1041	66	1333	0	78.1	45-115		0			
4-Chloro-3-methylphenol	988.7	66	1333	0	74.1	45-115		0			
4-Chloroaniline	1117	130	1333	0	83.7	15-110		0			
4-Chlorophenyl phenyl ether	936.7	66	1333	0	70.2	45-110		0			
4-Nitroaniline	1069	330	1333	0	80.1	35-150		0			
4-Nitrophenol	985.3	66	1333	0	73.9	15-140		0			
Acenaphthene	990.7	13	1333	0	74.3	45-110		0			
Acenaphthylene	1099	13	1333	0	82.4	45-105		0			
Acetophenone	1109	66	1333	0	83.1	30-120		0			
Anthracene	1203	13	1333	0	90.2	55-105		0			
Atrazine	1522	66	1333	0	114	30-120		0			
Benzaldehyde	1135	130	1333	0	85.1	30-120		0			
Benzo(a)anthracene	1173	13	1333	0	87.9	50-110		0			
Benzo(a)pyrene	1099	13	1333	0	82.4	50-110		0			
Benzo(b)fluoranthene	1091	13	1333	0	81.8	45-115		0			
Benzo(g,h,i)perylene	1031	13	1333	0	77.3	40-125		0			
Benzo(k)fluoranthene	1114	13	1333	0	83.5	45-115		0			
Bis(2-chloroethoxy)methane	1023	66	1333	0	76.7	45-110		0			
Bis(2-chloroethyl)ether	1088	66	1333	0	81.6	40-105		0			
Bis(2-chloroisopropyl)ether	1393	66	1333	0	104	20-115		0			
Bis(2-ethylhexyl)phthalate	1303	66	1333	0	97.7	45-125		0			
Butyl benzyl phthalate	1260	66	1333	0	94.5	50-125		0			
Caprolactam	1003	66	1333	0	75.2	30-120		0			
Carbazole	1105	66	1333	0	82.8	50-150		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88486		Instrument ID SVMS5		Method: SW846 8270D			
Chrysene	1129	13	1333	0	84.6	55-110	0
Dibenzo(a,h)anthracene	1007	13	1333	0	75.5	40-125	0
Dibenzofuran	1026	66	1333	0	76.9	50-105	0
Diethyl phthalate	1141	66	1333	0	85.6	50-115	0
Dimethyl phthalate	1015	66	1333	0	76.1	50-110	0
Di-n-butyl phthalate	1173	66	1333	0	87.9	55-110	0
Di-n-octyl phthalate	1322	66	1333	0	99.1	40-130	0
Fluoranthene	1049	13	1333	0	78.7	55-115	0
Fluorene	986	13	1333	0	73.9	50-110	0
Hexachlorobenzene	1075	66	1333	0	80.6	45-120	0
Hexachlorobutadiene	792	66	1333	0	59.4	40-115	0
Hexachlorocyclopentadiene	786.7	66	1333	0	59	40-115	0
Hexachloroethane	1015	66	1333	0	76.1	35-110	0
Indeno(1,2,3-cd)pyrene	1029	13	1333	0	77.1	40-120	0
Isophorone	1009	330	1333	0	75.6	45-110	0
Naphthalene	880.7	13	1333	0	66	40-105	0
Nitrobenzene	1034	330	1333	0	77.5	40-115	0
N-Nitrosodi-n-propylamine	1058	66	1333	0	79.3	40-115	0
N-Nitrosodiphenylamine	1113	66	1333	0	83.5	50-115	0
Pentachlorophenol	1016	66	1333	0	76.2	25-120	0
Phenanthrene	1079	13	1333	0	80.9	50-110	0
Phenol	1144	66	1333	0	85.8	40-100	0
Pyrene	1307	13	1333	0	98	45-125	0
Surr: 2,4,6-Tribromophenol	2423	0	3333	0	72.7	34-140	0
Surr: 2-Fluorobiphenyl	2207	0	3333	0	66.2	12-100	0
Surr: 2-Fluorophenol	2615	0	3333	0	78.4	33-117	0
Surr: 4-Terphenyl-d14	2981	0	3333	0	89.4	25-137	0
Surr: Nitrobenzene-d5	2214	0	3333	0	66.4	37-107	0
Surr: Phenol-d6	2603	0	3333	0	78.1	40-106	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88486** Instrument ID **SVMS5** Method: **SW846 8270D**

MS				Sample ID: 16061792-26A MS			Units: µg/Kg		Analysis Date: 7/14/2016 07:26 PM	
Client ID: DU-09-DUP				Run ID: SVMS5_160714A			SeqNo: 3925288		Prep Date: 7/13/2016	
							DF: 10			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	679.9	660	1333	0	51	30-120	0			
2,4,5-Trichlorophenol	533.3	660	1333	0	40	50-110	0			JS
2,4,6-Trichlorophenol	766.6	660	1333	0	57.5	45-110	0			
2,4-Dichlorophenol	959.9	660	1333	0	72	45-110	0			
2,4-Dimethylphenol	1047	660	1333	0	78.5	30-105	0			
2,4-Dinitrophenol	U	660	1333	0	0	15-130	0			S
2,4-Dinitrotoluene	773.2	660	1333	0	58	50-115	0			
2,6-Dinitrotoluene	773.2	660	1333	0	58	50-110	0			
2-Chloronaphthalene	473.3	130	1333	0	35.5	45-105	0			S
2-Chlorophenol	U	660	1333	0	0	45-105	0			S
2-Methylnaphthalene	526.6	130	1333	213.2	23.5	45-105	0			S
2-Methylphenol	U	660	1333	0	0	40-105	0			S
2-Nitroaniline	946.5	660	1333	0	71	45-120	0			
2-Nitrophenol	999.9	660	1333	0	75	40-110	0			
3&4-Methylphenol	173.3	660	1333	0	13	40-105	0			JS
3,3'-Dichlorobenzidine	1167	3,300	1333	0	87.5	30-120	0			J
3-Nitroaniline	846.6	660	1333	0	63.5	25-150	0			
4,6-Dinitro-2-methylphenol	U	660	1333	0	0	40-130	0			S
4-Bromophenyl phenyl ether	773.2	660	1333	0	58	45-115	0			
4-Chloro-3-methylphenol	1033	660	1333	0	77.5	45-115	0			
4-Chloroaniline	586.6	1,300	1333	0	44	15-110	0			J
4-Chlorophenyl phenyl ether	606.6	660	1333	0	45.5	45-110	0			J
4-Nitroaniline	1293	3,300	1333	0	97	35-150	0			J
4-Nitrophenol	U	660	1333	0	0	15-140	0			S
Acenaphthene	1047	130	1333	499.6	41	45-110	0			S
Acenaphthylene	426.6	130	1333	0	32	45-105	0			S
Acetophenone	300	660	1333	0	22.5	30-120	0			JS
Anthracene	2073	130	1333	1299	58.1	55-105	0			
Atrazine	606.6	660	1333	0	45.5	30-120	0			J
Benzaldehyde	U	1,300	1333	0	0	30-120	0			S
Benzo(a)anthracene	5833	130	1333	6195	-27.2	50-110	0			SO
Benzo(a)pyrene	5239	130	1333	5822	-43.7	50-110	0			SO
Benzo(b)fluoranthene	7226	130	1333	8427	-90.1	45-115	0			SO
Benzo(g,h,i)perylene	3846	130	1333	4450	-45.3	40-125	0			S
Benzo(k)fluoranthene	2926	130	1333	2951	-1.87	45-115	0			S
Bis(2-chloroethoxy)methane	633.2	660	1333	0	47.5	45-110	0			J
Bis(2-chloroethyl)ether	U	660	1333	0	0	40-105	0			S
Bis(2-ethylhexyl)phthalate	2173	660	1333	0	163	45-125	0			S
Butyl benzyl phthalate	919.9	660	1333	0	69	50-125	0			
Caprolactam	839.9	660	1333	0	63	30-120	0			
Carbazole	1720	660	1333	1159	42.1	50-150	0			S
Chrysene	6113	130	1333	6569	-34.2	55-110	0			SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88486		Instrument ID SVMS5		Method: SW846 8270D				
Dibenzo(a,h)anthracene	546.6	130	1333	639.5	-6.97	40-125	0	S
Dibenzofuran	606.6	660	1333	153.2	34	50-105	0	JS
Diethyl phthalate	413.3	660	1333	0	31	50-115	0	JS
Dimethyl phthalate	353.3	660	1333	0	26.5	50-110	0	JS
Di-n-butyl phthalate	799.9	660	1333	0	60	55-110	0	
Di-n-octyl phthalate	1646	660	1333	0	123	40-130	0	
Fluoranthene	10970	130	1333	10850	8.49	55-115	0	SO
Fluorene	1167	130	1333	619.5	41	50-110	0	S
Hexachlorobenzene	593.3	660	1333	0	44.5	45-120	0	JS
Hexachlorobutadiene	473.3	660	1333	0	35.5	40-115	0	JS
Hexachlorocyclopentadiene	U	660	1333	0	0	40-115	0	S
Hexachloroethane	U	660	1333	0	0	35-110	0	S
Indeno(1,2,3-cd)pyrene	4226	130	1333	5003	-58.3	40-120	0	S
Isophorone	633.2	3,300	1333	0	47.5	45-110	0	J
Naphthalene	679.9	130	1333	0	51	40-105	0	
Nitrobenzene	586.6	3,300	1333	0	44	40-115	0	J
N-Nitrosodi-n-propylamine	U	660	1333	0	0	40-115	0	S
N-Nitrosodiphenylamine	619.9	660	1333	0	46.5	50-115	0	JS
Pentachlorophenol	U	660	1333	0	0	25-120	0	S
Phenanthrene	7279	130	1333	6342	70.3	50-110	0	O
Phenol	626.6	660	1333	0	47	40-100	0	J
Pyrene	11590	130	1333	12860	-95.4	45-125	0	SO
Surr: 2,4,6-Tribromophenol	1713	0	3333	0	51.4	34-140	0	
Surr: 2-Fluorobiphenyl	1140	0	3333	0	34.2	12-100	0	
Surr: 2-Fluorophenol	739.9	0	3333	0	22.2	33-117	0	S
Surr: 4-Terphenyl-d14	1067	0	3333	0	32	25-137	0	
Surr: Nitrobenzene-d5	1033	0	3333	0	31	37-107	0	S
Surr: Phenol-d6	879.9	0	3333	0	26.4	40-106	0	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88486** Instrument ID **SVMS5** Method: **SW846 8270D**

DUP				Sample ID: 16061792-27A DUP			Units: µg/Kg		Analysis Date: 7/14/2016 08:15 PM	
Client ID: DU-09-TRIP				Run ID: SVMS5_160714A			SeqNo: 3925290		Prep Date: 7/13/2016	
							DF: 10			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	410.8	670	0	0	0		362.7	0	30	J
2,4,5-Trichlorophenol	U	670	0	0	0	0-0	0	0	30	
2,4,6-Trichlorophenol	U	670	0	0	0	0-0	0	0	30	
2,4-Dichlorophenol	U	670	0	0	0	0-0	0	0	30	
2,4-Dimethylphenol	U	670	0	0	0	0-0	0	0	30	
2,4-Dinitrophenol	U	670	0	0	0	0-0	0	0	30	
2,4-Dinitrotoluene	U	670	0	0	0	0-0	0	0	30	
2,6-Dinitrotoluene	U	670	0	0	0	0-0	0	0	30	
2-Chloronaphthalene	U	130	0	0	0	0-0	0	0	30	
2-Chlorophenol	U	670	0	0	0	0-0	0	0	30	
2-Methylnaphthalene	282.8	130	0	0	0	0-0	145.1	64.4	30	R
2-Methylphenol	U	670	0	0	0	0-0	0	0	30	
2-Nitroaniline	U	670	0	0	0	0-0	0	0	30	
2-Nitrophenol	U	670	0	0	0	0-0	0	0	30	
3&4-Methylphenol	U	670	0	0	0		0	0	30	
3,3'-Dichlorobenzidine	U	3,400	0	0	0	0-0	0	0	30	
3-Nitroaniline	U	670	0	0	0	0-0	0	0	30	
4,6-Dinitro-2-methylphenol	U	670	0	0	0	0-0	0	0	30	
4-Bromophenyl phenyl ether	U	670	0	0	0	0-0	0	0	30	
4-Chloro-3-methylphenol	U	670	0	0	0	0-0	0	0	30	
4-Chloroaniline	U	1,400	0	0	0	0-0	0	0	30	
4-Chlorophenyl phenyl ether	U	670	0	0	0	0-0	0	0	30	
4-Nitroaniline	U	3,400	0	0	0	0-0	0	0	30	
4-Nitrophenol	U	670	0	0	0	0-0	0	0	30	
Acenaphthene	713.9	130	0	0	0	0-0	290.2	84.4	30	R
Acenaphthylene	U	130	0	0	0	0-0	0	0	30	
Acetophenone	U	670	0	0	0		0	0	30	
Anthracene	1657	130	0	0	0	0-0	593.6	94.5	30	R
Atrazine	U	670	0	0	0		0	0	30	
Benzaldehyde	U	1,400	0	0	0		0	0	30	
Benzo(a)anthracene	5617	130	0	0	0	0-0	3192	55	30	R
Benzo(a)pyrene	5179	130	0	0	0	0-0	3120	49.6	30	R
Benzo(b)fluoranthene	7192	130	0	0	0	0-0	4076	55.3	30	R
Benzo(g,h,i)perylene	3657	130	0	0	0	0-0	2269	46.8	30	R
Benzo(k)fluoranthene	2727	130	0	0	0	0-0	1530	56.2	30	R
Bis(2-chloroethoxy)methane	U	670	0	0	0	0-0	0	0	30	
Bis(2-chloroethyl)ether	U	670	0	0	0	0-0	0	0	30	
Bis(2-chloroisopropyl)ether	U	670	0	0	0	0-0	0	0	30	
Bis(2-ethylhexyl)phthalate	U	670	0	0	0	0-0	0	0	30	
Butyl benzyl phthalate	U	670	0	0	0	0-0	0	0	30	
Caprolactam	U	670	0	0	0		0	0	30	
Carbazole	1185	670	0	0	0	0-0	718.9	49	30	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88486		Instrument ID SVMS5		Method: SW846 8270D						
Chrysene	6074	130	0	0	0	0-0	3377	57.1	30	R
Dibenzo(a,h)anthracene	552.2	130	0	0	0	0-0	883.8	46.2	30	R
Dibenzofuran	444.5	670	0	0	0	0-0	79.15	0	30	J
Diethyl phthalate	U	670	0	0	0	0-0	0	0	30	
Dimethyl phthalate	U	670	0	0	0	0-0	0	0	30	
Di-n-butyl phthalate	U	670	0	0	0	0-0	0	0	30	
Di-n-octyl phthalate	U	670	0	0	0	0-0	0	0	30	
Fluoranthene	10370	130	0	0	0	0-0	5210	66.2	30	R
Fluorene	868.7	130	0	0	0	0-0	428.7	67.8	30	R
Hexachlorobenzene	U	670	0	0	0	0-0	0	0	30	
Hexachlorobutadiene	U	670	0	0	0	0-0	0	0	30	
Hexachlorocyclopentadiene	U	670	0	0	0	0-0	0	0	30	
Hexachloroethane	U	670	0	0	0	0-0	0	0	30	
Indeno(1,2,3-cd)pyrene	4074	130	0	0	0	0-0	2585	44.7	30	R
Isophorone	U	3,400	0	0	0	0-0	0	0	30	
Naphthalene	U	130	0	0	0	0-0	0	0	30	
Nitrobenzene	U	3,400	0	0	0	0-0	0	0	30	
N-Nitrosodi-n-propylamine	U	670	0	0	0	0-0	0	0	30	
N-Nitrosodiphenylamine	U	670	0	0	0	0-0	0	0	30	
Pentachlorophenol	U	670	0	0	0	0-0	0	0	30	
Phenanthrene	6701	130	0	0	0	0-0	2922	78.5	30	R
Phenol	U	670	0	0	0	0-0	0	0	30	
Pyrene	10470	130	0	0	0	0-0	5435	63.3	30	R
<i>Surr: 2,4,6-Tribromophenol</i>	2094	0	3367	0	62.2	34-140	2559	20	40	
<i>Surr: 2-Fluorobiphenyl</i>	1764	0	3367	0	52.4	12-100	2176	20.9	40	
<i>Surr: 2-Fluorophenol</i>	1313	0	3367	0	39	33-117	1227	6.81	40	
<i>Surr: 4-Terphenyl-d14</i>	1832	0	3367	0	54.4	25-137	2282	21.9	40	
<i>Surr: Nitrobenzene-d5</i>	1610	0	3367	0	47.8	37-107	1959	19.6	40	
<i>Surr: Phenol-d6</i>	1030	0	3367	0	30.6	40-106	1491	36.5	40	S

The following samples were analyzed in this batch:

16061792-26A	16061792-27A	16061792-28A
16061792-29A	16061792-30A	16061792-31A
16061792-32A	16061792-33A	16061792-34A
16061792-35A	16061792-36A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88541** Instrument ID **SVMS8** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-88541-88541				Units: µg/Kg		Analysis Date: 7/13/2016 08:05 PM		
Client ID:		Run ID: SVMS8_160713A				SeqNo: 3923797		Prep Date: 7/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	33								
2,4,5-Trichlorophenol	U	33								
2,4,6-Trichlorophenol	U	33								
2,4-Dichlorophenol	U	33								
2,4-Dimethylphenol	U	33								
2,4-Dinitrophenol	U	33								
2,4-Dinitrotoluene	U	33								
2,6-Dinitrotoluene	U	33								
2-Chloronaphthalene	U	6.7								
2-Chlorophenol	U	33								
2-Methylnaphthalene	U	6.7								
2-Methylphenol	U	33								
2-Nitroaniline	U	33								
2-Nitrophenol	U	33								
3&4-Methylphenol	U	33								
3,3'-Dichlorobenzidine	U	170								
3-Nitroaniline	U	33								
4,6-Dinitro-2-methylphenol	U	33								
4-Bromophenyl phenyl ether	U	33								
4-Chloro-3-methylphenol	U	33								
4-Chloroaniline	U	67								
4-Chlorophenyl phenyl ether	U	33								
4-Nitroaniline	U	170								
4-Nitrophenol	U	33								
Acenaphthene	U	6.7								
Acenaphthylene	U	6.7								
Acetophenone	U	33								
Anthracene	U	6.7								
Atrazine	U	33								
Benzaldehyde	U	67								
Benzo(a)anthracene	U	6.7								
Benzo(a)pyrene	U	6.7								
Benzo(b)fluoranthene	U	6.7								
Benzo(g,h,i)perylene	U	6.7								
Benzo(k)fluoranthene	U	6.7								
Bis(2-chloroethoxy)methane	U	33								
Bis(2-chloroethyl)ether	U	33								
Bis(2-chloroisopropyl)ether	U	33								
Bis(2-ethylhexyl)phthalate	U	33								
Butyl benzyl phthalate	U	33								
Caprolactam	U	33								
Carbazole	U	33								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88541		Instrument ID SVMS8		Method: SW846 8270D				
Chrysene	U	6.7						
Dibenzo(a,h)anthracene	U	6.7						
Dibenzofuran	U	33						
Diethyl phthalate	U	33						
Dimethyl phthalate	U	33						
Di-n-butyl phthalate	U	33						
Di-n-octyl phthalate	U	33						
Fluoranthene	U	6.7						
Fluorene	U	6.7						
Hexachlorobenzene	U	33						
Hexachlorobutadiene	U	33						
Hexachlorocyclopentadiene	U	33						
Hexachloroethane	U	33						
Indeno(1,2,3-cd)pyrene	U	6.7						
Isophorone	U	170						
Naphthalene	U	6.7						
Nitrobenzene	U	170						
N-Nitrosodi-n-propylamine	U	33						
N-Nitrosodiphenylamine	U	33						
Pentachlorophenol	U	33						
Phenanthrene	U	6.7						
Phenol	U	33						
Pyrene	U	6.7						
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1111</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>66.6</i>	<i>34-140</i>	<i>0</i>	
<i>Surr: 2-Fluorobiphenyl</i>	<i>1273</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>76.4</i>	<i>12-100</i>	<i>0</i>	
<i>Surr: 2-Fluorophenol</i>	<i>1372</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>82.3</i>	<i>33-117</i>	<i>0</i>	
<i>Surr: 4-Terphenyl-d14</i>	<i>1549</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>92.9</i>	<i>25-137</i>	<i>0</i>	
<i>Surr: Nitrobenzene-d5</i>	<i>1111</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>66.7</i>	<i>37-107</i>	<i>0</i>	
<i>Surr: Phenol-d6</i>	<i>1413</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>84.8</i>	<i>40-106</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88541** Instrument ID **SVMS8** Method: **SW846 8270D**

LCS		Sample ID: SLCSS1-88541-88541				Units: µg/Kg		Analysis Date: 7/13/2016 08:26 PM		
Client ID:		Run ID: SVMS8_160713A				SeqNo: 3923798		Prep Date: 7/13/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	600.3	33	666.7	0	90	30-120	0			
2,4,5-Trichlorophenol	658.7	33	666.7	0	98.8	50-110	0			
2,4,6-Trichlorophenol	651.7	33	666.7	0	97.7	45-110	0			
2,4-Dichlorophenol	655.7	33	666.7	0	98.3	45-110	0			
2,4-Dimethylphenol	510	33	666.7	0	76.5	30-105	0			
2,4-Dinitrophenol	631	33	666.7	0	94.6	15-130	0			
2,4-Dinitrotoluene	711.7	33	666.7	0	107	50-115	0			
2,6-Dinitrotoluene	704.7	33	666.7	0	106	50-110	0			
2-Chloronaphthalene	644.7	6.7	666.7	0	96.7	45-105	0			
2-Chlorophenol	643.7	33	666.7	0	96.5	45-105	0			
2-Methylnaphthalene	586.3	6.7	666.7	0	87.9	45-105	0			
2-Methylphenol	616.3	33	666.7	0	92.4	40-105	0			
2-Nitroaniline	705.7	33	666.7	0	106	45-120	0			
2-Nitrophenol	653.3	33	666.7	0	98	40-110	0			
3&4-Methylphenol	661.3	33	666.7	0	99.2	40-105	0			
3,3'-Dichlorobenzidine	684.3	170	666.7	0	103	30-120	0			
3-Nitroaniline	573.3	33	666.7	0	86	25-150	0			
4,6-Dinitro-2-methylphenol	698.7	33	666.7	0	105	40-130	0			
4-Bromophenyl phenyl ether	679.7	33	666.7	0	102	45-115	0			
4-Chloro-3-methylphenol	634.3	33	666.7	0	95.1	45-115	0			
4-Chloroaniline	367.7	67	666.7	0	55.1	15-110	0			
4-Chlorophenyl phenyl ether	638	33	666.7	0	95.7	45-110	0			
4-Nitroaniline	701	170	666.7	0	105	35-150	0			
4-Nitrophenol	708.3	33	666.7	0	106	15-140	0			
Acenaphthene	627.7	6.7	666.7	0	94.1	45-110	0			
Acenaphthylene	698.7	6.7	666.7	0	105	45-105	0			
Acetophenone	611	33	666.7	0	91.6	30-120	0			
Anthracene	696.3	6.7	666.7	0	104	55-105	0			
Atrazine	736.7	33	666.7	0	110	30-120	0			
Benzaldehyde	876	67	666.7	0	131	30-120	0			S
Benzo(a)anthracene	700.3	6.7	666.7	0	105	50-110	0			
Benzo(a)pyrene	717.7	6.7	666.7	0	108	50-110	0			
Benzo(b)fluoranthene	726.3	6.7	666.7	0	109	45-115	0			
Benzo(g,h,i)perylene	714.7	6.7	666.7	0	107	40-125	0			
Benzo(k)fluoranthene	723	6.7	666.7	0	108	45-115	0			
Bis(2-chloroethoxy)methane	627.3	33	666.7	0	94.1	45-110	0			
Bis(2-chloroethyl)ether	619	33	666.7	0	92.8	40-105	0			
Bis(2-chloroisopropyl)ether	600.3	33	666.7	0	90	20-115	0			
Bis(2-ethylhexyl)phthalate	734.7	33	666.7	0	110	45-125	0			
Butyl benzyl phthalate	703	33	666.7	0	105	50-125	0			
Caprolactam	618.3	33	666.7	0	92.7	30-120	0			
Carbazole	698.7	33	666.7	0	105	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88541		Instrument ID SVMS8		Method: SW846 8270D			
Chrysene	699.7	6.7	666.7	0	105	55-110	0
Dibenzo(a,h)anthracene	725.7	6.7	666.7	0	109	40-125	0
Dibenzofuran	634.3	33	666.7	0	95.1	50-105	0
Diethyl phthalate	644.7	33	666.7	0	96.7	50-115	0
Dimethyl phthalate	660	33	666.7	0	99	50-110	0
Di-n-butyl phthalate	724.3	33	666.7	0	109	55-110	0
Di-n-octyl phthalate	731.3	33	666.7	0	110	40-130	0
Fluoranthene	687.7	6.7	666.7	0	103	55-115	0
Fluorene	652.3	6.7	666.7	0	97.8	50-110	0
Hexachlorobenzene	656.3	33	666.7	0	98.4	45-120	0
Hexachlorobutadiene	594.3	33	666.7	0	89.1	40-115	0
Hexachlorocyclopentadiene	872.7	33	666.7	0	131	40-115	0
Hexachloroethane	600	33	666.7	0	90	35-110	0
Indeno(1,2,3-cd)pyrene	721	6.7	666.7	0	108	40-120	0
Isophorone	648.7	170	666.7	0	97.3	45-110	0
Naphthalene	607.3	6.7	666.7	0	91.1	40-105	0
Nitrobenzene	624.7	170	666.7	0	93.7	40-115	0
N-Nitrosodi-n-propylamine	653.3	33	666.7	0	98	40-115	0
N-Nitrosodiphenylamine	699	33	666.7	0	105	50-115	0
Pentachlorophenol	682.7	33	666.7	0	102	25-120	0
Phenanthrene	691.3	6.7	666.7	0	104	50-110	0
Phenol	661	33	666.7	0	99.1	40-100	0
Pyrene	729.3	6.7	666.7	0	109	45-125	0
Surr: 2,4,6-Tribromophenol	1471	0	1667	0	88.2	34-140	0
Surr: 2-Fluorobiphenyl	1463	0	1667	0	87.8	12-100	0
Surr: 2-Fluorophenol	1544	0	1667	0	92.6	33-117	0
Surr: 4-Terphenyl-d14	1586	0	1667	0	95.1	25-137	0
Surr: Nitrobenzene-d5	1379	0	1667	0	82.7	37-107	0
Surr: Phenol-d6	1557	0	1667	0	93.4	40-106	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88541** Instrument ID **SVMS8** Method: **SW846 8270D**

MS				Sample ID: 1607608-04A MS			Units: µg/Kg		Analysis Date: 7/13/2016 10:39 PM	
Client ID:				Run ID: SVMS8_160713A			SeqNo: 3923799		Prep Date: 7/13/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	517	33	661.5	0	78.1	30-120	0			
2,4,5-Trichlorophenol	579.1	33	661.5	0	87.5	50-110	0			
2,4,6-Trichlorophenol	613.5	33	661.5	0	92.7	45-110	0			
2,4-Dichlorophenol	574.8	33	661.5	0	86.9	45-110	0			
2,4-Dimethylphenol	490.2	33	661.5	0	74.1	30-105	0			
2,4-Dinitrophenol	350.3	33	661.5	0	52.9	15-130	0			
2,4-Dinitrotoluene	594.4	33	661.5	0	89.8	50-115	0			
2,6-Dinitrotoluene	567.6	33	661.5	0	85.8	50-110	0			
2-Chloronaphthalene	558.3	6.6	661.5	0	84.4	45-105	0			
2-Chlorophenol	558	33	661.5	0	84.3	45-105	0			
2-Methylnaphthalene	532.5	6.6	661.5	12.28	78.6	45-105	0			
2-Methylphenol	526.2	33	661.5	0	79.5	40-105	0			
2-Nitroaniline	562.6	33	661.5	0	85	45-120	0			
2-Nitrophenol	550	33	661.5	0	83.1	40-110	0			
3&4-Methylphenol	553.7	33	661.5	0	83.7	40-105	0			
3,3'-Dichlorobenzidine	519	170	661.5	0	78.4	30-120	0			
3-Nitroaniline	491.5	33	661.5	0	74.3	25-150	0			
4,6-Dinitro-2-methylphenol	508	33	661.5	0	76.8	40-130	0			
4-Bromophenyl phenyl ether	596.3	33	661.5	0	90.1	45-115	0			
4-Chloro-3-methylphenol	551.7	33	661.5	0	83.4	45-115	0			
4-Chloroaniline	346.6	66	661.5	0	52.4	15-110	0			
4-Chlorophenyl phenyl ether	542.1	33	661.5	0	81.9	45-110	0			
4-Nitroaniline	626.4	170	661.5	0	94.7	35-150	0			
4-Nitrophenol	548.1	33	661.5	0	82.8	15-140	0			
Acenaphthene	520.9	6.6	661.5	0	78.7	45-110	0			
Acenaphthylene	631.4	6.6	661.5	0	95.4	45-105	0			
Acetophenone	522.6	33	661.5	0	79	30-120	0			
Anthracene	620.2	6.6	661.5	0	93.7	55-105	0			
Atrazine	634.4	33	661.5	0	95.9	30-120	0			
Benzaldehyde	828.9	66	661.5	0	125	30-120	0			S
Benzo(a)anthracene	610.2	6.6	661.5	0	92.2	50-110	0			
Benzo(a)pyrene	615.2	6.6	661.5	0	93	50-110	0			
Benzo(b)fluoranthene	605.6	6.6	661.5	0	91.5	45-115	0			
Benzo(g,h,i)perylene	617.5	6.6	661.5	0	93.3	40-125	0			
Benzo(k)fluoranthene	618.2	6.6	661.5	0	93.4	45-115	0			
Bis(2-chloroethoxy)methane	546.4	33	661.5	0	82.6	45-110	0			
Bis(2-chloroethyl)ether	535.8	33	661.5	0	81	40-105	0			
Bis(2-chloroisopropyl)ether	508.7	33	661.5	0	76.9	20-115	0			
Bis(2-ethylhexyl)phthalate	667.5	33	661.5	0	101	45-125	0			
Butyl benzyl phthalate	647.3	33	661.5	0	97.8	50-125	0			
Caprolactam	684	33	661.5	0	103	30-120	0			
Carbazole	617.5	33	661.5	0	93.3	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88541		Instrument ID SVMS8		Method: SW846 8270D				
Chrysene	614.2	6.6	661.5	0	92.8	55-110	0	
Dibenzo(a,h)anthracene	618.8	6.6	661.5	0	93.5	40-125	0	
Dibenzofuran	544.1	33	661.5	0	82.2	50-105	0	
Diethyl phthalate	577.8	33	661.5	0	87.3	50-115	0	
Dimethyl phthalate	571.2	33	661.5	0	86.3	50-110	0	
Di-n-butyl phthalate	651.6	33	661.5	0	98.5	55-110	0	
Di-n-octyl phthalate	676.4	33	661.5	0	102	40-130	0	
Fluoranthene	602.3	6.6	661.5	0	91	55-115	0	
Fluorene	558	6.6	661.5	0	84.3	50-110	0	
Hexachlorobenzene	558.6	33	661.5	0	84.4	45-120	0	
Hexachlorobutadiene	507	33	661.5	0	76.6	40-115	0	
Hexachlorocyclopentadiene	668.1	33	661.5	0	101	40-115	0	
Hexachloroethane	476.9	33	661.5	0	72.1	35-110	0	
Indeno(1,2,3-cd)pyrene	631.7	6.6	661.5	0	95.5	40-120	0	
Isophorone	554.3	170	661.5	0	83.8	45-110	0	
Naphthalene	535.8	6.6	661.5	0	81	40-105	0	
Nitrobenzene	501.4	170	661.5	0	75.8	40-115	0	
N-Nitrosodi-n-propylamine	516.3	33	661.5	0	78	40-115	0	
N-Nitrosodiphenylamine	647.6	33	661.5	0	97.9	50-115	0	
Pentachlorophenol	571.2	33	661.5	0	86.3	25-120	0	
Phenanthrene	598	6.6	661.5	0	90.4	50-110	0	
Phenol	548.4	33	661.5	0	82.9	40-100	0	
Pyrene	616.2	6.6	661.5	0	93.1	45-125	0	
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1446</i>	<i>0</i>	<i>1654</i>	<i>0</i>	<i>87.5</i>	<i>34-140</i>	<i>0</i>	
<i>Surr: 2-Fluorobiphenyl</i>	<i>1392</i>	<i>0</i>	<i>1654</i>	<i>0</i>	<i>84.2</i>	<i>12-100</i>	<i>0</i>	
<i>Surr: 2-Fluorophenol</i>	<i>1443</i>	<i>0</i>	<i>1654</i>	<i>0</i>	<i>87.2</i>	<i>33-117</i>	<i>0</i>	
<i>Surr: 4-Terphenyl-d14</i>	<i>1479</i>	<i>0</i>	<i>1654</i>	<i>0</i>	<i>89.5</i>	<i>25-137</i>	<i>0</i>	
<i>Surr: Nitrobenzene-d5</i>	<i>1203</i>	<i>0</i>	<i>1654</i>	<i>0</i>	<i>72.7</i>	<i>37-107</i>	<i>0</i>	
<i>Surr: Phenol-d6</i>	<i>1449</i>	<i>0</i>	<i>1654</i>	<i>0</i>	<i>87.6</i>	<i>40-106</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88541** Instrument ID **SVMS8** Method: **SW846 8270D**

MSD				Sample ID: 1607608-04A MSD			Units: µg/Kg		Analysis Date: 7/13/2016 11:00 PM	
Client ID:				Run ID: SVMS8_160713A			SeqNo: 3923800		Prep Date: 7/13/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	505.2	33	663.9	0	76.1	30-120	517	2.31	30	
2,4,5-Trichlorophenol	611.1	33	663.9	0	92	50-110	579.1	5.36	30	
2,4,6-Trichlorophenol	612.1	33	663.9	0	92.2	45-110	613.5	0.244	30	
2,4-Dichlorophenol	563.9	33	663.9	0	84.9	45-110	574.8	1.92	30	
2,4-Dimethylphenol	473.6	33	663.9	0	71.3	30-105	490.2	3.43	30	
2,4-Dinitrophenol	305	33	663.9	0	45.9	15-130	350.3	13.8	30	
2,4-Dinitrotoluene	627.3	33	663.9	0	94.5	50-115	594.4	5.4	30	
2,6-Dinitrotoluene	629	33	663.9	0	94.7	50-110	567.6	10.3	30	
2-Chloronaphthalene	563.3	6.6	663.9	0	84.8	45-105	558.3	0.883	30	
2-Chlorophenol	538	33	663.9	0	81	45-105	558	3.64	30	
2-Methylnaphthalene	506.8	6.6	663.9	12.28	74.5	45-105	532.5	4.94	30	
2-Methylphenol	539	33	663.9	0	81.2	40-105	526.2	2.4	30	
2-Nitroaniline	596.5	33	663.9	0	89.8	45-120	562.6	5.84	30	
2-Nitrophenol	540	33	663.9	0	81.3	40-110	550	1.84	30	
3&4-Methylphenol	562.3	33	663.9	0	84.7	40-105	553.7	1.54	30	
3,3'-Dichlorobenzidine	560.6	170	663.9	0	84.4	30-120	519	7.72	30	
3-Nitroaniline	548.7	33	663.9	0	82.6	25-110	491.5	11	30	
4,6-Dinitro-2-methylphenol	472.7	33	663.9	0	71.2	40-130	508	7.22	30	
4-Bromophenyl phenyl ether	603.1	33	663.9	0	90.8	45-115	596.3	1.12	30	
4-Chloro-3-methylphenol	564.3	33	663.9	0	85	45-115	551.7	2.25	30	
4-Chloroaniline	381	67	663.9	0	57.4	15-110	346.6	9.46	30	
4-Chlorophenyl phenyl ether	557.3	33	663.9	0	83.9	45-110	542.1	2.76	30	
4-Nitroaniline	663.5	170	663.9	0	99.9	35-150	626.4	5.75	30	
4-Nitrophenol	566.3	33	663.9	0	85.3	15-140	548.1	3.27	30	
Acenaphthene	520.4	6.6	663.9	0	78.4	45-110	520.9	0.0942	30	
Acenaphthylene	640.3	6.6	663.9	0	96.4	45-105	631.4	1.39	30	
Acetophenone	503.9	33	663.9	0	75.9	30-120	522.6	3.65	30	
Anthracene	632	6.6	663.9	0	95.2	55-105	620.2	1.89	30	
Atrazine	637.6	33	663.9	0	96	30-120	634.4	0.508	30	
Benzaldehyde	793.3	67	663.9	0	119	30-120	828.9	4.39	30	
Benzo(a)anthracene	610.7	6.6	663.9	0	92	50-110	610.2	0.0798	30	
Benzo(a)pyrene	637.9	6.6	663.9	0	96.1	50-110	615.2	3.63	30	
Benzo(b)fluoranthene	622.7	6.6	663.9	0	93.8	45-115	605.6	2.78	30	
Benzo(g,h,i)perylene	628.7	6.6	663.9	0	94.7	40-125	617.5	1.79	30	
Benzo(k)fluoranthene	623.3	6.6	663.9	0	93.9	45-115	618.2	0.832	30	
Bis(2-chloroethoxy)methane	499.9	33	663.9	0	75.3	45-110	546.4	8.9	30	
Bis(2-chloroethyl)ether	500.9	33	663.9	0	75.4	40-105	535.8	6.74	30	
Bis(2-chloroisopropyl)ether	476.6	33	663.9	0	71.8	20-115	508.7	6.51	30	
Bis(2-ethylhexyl)phthalate	681.1	33	663.9	0	103	45-125	667.5	2.02	30	
Butyl benzyl phthalate	666.2	33	663.9	0	100	50-125	647.3	2.87	30	
Caprolactam	600.1	33	663.9	0	90.4	30-120	684	13.1	30	
Carbazole	620.7	33	663.9	0	93.5	50-150	617.5	0.512	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88541		Instrument ID SVMS8		Method: SW846 8270D					
Chrysene	620	6.6	663.9	0	93.4	55-110	614.2	0.942	30
Dibenzo(a,h)anthracene	652.9	6.6	663.9	0	98.3	40-125	618.8	5.35	30
Dibenzofuran	555.6	33	663.9	0	83.7	50-105	544.1	2.1	30
Diethyl phthalate	564.6	33	663.9	0	85	50-115	577.8	2.32	30
Dimethyl phthalate	581.9	33	663.9	0	87.6	50-110	571.2	1.85	30
Di-n-butyl phthalate	653.2	33	663.9	0	98.4	55-110	651.6	0.25	30
Di-n-octyl phthalate	694.7	33	663.9	0	105	40-130	676.4	2.67	30
Fluoranthene	592.1	6.6	663.9	0	89.2	55-115	602.3	1.7	30
Fluorene	578.9	6.6	663.9	0	87.2	50-110	558	3.67	30
Hexachlorobenzene	575.5	33	663.9	0	86.7	45-120	558.6	2.98	30
Hexachlorobutadiene	449.7	33	663.9	0	67.7	40-115	507	12	30
Hexachlorocyclopentadiene	597.8	33	663.9	0	90	40-115	668.1	11.1	30
Hexachloroethane	451.4	33	663.9	0	68	35-110	476.9	5.5	30
Indeno(1,2,3-cd)pyrene	643.3	6.6	663.9	0	96.9	40-120	631.7	1.81	30
Isophorone	523.8	170	663.9	0	78.9	45-110	554.3	5.67	30
Naphthalene	506.8	6.6	663.9	0	76.3	40-105	535.8	5.56	30
Nitrobenzene	479.3	170	663.9	0	72.2	40-115	501.4	4.51	30
N-Nitrosodi-n-propylamine	519.8	33	663.9	0	78.3	40-115	516.3	0.671	30
N-Nitrosodiphenylamine	673.1	33	663.9	0	101	50-115	647.6	3.86	30
Pentachlorophenol	596.5	33	663.9	0	89.8	25-120	571.2	4.32	30
Phenanthrene	590.1	6.6	663.9	0	88.9	50-110	598	1.32	30
Phenol	527.1	33	663.9	0	79.4	40-100	548.4	3.96	30
Pyrene	634.3	6.6	663.9	0	95.5	45-125	616.2	2.89	30
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1491</i>	<i>0</i>	<i>1660</i>	<i>0</i>	<i>89.9</i>	<i>34-140</i>	<i>1446</i>	<i>3.06</i>	<i>40</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>1371</i>	<i>0</i>	<i>1660</i>	<i>0</i>	<i>82.6</i>	<i>12-100</i>	<i>1392</i>	<i>1.5</i>	<i>40</i>
<i>Surr: 2-Fluorophenol</i>	<i>1358</i>	<i>0</i>	<i>1660</i>	<i>0</i>	<i>81.8</i>	<i>33-117</i>	<i>1443</i>	<i>6.09</i>	<i>40</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>1497</i>	<i>0</i>	<i>1660</i>	<i>0</i>	<i>90.2</i>	<i>25-137</i>	<i>1479</i>	<i>1.2</i>	<i>40</i>
<i>Surr: Nitrobenzene-d5</i>	<i>1102</i>	<i>0</i>	<i>1660</i>	<i>0</i>	<i>66.4</i>	<i>37-107</i>	<i>1203</i>	<i>8.71</i>	<i>40</i>
<i>Surr: Phenol-d6</i>	<i>1363</i>	<i>0</i>	<i>1660</i>	<i>0</i>	<i>82.1</i>	<i>40-106</i>	<i>1449</i>	<i>6.08</i>	<i>40</i>

The following samples were analyzed in this batch:

16061792-01A	16061792-02A	16061792-03A
16061792-04A	16061792-05A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88882** Instrument ID **SVMS7** Method: **SW846 8270D**

MBLK		Sample ID: SBLKS1-88882-88882				Units: µg/Kg		Analysis Date: 7/20/2016 10:02 PM		
Client ID:		Run ID: SVMS7_160720A				SeqNo: 3935516		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	U	33								
2,4,5-Trichlorophenol	U	33								
2,4,6-Trichlorophenol	U	33								
2,4-Dichlorophenol	U	33								
2,4-Dimethylphenol	U	33								
2,4-Dinitrophenol	U	33								
2,4-Dinitrotoluene	U	33								
2,6-Dinitrotoluene	U	33								
2-Chloronaphthalene	U	6.7								
2-Chlorophenol	U	33								
2-Methylnaphthalene	U	6.7								
2-Methylphenol	U	33								
2-Nitroaniline	U	33								
2-Nitrophenol	U	33								
3&4-Methylphenol	U	33								
3,3'-Dichlorobenzidine	U	170								
3-Nitroaniline	U	33								
4,6-Dinitro-2-methylphenol	U	33								
4-Bromophenyl phenyl ether	U	33								
4-Chloro-3-methylphenol	U	33								
4-Chloroaniline	U	67								
4-Chlorophenyl phenyl ether	U	33								
4-Nitroaniline	U	170								
4-Nitrophenol	U	33								
Acenaphthene	U	6.7								
Acenaphthylene	U	6.7								
Acetophenone	U	33								
Anthracene	U	6.7								
Atrazine	U	33								
Benzaldehyde	U	67								
Benzo(a)anthracene	U	6.7								
Benzo(a)pyrene	U	6.7								
Benzo(b)fluoranthene	U	6.7								
Benzo(g,h,i)perylene	U	6.7								
Benzo(k)fluoranthene	U	6.7								
Bis(2-chloroethoxy)methane	U	33								
Bis(2-chloroethyl)ether	U	33								
Bis(2-chloroisopropyl)ether	U	33								
Bis(2-ethylhexyl)phthalate	U	33								
Butyl benzyl phthalate	U	33								
Caprolactam	U	33								
Carbazole	U	33								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88882		Instrument ID SVMS7		Method: SW846 8270D			
Chrysene	U	6.7					
Dibenzo(a,h)anthracene	U	6.7					
Dibenzofuran	U	33					
Diethyl phthalate	U	33					
Dimethyl phthalate	U	33					
Di-n-butyl phthalate	U	33					
Di-n-octyl phthalate	U	33					
Fluoranthene	U	6.7					
Fluorene	U	6.7					
Hexachlorobenzene	U	33					
Hexachlorobutadiene	U	33					
Hexachlorocyclopentadiene	U	33					
Hexachloroethane	U	33					
Indeno(1,2,3-cd)pyrene	U	6.7					
Isophorone	U	170					
Naphthalene	U	6.7					
Nitrobenzene	U	170					
N-Nitrosodi-n-propylamine	U	33					
N-Nitrosodiphenylamine	U	33					
Pentachlorophenol	U	33					
Phenanthrene	U	6.7					
Phenol	U	33					
Pyrene	U	6.7					
<i>Surr: 2,4,6-Tribromophenol</i>	<i>1031</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>61.9</i>	<i>34-140</i>	<i>0</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>1222</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>73.3</i>	<i>12-100</i>	<i>0</i>
<i>Surr: 2-Fluorophenol</i>	<i>1311</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>78.6</i>	<i>33-117</i>	<i>0</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>1617</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>97</i>	<i>25-137</i>	<i>0</i>
<i>Surr: Nitrobenzene-d5</i>	<i>1170</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>70.2</i>	<i>37-107</i>	<i>0</i>
<i>Surr: Phenol-d6</i>	<i>1283</i>	<i>0</i>	<i>1667</i>	<i>0</i>	<i>77</i>	<i>40-106</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88882** Instrument ID **SVMS7** Method: **SW846 8270D**

LCS		Sample ID: SLCSS1-88882-88882				Units: µg/Kg		Analysis Date: 7/20/2016 10:23 PM		
Client ID:		Run ID: SVMS7_160720A				SeqNo: 3935517		Prep Date: 7/20/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	411.7	33	666.7	0	61.7	30-120	0			
2,4,5-Trichlorophenol	470.7	33	666.7	0	70.6	50-110	0			
2,4,6-Trichlorophenol	438.3	33	666.7	0	65.7	45-110	0			
2,4-Dichlorophenol	394	33	666.7	0	59.1	45-110	0			
2,4-Dimethylphenol	317.3	33	666.7	0	47.6	30-105	0			
2,4-Dinitrophenol	496	33	666.7	0	74.4	15-130	0			
2,4-Dinitrotoluene	526.7	33	666.7	0	79	50-115	0			
2,6-Dinitrotoluene	526.7	33	666.7	0	79	50-110	0			
2-Chloronaphthalene	426.7	6.7	666.7	0	64	45-105	0			
2-Chlorophenol	425	33	666.7	0	63.7	45-105	0			
2-Methylnaphthalene	388.7	6.7	666.7	0	58.3	45-105	0			
2-Methylphenol	432.7	33	666.7	0	64.9	40-105	0			
2-Nitroaniline	521.3	33	666.7	0	78.2	45-120	0			
2-Nitrophenol	380.3	33	666.7	0	57	40-110	0			
3&4-Methylphenol	419.7	33	666.7	0	62.9	40-105	0			
3,3'-Dichlorobenzidine	511.3	170	666.7	0	76.7	30-120	0			
3-Nitroaniline	394	33	666.7	0	59.1	25-150	0			
4,6-Dinitro-2-methylphenol	560	33	666.7	0	84	40-130	0			
4-Bromophenyl phenyl ether	581	33	666.7	0	87.1	45-115	0			
4-Chloro-3-methylphenol	476.3	33	666.7	0	71.4	45-115	0			
4-Chloroaniline	356.3	67	666.7	0	53.4	15-110	0			
4-Chlorophenyl phenyl ether	500.3	33	666.7	0	75	45-110	0			
4-Nitroaniline	421.3	170	666.7	0	63.2	35-150	0			
4-Nitrophenol	579.7	33	666.7	0	86.9	15-140	0			
Acenaphthene	451	6.7	666.7	0	67.6	45-110	0			
Acenaphthylene	509	6.7	666.7	0	76.3	45-105	0			
Acetophenone	418	33	666.7	0	62.7	30-120	0			
Anthracene	606.3	6.7	666.7	0	90.9	55-105	0			
Atrazine	629.7	33	666.7	0	94.4	30-120	0			
Benzaldehyde	281.3	67	666.7	0	42.2	30-120	0			
Benzo(a)anthracene	608.3	6.7	666.7	0	91.2	50-110	0			
Benzo(a)pyrene	626.3	6.7	666.7	0	93.9	50-110	0			
Benzo(b)fluoranthene	617.7	6.7	666.7	0	92.6	45-115	0			
Benzo(g,h,i)perylene	667.3	6.7	666.7	0	100	40-125	0			
Benzo(k)fluoranthene	632.3	6.7	666.7	0	94.8	45-115	0			
Bis(2-chloroethoxy)methane	399.7	33	666.7	0	59.9	45-110	0			
Bis(2-chloroethyl)ether	365	33	666.7	0	54.7	40-105	0			
Bis(2-chloroisopropyl)ether	365	33	666.7	0	54.7	20-115	0			
Bis(2-ethylhexyl)phthalate	572	33	666.7	0	85.8	45-125	0			
Butyl benzyl phthalate	561.3	33	666.7	0	84.2	50-125	0			
Caprolactam	574	33	666.7	0	86.1	30-120	0			
Carbazole	631.7	33	666.7	0	94.7	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88882		Instrument ID SVMS7		Method: SW846 8270D			
Chrysene	636.7	6.7	666.7	0	95.5	55-110	0
Dibenzo(a,h)anthracene	648	6.7	666.7	0	97.2	40-125	0
Dibenzofuran	460	33	666.7	0	69	50-105	0
Diethyl phthalate	541.7	33	666.7	0	81.2	50-115	0
Dimethyl phthalate	525.3	33	666.7	0	78.8	50-110	0
Di-n-butyl phthalate	633.7	33	666.7	0	95	55-110	0
Di-n-octyl phthalate	577.7	33	666.7	0	86.6	40-130	0
Fluoranthene	612	6.7	666.7	0	91.8	55-115	0
Fluorene	502.7	6.7	666.7	0	75.4	50-110	0
Hexachlorobenzene	558.3	33	666.7	0	83.7	45-120	0
Hexachlorobutadiene	391.3	33	666.7	0	58.7	40-115	0
Hexachlorocyclopentadiene	477.3	33	666.7	0	71.6	40-115	0
Hexachloroethane	396	33	666.7	0	59.4	35-110	0
Indeno(1,2,3-cd)pyrene	644	6.7	666.7	0	96.6	40-120	0
Isophorone	407.7	170	666.7	0	61.1	45-110	0
Naphthalene	398	6.7	666.7	0	59.7	40-105	0
Nitrobenzene	393.3	170	666.7	0	59	40-115	0
N-Nitrosodi-n-propylamine	419	33	666.7	0	62.8	40-115	0
N-Nitrosodiphenylamine	597	33	666.7	0	89.5	50-115	0
Pentachlorophenol	575.3	33	666.7	0	86.3	25-120	0
Phenanthrene	563	6.7	666.7	0	84.4	50-110	0
Phenol	443	33	666.7	0	66.4	40-100	0
Pyrene	657.3	6.7	666.7	0	98.6	45-125	0
Surr: 2,4,6-Tribromophenol	1288	0	1667	0	77.3	34-140	0
Surr: 2-Fluorobiphenyl	1018	0	1667	0	61.1	12-100	0
Surr: 2-Fluorophenol	1082	0	1667	0	64.9	33-117	0
Surr: 4-Terphenyl-d14	1572	0	1667	0	94.3	25-137	0
Surr: Nitrobenzene-d5	956.7	0	1667	0	57.4	37-107	0
Surr: Phenol-d6	1041	0	1667	0	62.5	40-106	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88882** Instrument ID **SVMS7** Method: **SW846 8270D**

MS				Sample ID: 16071119-02B MS			Units: µg/Kg		Analysis Date: 7/20/2016 10:44 PM	
Client ID:				Run ID: SVMS7_160720A			SeqNo: 3935518		Prep Date: 7/20/2016	
							DF: 10			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	533.1	330	666.4	98.26	65.3	30-120	0			
2,4,5-Trichlorophenol	559.8	330	666.4	0	84	50-110	0			
2,4,6-Trichlorophenol	609.7	330	666.4	0	91.5	45-110	0			
2,4-Dichlorophenol	523.1	330	666.4	0	78.5	45-110	0			
2,4-Dimethylphenol	519.8	330	666.4	0	78	30-105	0			
2,4-Dinitrophenol	636.4	330	666.4	0	95.5	15-130	0			
2,4-Dinitrotoluene	673	330	666.4	0	101	50-115	0			
2,6-Dinitrotoluene	673	330	666.4	0	101	50-110	0			
2-Chloronaphthalene	546.4	67	666.4	0	82	45-105	0			
2-Chlorophenol	433.1	330	666.4	0	65	45-105	0			
2-Methylnaphthalene	529.8	67	666.4	248.9	42.1	45-105	0			S
2-Methylphenol	579.7	330	666.4	0	87	40-105	0			
2-Nitroaniline	529.8	330	666.4	0	79.5	45-120	0			
2-Nitrophenol	546.4	330	666.4	0	82	40-110	0			
3&4-Methylphenol	506.4	330	666.4	0	76	40-105	0			
3,3'-Dichlorobenzidine	463.1	1,700	666.4	0	69.5	30-120	0			J
3-Nitroaniline	589.7	330	666.4	0	88.5	25-150	0			
4,6-Dinitro-2-methylphenol	566.4	330	666.4	0	85	40-130	0			
4-Bromophenyl phenyl ether	559.8	330	666.4	0	84	45-115	0			
4-Chloro-3-methylphenol	503.1	330	666.4	0	75.5	45-115	0			
4-Chloroaniline	423.1	670	666.4	0	63.5	15-110	0			J
4-Chlorophenyl phenyl ether	559.8	330	666.4	0	84	45-110	0			
4-Nitroaniline	666.4	1,700	666.4	0	100	35-150	0			J
4-Nitrophenol	623.1	330	666.4	0	93.5	15-140	0			
Acenaphthene	673	67	666.4	278.4	59.2	45-110	0			
Acenaphthylene	663	67	666.4	1474	-122	45-105	0			S
Acetophenone	399.8	330	666.4	0	60	30-120	0			
Anthracene	976.2	67	666.4	2047	-161	55-105	0			S
Atrazine	656.4	330	666.4	0	98.5	30-120	0			
Benzaldehyde	U	670	666.4	0	0	30-120	0			S
Benzo(a)anthracene	1496	67	666.4	5336	-576	50-110	0			SO
Benzo(a)pyrene	1319	67	666.4	4654	-500	50-110	0			SO
Benzo(b)fluoranthene	1536	67	666.4	5899	-655	45-115	0			SO
Benzo(g,h,i)perylene	1033	67	666.4	2443	-212	40-125	0			S
Benzo(k)fluoranthene	1010	67	666.4	1982	-146	45-115	0			S
Bis(2-chloroethoxy)methane	493.1	330	666.4	0	74	45-110	0			
Bis(2-chloroethyl)ether	593.1	330	666.4	0	89	40-105	0			
Bis(2-chloroisopropyl)ether	593.1	330	666.4	0	89	20-115	0			
Bis(2-ethylhexyl)phthalate	653.1	330	666.4	0	98	45-125	0			
Butyl benzyl phthalate	623.1	330	666.4	0	93.5	50-125	0			
Caprolactam	489.8	330	666.4	0	73.5	30-120	0			
Carbazole	749.7	330	666.4	940.1	-28.6	50-150	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88882		Instrument ID SVMS7		Method: SW846 8270D				
Chrysene	1496	67	666.4	5296	-570	55-110	0	SO
Dibenzo(a,h)anthracene	723	67	666.4	527.4	29.4	40-125	0	S
Dibenzofuran	639.7	330	666.4	704.2	-9.68	50-105	0	S
Diethyl phthalate	513.1	330	666.4	0	77	50-115	0	
Dimethyl phthalate	533.1	330	666.4	0	80	50-110	0	
Di-n-butyl phthalate	559.8	330	666.4	0	84	55-110	0	
Di-n-octyl phthalate	546.4	330	666.4	0	82	40-130	0	
Fluoranthene	2892	67	666.4	14650	-1760	55-115	0	SO
Fluorene	729.7	67	666.4	1333	-90.5	50-110	0	S
Hexachlorobenzene	573.1	330	666.4	0	86	45-120	0	
Hexachlorobutadiene	479.8	330	666.4	0	72	40-115	0	
Hexachlorocyclopentadiene	489.8	330	666.4	0	73.5	40-115	0	
Hexachloroethane	359.8	330	666.4	0	54	35-110	0	
Indeno(1,2,3-cd)pyrene	1293	67	666.4	3033	-261	40-120	0	SO
Isophorone	509.8	1,700	666.4	0	76.5	45-110	0	J
Naphthalene	506.4	67	666.4	334.1	25.9	40-105	0	S
Nitrobenzene	526.4	1,700	666.4	0	79	40-115	0	J
N-Nitrosodi-n-propylamine	409.8	330	666.4	0	61.5	40-115	0	
N-Nitrosodiphenylamine	583.1	330	666.4	0	87.5	50-115	0	
Pentachlorophenol	599.7	330	666.4	0	90	25-120	0	
Phenanthrene	2159	67	666.4	10980	-1320	50-110	0	SO
Phenol	536.4	330	666.4	0	80.5	40-100	0	
Pyrene	2462	67	666.4	11910	-1420	45-125	0	SO
<i>Surr: 2,4,6-Tribromophenol</i>	1206	0	1666	0	72.4	34-140	0	
<i>Surr: 2-Fluorobiphenyl</i>	1289	0	1666	0	77.4	12-100	0	
<i>Surr: 2-Fluorophenol</i>	1293	0	1666	0	77.6	33-117	0	
<i>Surr: 4-Terphenyl-d14</i>	1379	0	1666	0	82.8	25-137	0	
<i>Surr: Nitrobenzene-d5</i>	1196	0	1666	0	71.8	37-107	0	
<i>Surr: Phenol-d6</i>	1289	0	1666	0	77.4	40-106	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88882** Instrument ID **SVMS7** Method: **SW846 8270D**

MSD				Sample ID: 16071119-02B MSD			Units: µg/Kg		Analysis Date: 7/20/2016 11:05 PM		
Client ID:			Run ID: SVMS7_160720A			SeqNo: 3935519		Prep Date: 7/20/2016		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1`-Biphenyl	437.2	330	662.4	98.26	51.2	30-120	533.1	19.8	30		
2,4,5-Trichlorophenol	520	330	662.4	0	78.5	50-110	559.8	7.37	30		
2,4,6-Trichlorophenol	543.1	330	662.4	0	82	45-110	609.7	11.6	30		
2,4-Dichlorophenol	460.3	330	662.4	0	69.5	45-110	523.1	12.8	30		
2,4-Dimethylphenol	417.3	330	662.4	0	63	30-105	519.8	21.9	30		
2,4-Dinitrophenol	625.9	330	662.4	0	94.5	15-130	636.4	1.66	30		
2,4-Dinitrotoluene	563	330	662.4	0	85	50-115	673	17.8	30		
2,6-Dinitrotoluene	563	330	662.4	0	85	50-110	673	17.8	30		
2-Chloronaphthalene	430.5	66	662.4	0	65	45-105	546.4	23.7	30		
2-Chlorophenol	364.3	330	662.4	0	55	45-105	433.1	17.3	30		
2-Methylnaphthalene	447.1	66	662.4	248.9	29.9	45-105	529.8	16.9	30	S	
2-Methylphenol	460.3	330	662.4	0	69.5	40-105	579.7	23	30		
2-Nitroaniline	440.5	330	662.4	0	66.5	45-120	529.8	18.4	30		
2-Nitrophenol	486.8	330	662.4	0	73.5	40-110	546.4	11.5	30		
3&4-Methylphenol	450.4	330	662.4	0	68	40-105	506.4	11.7	30		
3,3`-Dichlorobenzidine	410.7	1,700	662.4	0	62	30-120	463.1	0	30	J	
3-Nitroaniline	546.4	330	662.4	0	82.5	25-110	589.7	7.62	30		
4,6-Dinitro-2-methylphenol	553.1	330	662.4	0	83.5	40-130	566.4	2.38	30		
4-Bromophenyl phenyl ether	490.1	330	662.4	0	74	45-115	559.8	13.3	30		
4-Chloro-3-methylphenol	467	330	662.4	0	70.5	45-115	503.1	7.45	30		
4-Chloroaniline	387.5	670	662.4	0	58.5	15-110	423.1	0	30	J	
4-Chlorophenyl phenyl ether	486.8	330	662.4	0	73.5	45-110	559.8	13.9	30		
4-Nitroaniline	635.9	1,700	662.4	0	96	35-150	666.4	0	30	J	
4-Nitrophenol	529.9	330	662.4	0	80	15-140	623.1	16.2	30		
Acenaphthene	510	66	662.4	278.4	35	45-110	673	27.6	30	S	
Acenaphthylene	549.8	66	662.4	1474	-140	45-105	663	18.7	30	S	
Acetophenone	301.4	330	662.4	0	45.5	30-120	399.8	0	30	J	
Anthracene	642.5	66	662.4	2047	-212	55-105	976.2	41.2	30	SR	
Atrazine	582.9	330	662.4	0	88	30-120	656.4	11.9	30		
Benzaldehyde	513.3	670	662.4	0	77.5	30-120	393.2	0	30	J	
Benzo(a)anthracene	1013	66	662.4	5336	-653	50-110	1496	38.5	30	SRO	
Benzo(a)pyrene	907.4	66	662.4	4654	-566	50-110	1319	37	30	SRO	
Benzo(b)fluoranthene	1030	66	662.4	5899	-735	45-115	1536	39.4	30	SRO	
Benzo(g,h,i)perylene	738.5	66	662.4	2443	-257	40-125	1033	33.2	30	SR	
Benzo(k)fluoranthene	708.7	66	662.4	1982	-192	45-115	1010	35	30	SR	
Bis(2-chloroethoxy)methane	423.9	330	662.4	0	64	45-110	493.1	15.1	30		
Bis(2-chloroethyl)ether	463.7	330	662.4	0	70	40-105	593.1	24.5	30		
Bis(2-chloroisopropyl)ether	463.7	330	662.4	0	70	20-115	593.1	24.5	30		
Bis(2-ethylhexyl)phthalate	616	330	662.4	0	93	45-125	653.1	5.84	30		
Butyl benzyl phthalate	602.7	330	662.4	0	91	50-125	623.1	3.31	30		
Caprolactam	410.7	330	662.4	0	62	30-120	489.8	17.6	30		
Carbazole	563	330	662.4	940.1	-56.9	50-150	749.7	28.4	30	S	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88882		Instrument ID SVMS7		Method: SW846 8270D						
Chrysene	933.9	66	662.4	5296	-659	55-110	1496	46.3	30	SRO
Dibenzo(a,h)anthracene	516.6	66	662.4	527.4	-1.62	40-125	723	33.3	30	SR
Dibenzofuran	500.1	330	662.4	704.2	-30.8	50-105	639.7	24.5	30	S
Diethyl phthalate	460.3	330	662.4	0	69.5	50-115	513.1	10.8	30	
Dimethyl phthalate	463.7	330	662.4	0	70	50-110	533.1	13.9	30	
Di-n-butyl phthalate	500.1	330	662.4	0	75.5	55-110	559.8	11.3	30	
Di-n-octyl phthalate	546.4	330	662.4	0	82.5	40-130	546.4	0.00333	30	
Fluoranthene	1540	66	662.4	14650	-1980	55-115	2892	61	30	SRO
Fluorene	533.2	66	662.4	1333	-121	50-110	729.7	31.1	30	SR
Hexachlorobenzene	480.2	330	662.4	0	72.5	45-120	573.1	17.6	30	
Hexachlorobutadiene	397.4	330	662.4	0	60	40-115	479.8	18.8	30	
Hexachlorocyclopentadiene	470.3	330	662.4	0	71	40-115	489.8	4.06	30	
Hexachloroethane	268.3	330	662.4	0	40.5	35-110	359.8	0	30	J
Indeno(1,2,3-cd)pyrene	768.3	66	662.4	3033	-342	40-120	1293	50.9	30	SRO
Isophorone	423.9	1,700	662.4	0	64	45-110	509.8	0	30	J
Naphthalene	404	66	662.4	334.1	10.6	40-105	506.4	22.5	30	S
Nitrobenzene	437.2	1,700	662.4	0	66	40-115	526.4	0	30	J
N-Nitrosodi-n-propylamine	344.4	330	662.4	0	52	40-115	409.8	17.3	30	
N-Nitrosodiphenylamine	526.6	330	662.4	0	79.5	50-115	583.1	10.2	30	
Pentachlorophenol	559.7	330	662.4	0	84.5	25-120	599.7	6.91	30	
Phenanthrene	1149	66	662.4	10980	-1480	50-110	2159	61.1	30	SRO
Phenol	467	330	662.4	0	70.5	40-100	536.4	13.8	30	
Pyrene	1364	66	662.4	11910	-1590	45-125	2462	57.4	30	SRO
<i>Surr: 2,4,6-Tribromophenol</i>	1043	0	1656	0	63	34-140	1206	14.5	40	
<i>Surr: 2-Fluorobiphenyl</i>	1063	0	1656	0	64.2	12-100	1289	19.2	40	
<i>Surr: 2-Fluorophenol</i>	1100	0	1656	0	66.4	33-117	1293	16.2	40	
<i>Surr: 4-Terphenyl-d14</i>	1179	0	1656	0	71.2	25-137	1379	15.7	40	
<i>Surr: Nitrobenzene-d5</i>	1010	0	1656	0	61	37-107	1196	16.9	40	
<i>Surr: Phenol-d6</i>	1086	0	1656	0	65.6	40-106	1289	17.1	40	

The following samples were analyzed in this batch:

16061792-38A	16061792-39A	16061792-40A
16061792-41A	16061792-42A	16061792-43A
16061792-44A	16061792-45A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191499** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R191499				Units: % of sample		Analysis Date: 7/13/2016 04:18 PM		
Client ID:		Run ID: MOIST_160713B				SeqNo: 3922914		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R191499				Units: % of sample		Analysis Date: 7/13/2016 04:18 PM		
Client ID:		Run ID: MOIST_160713B				SeqNo: 3922913		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 16061792-01A DUP				Units: % of sample		Analysis Date: 7/13/2016 04:18 PM		
Client ID: DU-01		Run ID: MOIST_160713B				SeqNo: 3922892		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 1.82 0.050 0 0 0 1.92 5.35 20 H

DUP		Sample ID: 16061792-21A DUP				Units: % of sample		Analysis Date: 7/13/2016 04:18 PM		
Client ID: DU-07-TRIP		Run ID: MOIST_160713B				SeqNo: 3922912		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 3.06 0.050 0 0 0 3.11 1.62 20 H

The following samples were analyzed in this batch:

16061792-01A	16061792-02A	16061792-03A
16061792-04A	16061792-05A	16061792-06A
16061792-07A	16061792-08A	16061792-09A
16061792-10A	16061792-11A	16061792-12A
16061792-13A	16061792-14A	16061792-15A
16061792-16A	16061792-17A	16061792-18A
16061792-19A	16061792-21A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191501** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R191501				Units: % of sample		Analysis Date: 7/13/2016 05:13 PM		
Client ID:		Run ID: MOIST_160713C				SeqNo: 3922977		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R191501				Units: % of sample		Analysis Date: 7/13/2016 05:13 PM		
Client ID:		Run ID: MOIST_160713C				SeqNo: 3922975		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607618-01B DUP				Units: % of sample		Analysis Date: 7/13/2016 05:13 PM		
Client ID:		Run ID: MOIST_160713C				SeqNo: 3922967		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 20.63 0.050 0 0 0 20.36 1.32 20

DUP		Sample ID: 1607618-02B DUP				Units: % of sample		Analysis Date: 7/13/2016 05:13 PM		
Client ID:		Run ID: MOIST_160713C				SeqNo: 3922971		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 18.13 0.050 0 0 0 18.01 0.664 20

The following samples were analyzed in this batch:

16061792-20A	16061792-22A	16061792-23A
16061792-24A	16061792-25A	16061792-26A
16061792-27A	16061792-28A	16061792-29A
16061792-30A	16061792-31A	16061792-32A
16061792-33A	16061792-34A	16061792-35A
16061792-36A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061792
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191589** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R191589				Units: % of sample			Analysis Date: 7/14/2016 03:41 PM		
Client ID:		Run ID: MOIST_160714B				SeqNo: 3924954			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture U 0.050

LCS		Sample ID: LCS-R191589				Units: % of sample			Analysis Date: 7/14/2016 03:41 PM		
Client ID:		Run ID: MOIST_160714B				SeqNo: 3924953			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 99.99 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1607463-01B DUP				Units: % of sample			Analysis Date: 7/14/2016 03:41 PM		
Client ID:		Run ID: MOIST_160714B				SeqNo: 3924933			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 22.63 0.050 0 0 0 22.36 1.2 20

DUP		Sample ID: 1607463-11B DUP				Units: % of sample			Analysis Date: 7/14/2016 03:41 PM		
Client ID:		Run ID: MOIST_160714B				SeqNo: 3924944			Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 20.74 0.050 0 0 0 21.41 3.18 20

The following samples were analyzed in this batch:

16061792-37A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061792
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R191987** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R191987					Units: % of sample		Analysis Date: 7/20/2016 12:15 PM		
Client ID:			Run ID: MOIST_160720B			SeqNo: 3934742		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture U 0.050

LCS		Sample ID: LCS-R191987					Units: % of sample		Analysis Date: 7/20/2016 12:15 PM		
Client ID:			Run ID: MOIST_160720B			SeqNo: 3934741		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP				Sample ID: 16071065-01A DUP				Units: % of sample			Analysis Date: 7/20/2016 12:15 PM			
Client ID:				Run ID: MOIST_160720B				SeqNo: 3934733			Prep Date:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			

Moisture 15.64 0.050 0 0 0 14.67 6.4 20

DUP		Sample ID: 16071065-06A DUP				Units: % of sample		Analysis Date: 7/20/2016 12:15 PM		
Client ID:		Run ID: MOIST_160720B			SeqNo: 3934739		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 15.13 0.050 0 0 0 15.32 1.25 20

The following samples were analyzed in this batch:

16061792-38A	16061792-39A	16061792-40A
16061792-41A	16061792-42A	16061792-43A
16061792-44A	16061792-45A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

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+1 801 266 7700South Charleston, WV
+1 304 356 3168York, PA
+1 717 505 5280

Customer Information		Project Information		ALS Project Manager: _____ ALS Work Order #: 661792																																																																																																																																																																																																																			
Parameter/Method Request for Analysis																																																																																																																																																																																																																							
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Work Order	Project Number	X 9025.14.0002.019.017																																																																																																																																																																																																																					
Company Name	Bill To Company	Tetra Tech																																																																																																																																																																																																																					
Send Report To	Invoice Attn	Emily Fisher																																																																																																																																																																																																																					
Address	Address	415 Oak Street																																																																																																																																																																																																																					
City/State/Zip	City/State/Zip	Kansas City, MO 64106																																																																																																																																																																																																																					
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Fax	Fax	(816) 410-1748																																																																																																																																																																																																																					
e-Mail Address	e-Mail Address	emily.fisher@tetratech.com																																																																																																																																																																																																																					
		<table border="1"> <thead> <tr> <th>No.</th> <th>Sample Description</th> <th>Date</th> <th>Time</th> <th>Matrix</th> <th>Pres.</th> <th># Bottles</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> <th>I</th> <th>J</th> <th>Hold</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DU-01</td> <td>6/28/16</td> <td>1209</td> <td>Soil</td> <td></td> <td></td> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>DU-01-DUP</td> <td>6/28/16</td> <td>↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>DU-01-TRIP</td> <td>6/28/16</td> <td>↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>DU-02</td> <td>6/28/16</td> <td>1130</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>DU-02-DUP</td> <td>6/28/16</td> <td>↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>6</td> <td>DU-02-TRIP</td> <td>6/28/16</td> <td>↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>7</td> <td>DU-03</td> <td>6/28/16</td> <td>1412</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>8</td> <td>DU-03-DUP</td> <td>6/28/16</td> <td>↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>9</td> <td>DU-03-TRIP</td> <td>6/28/16</td> <td>↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>10</td> <td>DU-04</td> <td>6/28/16</td> <td>1340</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>																No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	1	DU-01	6/28/16	1209	Soil			X	X										2	DU-01-DUP	6/28/16	↓															3	DU-01-TRIP	6/28/16	↓															4	DU-02	6/28/16	1130															5	DU-02-DUP	6/28/16	↓															6	DU-02-TRIP	6/28/16	↓															7	DU-03	6/28/16	1412															8	DU-03-DUP	6/28/16	↓															9	DU-03-TRIP	6/28/16	↓															10	DU-04	6/28/16	1340														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold																																																																																																																																																																																																						
1	DU-01	6/28/16	1209	Soil			X	X																																																																																																																																																																																																															
2	DU-01-DUP	6/28/16	↓																																																																																																																																																																																																																				
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Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)										Results Due Date:																																																																																																																																																																																																									
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Kaitlyn Bahr		6/29/16	1200	[Signature]																																																																																																																																																																																																																			
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[Signature]		6/30/16	0930	[Signature]																																																																																																																																																																																																																			
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Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																																																																																																																																																																																																																							

Cooler ID	Cooler Temp	QC Package: (Check One Box Below)
	22c	<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/RAW Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other

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COC ID: 29404

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Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information		Project Information		ALS Project Manager: ALS Work Order #: 16061792																
Parameter/Method Request for Analysis																				
Purchase Order		Project Name	Elkem Carbide	A	TCL SVOCs															
Work Order		Project Number	x9025-0002-019-017	B	RCRA Metals															
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs															
Send Report To	Kathryn Bahr	Invoice Attn	Emily Fisher	D	Moisture															
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)															
City/State/Zip	Kansas City, MO 64108	City/State/Zip	Kansas City, MO 64108	F	PCBs															
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals															
Fax	(816) 410-1748	Fax	(816) 410-1748	H																
e-Mail Address	kathryn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals															
				J	TCLP SVOCs															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	DU-04-DUP	6/28/16	1340	Soil			X	X												
2	DU-04-TRIP	6/28/16	↓																	
3	DU-05-	6/28/16	1047																	
4	DU-05-DUP	6/28/16	1047																	
5	DU-05-TRIP	6/28/16	1047																	
6	DU-06	6/28/16	0935																	
7	DU-06-DUP	6/28/16	↓																	
8	DU-06-TRIP	6/28/16	↓																	
9	DU-07	6/28/16	1450																	
10	DU-07-DUP	6/28/16	↓																	
Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)				Other				Results Due Date:								
Kathryn Bahr		FedEx		<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD																
Relinquished by:		Date:	Time:	Received by:		Notes:														
Kathryn Bahr		6/29/16	1200																	
Relinquished by:		Date:	Time:	Received by (Laboratory):		Cooler ID	Cooler Temp	QC Package: (Check One Box Below)												
		6/30/16	0930				1.96	<input type="checkbox"/> Level I Std QC <input type="checkbox"/> TRAP Checklist												
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		<input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRAP Level IV														
						<input type="checkbox"/> Level IV SW846/CLP														
		<input type="checkbox"/> Other																		
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₈ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																				

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Customer Information		Project Information		ALS Project Manager: ALS Work Order #: 16061792																
Parameter/Method Request for Analysis																				
Purchase Order		Project Name	Elkem Carbide	A	TCL SVOCs															
Work Order		Project Number	X9025.14.0002.019.017	B	RCRA Metals															
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs															
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D	Moisture															
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)															
City/State/Zip	Kansas City, MO 64108	City/State/Zip	Kansas City, MO 64108	F	PCBs															
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals															
Fax	(816) 410-1748	Fax	(816) 410-1748	H																
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals															
				J	TCLP SVOCs															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	DU-07-TRIP	6/28/16	1450	Soil			X	X												
2	DU-08	6/29/16	1010																	
3	DU-08-DUP	6/29/16																		
4	DU-08-TRIP	6/29/16																		
5	DU-08	6/28/16	1550																	
6	DU-09-DUP	6/28/16																		
7	DU-09-TRIP	6/28/16																		
8	DU-10	6/28/16	1525																	
9	DU-10-DUP	6/28/16																		
10	DU-10-TRIP	6/28/16																		
Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)										Results Due Date:						
Kaitlyn Bahr ka		Fed Ex		<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD																
Relinquished by:	Date:	Time:	Received by:	Notes:																
ka	6/29/16	1200																		
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp	QC Packages (Check One Box Below)														
	6/30/16	0730			7.46	<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other														
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):																	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₈ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																				

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South Charleston, WV
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Customer Information		Project Information		ALS Project Manager: ALS Work Order #: 6661792																
Parameter/Method Request for Analysis																				
Purchase Order		Project Name	Elkum Carbide	A	TCL SVOCs															
Work Order		Project Number	X9025-14-0002-019-017	B	RCRA Metals															
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C	TCL VOCs															
Send Report To	Kathryn Bahr	Invoice Attn	Emily Fisher	D	Moisture															
Address	415 Oak Street	Address	415 Oak Street	E	TPH (OA1/OA2)															
City/State/Zip	Kansas City, MO 64106	City/State/Zip	Kansas City, MO 64106	F	PCBs															
Phone	(816) 412-1755	Phone	(816) 412-1755	G	Dissolved RCRA Metals															
Fax	(816) 410-1748	Fax	(816) 410-1748	H																
e-Mail Address	kathryn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I	TCLP Metals															
				J	TCLP SVOCs															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	DJ-11	6/28/16	10:15	Soil			X	X												
2	DJ-11-DUP	6/28/16	↓	↓			↓	↓												
3	DJ-11-TRIP	6/28/16																		
4	DJ-12	6/28/16	0845																	
5	DJ-12-DUP	6/28/16	↓	↓			↓	↓												
6	DJ-12-TRIP	6/28/16																		
7	SED-67	6/28/16	11:15	Sediment								X								
8																				
9																				
10																				
Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)				Results Due Date:												
Kathryn Bahr Ka Bahr		FedEx		<input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD																
Relinquished by:	Date:	Time:	Received by:	Notes:																
Kathryn Bahr	6/29/16	12:00																		
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp	QC Package: (Check One Box Below)														
	6/30/16	0930			22	<input type="checkbox"/> Level II Std QC <input type="checkbox"/> TRRP Checklist <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> TRRP Level IV <input type="checkbox"/> Level IV SW846/CLP <input type="checkbox"/> Other														
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):																	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																				

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Sample Receipt Checklist

Client Name: **TETRATECH - MO**

Date/Time Received: **30-Jun-16 09:30**

Work Order: **16061792**

Received by: **JR**

Checklist completed by Joseph Ribar
eSignature

30-Jun-16
Date

Reviewed by: Joseph Ribar
eSignature

30-Jun-16
Date

Matrices: **soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.2c, 1.8c, 3.4c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/30/2016 1200</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



13-Jul-2016

Rob Monnig
Tetra Tech
415 Oak Street
Kansas City, MO 64106

Re: **Elkem Carbide X9025-14-0002-019-017**

Work Order: **16061821**

Dear Rob,

ALS Environmental received 10 samples on 30-Jun-2016 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 33.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Joseph Ribar".

Electronically approved by: Joseph Ribar

Joseph Ribar
Project Manager



Certificate No: IA: 403

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061821

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
16061821-01	TCLP-1	Tclp Extract		6/29/2016 08:36	6/30/2016 09:30	<input type="checkbox"/>
16061821-02	TCLP-2	Tclp Extract		6/29/2016 08:45	6/30/2016 09:30	<input type="checkbox"/>
16061821-03	TCLP-3	Tclp Extract		6/29/2016 08:57	6/30/2016 09:30	<input type="checkbox"/>
16061821-04	TCLP-4	Tclp Extract		6/29/2016 09:45	6/30/2016 09:30	<input type="checkbox"/>
16061821-05	TCLP-5	Tclp Extract		6/29/2016 09:23	6/30/2016 09:30	<input type="checkbox"/>
16061821-06	TCLP-6	Tclp Extract		6/29/2016 09:10	6/30/2016 09:30	<input type="checkbox"/>
16061821-07	TCLP-7	Tclp Extract		6/29/2016 10:00	6/30/2016 09:30	<input type="checkbox"/>
16061821-08	Trench Drain	Soil		6/29/2016 09:15	6/30/2016 09:30	<input type="checkbox"/>
16061821-09	TCLP-9	Tclp Extract		6/29/2016 09:30	6/30/2016 09:30	<input type="checkbox"/>
16061821-10	SS-66	Soil		6/29/2016 08:50	6/30/2016 09:30	<input type="checkbox"/>

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Work Order: 16061821

Case Narrative

Samples for the above noted Work Order were received on 06/30/2016. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Volatile Organics:

No other deviations or anomalies were noted.

Extractable Organics:

No other deviations or anomalies were noted.

Metals:

Batch 88173, Method 6010, Sample 16061821-01AMSD: The RPD between the MS and MSD was outside the control limit. The corresponding result in the parent sample should be considered estimated for this analyte: Barium

No other deviations or anomalies were noted.

Wet Chemistry:

No other deviations or anomalies were noted.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-1
Collection Date: 6/29/2016 08:36 AM

Work Order: 16061821
Lab ID: 16061821-01
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 16:05
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 17:31
Barium	0.18		0.0074	0.050	mg/L	1	7/9/2016 17:31
Cadmium	U		0.0078	0.10	mg/L	1	7/9/2016 17:31
Chromium	0.0034	J	0.0017	0.050	mg/L	1	7/9/2016 17:31
Lead	0.17		0.013	0.050	mg/L	1	7/9/2016 17:31
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 17:31
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 17:31
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: RS
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/6/2016 23:38
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/6/2016 23:38
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/6/2016 23:38
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/6/2016 23:38
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/6/2016 23:38
Hexachlorobenzene	U		8.8	100	µg/L	1	7/6/2016 23:38
Hexachloroethane	U		4.2	100	µg/L	1	7/6/2016 23:38
m-Cresol	U		3.9	100	µg/L	1	7/6/2016 23:38
Nitrobenzene	U		5.2	100	µg/L	1	7/6/2016 23:38
o-Cresol	U		4.0	100	µg/L	1	7/6/2016 23:38
p-Cresol	U		3.9	100	µg/L	1	7/6/2016 23:38
Pentachlorophenol	U		19	100	µg/L	1	7/6/2016 23:38
Pyridine	U		2.0	200	µg/L	1	7/6/2016 23:38
Surr: 2,4,6-Tribromophenol	60.7			38-115	%REC	1	7/6/2016 23:38
Surr: 2-Fluorobiphenyl	57.0			32-100	%REC	1	7/6/2016 23:38
Surr: 2-Fluorophenol	41.9			22-59	%REC	1	7/6/2016 23:38
Surr: 4-Terphenyl-d14	71.2			23-112	%REC	1	7/6/2016 23:38
Surr: Nitrobenzene-d5	53.5			31-93	%REC	1	7/6/2016 23:38
Surr: Phenol-d6	23.2			13-36	%REC	1	7/6/2016 23:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-2
Collection Date: 6/29/2016 08:45 AM

Work Order: 16061821
Lab ID: 16061821-02
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 17:42
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 17:59
Barium	0.12		0.0074	0.050	mg/L	1	7/9/2016 17:59
Cadmium	U		0.0078	0.10	mg/L	1	7/9/2016 17:59
Chromium	U		0.0017	0.050	mg/L	1	7/9/2016 17:59
Lead	U		0.013	0.050	mg/L	1	7/9/2016 17:59
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 17:59
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 17:59
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/8/2016 02:26
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/8/2016 02:26
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/8/2016 02:26
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/8/2016 02:26
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/8/2016 02:26
Hexachlorobenzene	U		8.8	100	µg/L	1	7/8/2016 02:26
Hexachloroethane	U		4.2	100	µg/L	1	7/8/2016 02:26
m-Cresol	U		3.9	100	µg/L	1	7/8/2016 02:26
Nitrobenzene	U		5.2	100	µg/L	1	7/8/2016 02:26
o-Cresol	U		4.0	100	µg/L	1	7/8/2016 02:26
p-Cresol	U		3.9	100	µg/L	1	7/8/2016 02:26
Pentachlorophenol	U		19	100	µg/L	1	7/8/2016 02:26
Pyridine	U		2.0	200	µg/L	1	7/8/2016 02:26
Surr: 2,4,6-Tribromophenol	64.9			38-115	%REC	1	7/8/2016 02:26
Surr: 2-Fluorobiphenyl	56.8			32-100	%REC	1	7/8/2016 02:26
Surr: 2-Fluorophenol	40.1			22-59	%REC	1	7/8/2016 02:26
Surr: 4-Terphenyl-d14	90.3			23-112	%REC	1	7/8/2016 02:26
Surr: Nitrobenzene-d5	54.9			31-93	%REC	1	7/8/2016 02:26
Surr: Phenol-d6	24.9			13-36	%REC	1	7/8/2016 02:26

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-3
Collection Date: 6/29/2016 08:57 AM

Work Order: 16061821
Lab ID: 16061821-03
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 17:44
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 18:21
Barium	0.11		0.0074	0.050	mg/L	1	7/9/2016 18:21
Cadmium	U		0.0078	0.10	mg/L	1	7/9/2016 18:21
Chromium	0.0027	J	0.0017	0.050	mg/L	1	7/9/2016 18:21
Lead	0.025	J	0.013	0.050	mg/L	1	7/9/2016 18:21
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 18:21
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 18:21
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/6/2016 22:51
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/6/2016 22:51
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/6/2016 22:51
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/6/2016 22:51
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/6/2016 22:51
Hexachlorobenzene	U		8.8	100	µg/L	1	7/6/2016 22:51
Hexachloroethane	U		4.2	100	µg/L	1	7/6/2016 22:51
m-Cresol	U		3.9	100	µg/L	1	7/6/2016 22:51
Nitrobenzene	U		5.2	100	µg/L	1	7/6/2016 22:51
o-Cresol	U		4.0	100	µg/L	1	7/6/2016 22:51
p-Cresol	U		3.9	100	µg/L	1	7/6/2016 22:51
Pentachlorophenol	U		19	100	µg/L	1	7/6/2016 22:51
Pyridine	U		2.0	200	µg/L	1	7/6/2016 22:51
Surr: 2,4,6-Tribromophenol	72.1			38-115	%REC	1	7/6/2016 22:51
Surr: 2-Fluorobiphenyl	59.8			32-100	%REC	1	7/6/2016 22:51
Surr: 2-Fluorophenol	42.9			22-59	%REC	1	7/6/2016 22:51
Surr: 4-Terphenyl-d14	83.7			23-112	%REC	1	7/6/2016 22:51
Surr: Nitrobenzene-d5	57.3			31-93	%REC	1	7/6/2016 22:51
Surr: Phenol-d6	28.4			13-36	%REC	1	7/6/2016 22:51

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-4
Collection Date: 6/29/2016 09:45 AM

Work Order: 16061821
Lab ID: 16061821-04
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 17:46
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 18:27
Barium	0.32		0.0074	0.050	mg/L	1	7/9/2016 18:27
Cadmium	U		0.0078	0.10	mg/L	1	7/9/2016 18:27
Chromium	U		0.0017	0.050	mg/L	1	7/9/2016 18:27
Lead	0.018	J	0.013	0.050	mg/L	1	7/9/2016 18:27
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 18:27
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 18:27
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/6/2016 23:14
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/6/2016 23:14
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/6/2016 23:14
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/6/2016 23:14
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/6/2016 23:14
Hexachlorobenzene	U		8.8	100	µg/L	1	7/6/2016 23:14
Hexachloroethane	U		4.2	100	µg/L	1	7/6/2016 23:14
m-Cresol	U		3.9	100	µg/L	1	7/6/2016 23:14
Nitrobenzene	U		5.2	100	µg/L	1	7/6/2016 23:14
o-Cresol	U		4.0	100	µg/L	1	7/6/2016 23:14
p-Cresol	U		3.9	100	µg/L	1	7/6/2016 23:14
Pentachlorophenol	U		19	100	µg/L	1	7/6/2016 23:14
Pyridine	U		2.0	200	µg/L	1	7/6/2016 23:14
Surr: 2,4,6-Tribromophenol	62.0			38-115	%REC	1	7/6/2016 23:14
Surr: 2-Fluorobiphenyl	48.3			32-100	%REC	1	7/6/2016 23:14
Surr: 2-Fluorophenol	37.5			22-59	%REC	1	7/6/2016 23:14
Surr: 4-Terphenyl-d14	80.4			23-112	%REC	1	7/6/2016 23:14
Surr: Nitrobenzene-d5	48.3			31-93	%REC	1	7/6/2016 23:14
Surr: Phenol-d6	24.1			13-36	%REC	1	7/6/2016 23:14

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-5
Collection Date: 6/29/2016 09:23 AM

Work Order: 16061821
Lab ID: 16061821-05
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 17:55
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 18:33
Barium	0.63		0.0074	0.050	mg/L	1	7/9/2016 18:33
Cadmium	0.041	J	0.0078	0.10	mg/L	1	7/9/2016 18:33
Chromium	0.0018	J	0.0017	0.050	mg/L	1	7/9/2016 18:33
Lead	0.032	J	0.013	0.050	mg/L	1	7/9/2016 18:33
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 18:33
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 18:33
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/6/2016 23:38
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/6/2016 23:38
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/6/2016 23:38
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/6/2016 23:38
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/6/2016 23:38
Hexachlorobenzene	U		8.8	100	µg/L	1	7/6/2016 23:38
Hexachloroethane	U		4.2	100	µg/L	1	7/6/2016 23:38
m-Cresol	U		3.9	100	µg/L	1	7/6/2016 23:38
Nitrobenzene	U		5.2	100	µg/L	1	7/6/2016 23:38
o-Cresol	U		4.0	100	µg/L	1	7/6/2016 23:38
p-Cresol	U		3.9	100	µg/L	1	7/6/2016 23:38
Pentachlorophenol	U		19	100	µg/L	1	7/6/2016 23:38
Pyridine	U		2.0	200	µg/L	1	7/6/2016 23:38
Surr: 2,4,6-Tribromophenol	63.4			38-115	%REC	1	7/6/2016 23:38
Surr: 2-Fluorobiphenyl	55.0			32-100	%REC	1	7/6/2016 23:38
Surr: 2-Fluorophenol	39.4			22-59	%REC	1	7/6/2016 23:38
Surr: 4-Terphenyl-d14	79.1			23-112	%REC	1	7/6/2016 23:38
Surr: Nitrobenzene-d5	52.4			31-93	%REC	1	7/6/2016 23:38
Surr: Phenol-d6	26.0			13-36	%REC	1	7/6/2016 23:38

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-6
Collection Date: 6/29/2016 09:10 AM

Work Order: 16061821
Lab ID: 16061821-06
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 17:58
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 18:39
Barium	0.50		0.0074	0.050	mg/L	1	7/9/2016 18:39
Cadmium	U		0.0078	0.10	mg/L	1	7/9/2016 18:39
Chromium	U		0.0017	0.050	mg/L	1	7/9/2016 18:39
Lead	0.29		0.013	0.050	mg/L	1	7/9/2016 18:39
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 18:39
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 18:39
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/7/2016 12:01
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/7/2016 12:01
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/7/2016 12:01
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/7/2016 12:01
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/7/2016 12:01
Hexachlorobenzene	U		8.8	100	µg/L	1	7/7/2016 12:01
Hexachloroethane	U		4.2	100	µg/L	1	7/7/2016 12:01
m-Cresol	38	J	3.9	100	µg/L	1	7/7/2016 12:01
Nitrobenzene	U		5.2	100	µg/L	1	7/7/2016 12:01
o-Cresol	U		4.0	100	µg/L	1	7/7/2016 12:01
p-Cresol	38	J	3.9	100	µg/L	1	7/7/2016 12:01
Pentachlorophenol	U		19	100	µg/L	1	7/7/2016 12:01
Pyridine	U		2.0	200	µg/L	1	7/7/2016 12:01
Surr: 2,4,6-Tribromophenol	68.8			38-115	%REC	1	7/7/2016 12:01
Surr: 2-Fluorobiphenyl	55.5			32-100	%REC	1	7/7/2016 12:01
Surr: 2-Fluorophenol	41.1			22-59	%REC	1	7/7/2016 12:01
Surr: 4-Terphenyl-d14	79.6			23-112	%REC	1	7/7/2016 12:01
Surr: Nitrobenzene-d5	53.6			31-93	%REC	1	7/7/2016 12:01
Surr: Phenol-d6	28.2			13-36	%REC	1	7/7/2016 12:01

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-7
Collection Date: 6/29/2016 10:00 AM

Work Order: 16061821
Lab ID: 16061821-07
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 18:02
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 18:44
Barium	0.42		0.0074	0.050	mg/L	1	7/9/2016 18:44
Cadmium	0.10		0.0078	0.10	mg/L	1	7/9/2016 18:44
Chromium	0.0040	J	0.0017	0.050	mg/L	1	7/9/2016 18:44
Lead	0.25		0.013	0.050	mg/L	1	7/9/2016 18:44
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 18:44
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 18:44
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/7/2016 12:25
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/7/2016 12:25
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/7/2016 12:25
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/7/2016 12:25
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/7/2016 12:25
Hexachlorobenzene	U		8.8	100	µg/L	1	7/7/2016 12:25
Hexachloroethane	U		4.2	100	µg/L	1	7/7/2016 12:25
m-Cresol	U		3.9	100	µg/L	1	7/7/2016 12:25
Nitrobenzene	U		5.2	100	µg/L	1	7/7/2016 12:25
o-Cresol	U		4.0	100	µg/L	1	7/7/2016 12:25
p-Cresol	U		3.9	100	µg/L	1	7/7/2016 12:25
Pentachlorophenol	U		19	100	µg/L	1	7/7/2016 12:25
Pyridine	U		2.0	200	µg/L	1	7/7/2016 12:25
Surr: 2,4,6-Tribromophenol	59.9			38-115	%REC	1	7/7/2016 12:25
Surr: 2-Fluorobiphenyl	55.3			32-100	%REC	1	7/7/2016 12:25
Surr: 2-Fluorophenol	38.7			22-59	%REC	1	7/7/2016 12:25
Surr: 4-Terphenyl-d14	80.4			23-112	%REC	1	7/7/2016 12:25
Surr: Nitrobenzene-d5	50.9			31-93	%REC	1	7/7/2016 12:25
Surr: Phenol-d6	23.6			13-36	%REC	1	7/7/2016 12:25

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: Trench Drain
Collection Date: 6/29/2016 09:15 AM

Work Order: 16061821
Lab ID: 16061821-08
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID							
			Method: OA-2				Analyst: IT
DRO (C10-C20)	12,000		130	810	mg/Kg-dry	10	7/7/2016 16:47
ORO (C20-C34)	250,000		260	810	mg/Kg-dry	10	7/7/2016 16:47
Surr: 4-Terphenyl-d14	950	S		39-133	%REC	10	7/7/2016 16:47
GASOLINE RANGE ORGANICS BY GC-FID							
			Method: OA-1			Prep: SW5035 / 7/6/16	Analyst: IT
GRO (C6-C10)	U		1,200	4,500	µg/Kg-dry	1	7/7/2016 08:26
Surr: a,a,a-Trifluorotoluene	95.4			80-120	%REC	1	7/7/2016 08:26
MERCURY BY CVAA							
			Method: SW7471B			Prep: SW7471 / 7/7/16	Analyst: LR
Mercury	0.21		0.0025	0.015	mg/Kg-dry	1	7/7/2016 17:37
METALS ANALYSIS BY ICP							
			Method: SW846 6010C			Prep: SW3050B / 7/6/16	Analyst: JEC
Arsenic	7.2		0.17	0.66	mg/Kg-dry	2	7/11/2016 22:23
Barium	62		0.13	0.33	mg/L-dry	1	7/9/2016 19:34
Cadmium	14		0.032	0.66	mg/L-dry	1	7/9/2016 19:34
Chromium	150		0.037	0.66	mg/Kg-dry	2	7/11/2016 22:23
Lead	280		0.14	0.66	mg/Kg-dry	2	7/11/2016 22:23
Selenium	0.77	J	0.37	1.3	mg/Kg-dry	2	7/11/2016 22:23
Silver	0.57		0.041	0.33	mg/L-dry	1	7/9/2016 19:34
MOISTURE							
			Method: SW3550C				Analyst: EDL
Moisture	2.1		0.025	0.050	% of sample	1	7/5/2016 16:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech
Project: Elkem Carbide X9025-14-0002-019-017
Sample ID: TCLP-9
Collection Date: 6/29/2016 09:30 AM

Work Order: 16061821
Lab ID: 16061821-09
Matrix: TCLP EXTRACT

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
TCLP MERCURY BY CVAA							
			Method: SW7470A		Prep: SW7470 / 7/7/16		Analyst: LR
Mercury	U		0.00019	0.0020	mg/L	1	7/7/2016 18:04
TCLP METALS ANALYSIS BY ICP							
			Method: SW846 6010C		Prep: SW3005A / 7/5/16		Analyst: JEC
Arsenic	U		0.016	0.050	mg/L	1	7/9/2016 18:50
Barium	1.1		0.0074	0.050	mg/L	1	7/9/2016 18:50
Cadmium	0.054	J	0.0078	0.10	mg/L	1	7/9/2016 18:50
Chromium	0.0025	J	0.0017	0.050	mg/L	1	7/9/2016 18:50
Lead	0.076		0.013	0.050	mg/L	1	7/9/2016 18:50
Selenium	U		0.032	0.10	mg/L	1	7/9/2016 18:50
Silver	U		0.0028	0.050	mg/L	1	7/9/2016 18:50
TCLP SEMI-VOLATILE ORGANICS							
			Method: SW8270D		Prep: SW3510 / 7/5/16		Analyst: JF
1,4-Dichlorobenzene	U		6.4	100	µg/L	1	7/7/2016 12:48
2,4,5-Trichlorophenol	U		3.4	100	µg/L	1	7/7/2016 12:48
2,4,6-Trichlorophenol	U		5.0	100	µg/L	1	7/7/2016 12:48
2,4-Dinitrotoluene	U		8.4	100	µg/L	1	7/7/2016 12:48
Hexachloro-1,3-butadiene	U		5.6	100	µg/L	1	7/7/2016 12:48
Hexachlorobenzene	U		8.8	100	µg/L	1	7/7/2016 12:48
Hexachloroethane	U		4.2	100	µg/L	1	7/7/2016 12:48
m-Cresol	U		3.9	100	µg/L	1	7/7/2016 12:48
Nitrobenzene	U		5.2	100	µg/L	1	7/7/2016 12:48
o-Cresol	U		4.0	100	µg/L	1	7/7/2016 12:48
p-Cresol	U		3.9	100	µg/L	1	7/7/2016 12:48
Pentachlorophenol	U		19	100	µg/L	1	7/7/2016 12:48
Pyridine	U		2.0	200	µg/L	1	7/7/2016 12:48
Surr: 2,4,6-Tribromophenol	65.7			38-115	%REC	1	7/7/2016 12:48
Surr: 2-Fluorobiphenyl	58.2			32-100	%REC	1	7/7/2016 12:48
Surr: 2-Fluorophenol	40.9			22-59	%REC	1	7/7/2016 12:48
Surr: 4-Terphenyl-d14	83.2			23-112	%REC	1	7/7/2016 12:48
Surr: Nitrobenzene-d5	54.3			31-93	%REC	1	7/7/2016 12:48
Surr: Phenol-d6	27.3			13-36	%REC	1	7/7/2016 12:48

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 13-Jul-16

Client: Tetra Tech

Project: Elkem Carbide X9025-14-0002-019-017

Sample ID: SS-66

Collection Date: 6/29/2016 08:50 AM

Work Order: 16061821

Lab ID: 16061821-10

Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>							
PCBS			Method: SW8082				Analyst: EB
Aroclor 1016	U		15	89	µg/Kg-dry	1	7/7/2016 14:18
Aroclor 1221	U		15	89	µg/Kg-dry	1	7/7/2016 14:18
Aroclor 1232	U		15	89	µg/Kg-dry	1	7/7/2016 14:18
Aroclor 1242	U		15	89	µg/Kg-dry	1	7/7/2016 14:18
Aroclor 1248	U		15	89	µg/Kg-dry	1	7/7/2016 14:18
Aroclor 1254	U		24	89	µg/Kg-dry	1	7/7/2016 14:18
Aroclor 1260	U		24	89	µg/Kg-dry	1	7/7/2016 14:18
PCBs, Total	U		24	89	µg/Kg-dry	1	7/7/2016 14:18
Surr: Decachlorobiphenyl	65.1			40-140	%REC	1	7/7/2016 14:18
Surr: Tetrachloro-m-xylene	78.1			45-124	%REC	1	7/7/2016 14:18
MOISTURE			Method: SW3550C				Analyst: EDL
Moisture	9.8		0.025	0.050	% of sample	1	7/5/2016 16:55

Note: See Qualifiers page for a list of qualifiers and their definitions.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
µg/Kg-dry	Micrograms per Kilogram Dry Weight
µg/L	Micrograms per Liter
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter

Client: Tetra Tech

Work Order: 16061821

Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: 88244A

Instrument ID GC14

Method: SW8082

MBLK				Sample ID: PBLKS1-88244-88244A				Units: µg/Kg			Analysis Date: 7/7/2016 10:29 AM		
Client ID:			Run ID: GC14_160707A				SeqNo: 3910449		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Aroclor 1016	U	83											
Aroclor 1221	U	83											
Aroclor 1232	U	83											
Aroclor 1242	U	83											
Aroclor 1248	U	83											
Aroclor 1254	U	83											
Aroclor 1260	U	83											
PCBs, Total	U	83											
Surr: Decachlorobiphenyl	29.67	0	33.3	0	89.1	40-140	0						
Surr: Tetrachloro-m-xylene	30.67	0	33.3	0	92.1	45-124	0						

LCS				Sample ID: PLCSS1-88244-88244A				Units: µg/Kg		Analysis Date: 7/7/2016 10:47 AM	
Client ID:			Run ID: GC14_160707A			SeqNo: 3910450		Prep Date: 7/6/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aroclor 1016	902.3	83	833	0	108	50-130	0				
Aroclor 1260	945	83	833	0	113	50-130	0				
<i>Surr: Decachlorobiphenyl</i>	32	0	33.3	0	96.1	40-140	0				
<i>Surr: Tetrachloro-m-xylene</i>	31.67	0	33.3	0	95.1	45-124	0				

MS				Sample ID: 16061782-01B MS				Units: µg/Kg		Analysis Date: 7/7/2016 11:40 AM	
Client ID:			Run ID: GC14_160707A			SeqNo: 3910453		Prep Date: 7/6/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aroclor 1016	789.2	81	810.3	0	97.4	40-140	0				
Aroclor 1260	693.9	81	810.3	0	85.6	40-140	0				
Surr: Decachlorobiphenyl	19.13	0	32.39	0	59.1	40-140	0				
Surr: Tetrachloro-m-xylene	23.67	0	32.39	0	73.1	45-124	0				

MSD				Sample ID: 16061782-01B MSD				Units: µg/Kg		Analysis Date: 7/7/2016 11:57 AM	
Client ID:			Run ID: GC14_160707A			SeqNo: 3910454		Prep Date: 7/6/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aroclor 1016	687.5	81	812.7	0	84.6	40-140	789.2	13.8	50		
Aroclor 1260	599.7	81	812.7	0	73.8	40-140	693.9	14.6	50		
Surr: Decachlorobiphenyl	16.91	0	32.49	0	52.1	40-140	19.13	12.3	50		
Surr: Tetrachloro-m-xylene	21.14	0	32.49	0	65.1	45-124	23.67	11.3	50		

The following samples were analyzed in this batch:

16061821-10A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061821
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88285a** Instrument ID **GC8** Method: **OA-2**

MBLK		Sample ID: DBLKS1-88285-88285a				Units: mg/Kg		Analysis Date: 7/7/2016 02:16 PM		
Client ID:		Run ID: GC8_160707B				SeqNo: 3912171		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	U	5.0								
ORO (C20-C34)	U	5.0								
<i>Surr: 4-Terphenyl-d14</i>	<i>1.567</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>78.3</i>	<i>39-133</i>	<i>0</i>			

LCS		Sample ID: DLCSS1-88285-88285a				Units: mg/Kg		Analysis Date: 7/7/2016 02:46 PM		
Client ID:		Run ID: GC8_160707B				SeqNo: 3912172		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	168.4	5.0	200	0	84.2	61-109	0			
ORO (C20-C34)	192.2	5.0	200	0	96.1	61-119	0			
<i>Surr: 4-Terphenyl-d14</i>	<i>1.16</i>	<i>0</i>	<i>2</i>	<i>0</i>	<i>58</i>	<i>39-133</i>	<i>0</i>			

MS		Sample ID: 1607121-26A MS				Units: mg/Kg		Analysis Date: 7/7/2016 03:16 PM		
Client ID:		Run ID: GC8_160707B				SeqNo: 3912173		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	149.4	4.2	166.4	7.329	85.4	48-110	0			
ORO (C20-C34)	165.6	4.2	166.4	43.18	73.5	39-140	0			
<i>Surr: 4-Terphenyl-d14</i>	<i>1.062</i>	<i>0</i>	<i>1.664</i>	<i>0</i>	<i>63.8</i>	<i>39-133</i>	<i>0</i>			

MSD		Sample ID: 1607121-26A MSD				Units: mg/Kg		Analysis Date: 7/7/2016 03:47 PM		
Client ID:		Run ID: GC8_160707B				SeqNo: 3912174		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C20)	133.6	4.1	165.7	7.329	76.2	48-110	149.4	11.2	30	
ORO (C20-C34)	154.1	4.1	165.7	43.18	66.9	39-140	165.6	7.19	30	
<i>Surr: 4-Terphenyl-d14</i>	<i>0.9802</i>	<i>0</i>	<i>1.657</i>	<i>0</i>	<i>59.2</i>	<i>39-133</i>	<i>1.062</i>	<i>8.03</i>	<i>30</i>	

The following samples were analyzed in this batch:

16061821-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061821
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88233** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-88233-88233				Units: µg/Kg-dry		Analysis Date: 7/6/2016 12:09 PM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909164		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) U 2,500

MBLK		Sample ID: MBLK-88233-88233				Units: µg/Kg		Analysis Date: 7/7/2016 08:01 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910576		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) U 2,500

Surr: a,a,a-Trifluorotoluene 940.5 0 1000 0 94 80-120 0

LCS		Sample ID: LCS-88233-88233				Units: µg/Kg-dry		Analysis Date: 7/6/2016 11:44 AM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909171		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 467100 2,500 500000 0 93.4 70-130 0

LCS		Sample ID: LCS-88233-88233				Units: µg/Kg		Analysis Date: 7/7/2016 07:36 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910575		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 537400 2,500 500000 0 107 80-120 0

Surr: a,a,a-Trifluorotoluene 951.5 0 1000 0 95.2 80-120 0

MS		Sample ID: 1607139-01A MS				Units: µg/Kg-dry		Analysis Date: 7/6/2016 02:14 PM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909169		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 618100 3,500 704800 0 87.7 70-130 0

MS		Sample ID: 1607017-11A MS				Units: µg/Kg		Analysis Date: 7/7/2016 10:55 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910583		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10) 746500 3,500 690500 0 108 80-120 0

Surr: a,a,a-Trifluorotoluene 1317 0 1381 0 95.4 80-120 0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88233** Instrument ID **GC9** Method: **SW8015D**

MSD		Sample ID: 1607139-01A MSD				Units: µg/Kg-dry		Analysis Date: 7/6/2016 02:37 PM		
Client ID:		Run ID: GC9_160706A				SeqNo: 3909170		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	625600	3,500	704800	0	88.8	70-130	618100	1.22	30	

MSD		Sample ID: 1607017-11A MSD				Units: µg/Kg		Analysis Date: 7/7/2016 11:20 AM		
Client ID:		Run ID: GC9_160706B				SeqNo: 3910584		Prep Date: 7/6/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	761600	3,500	690500	0	110	80-120	746500	2.01	20	
<i>Surr: a,a,a-Trifluorotoluene</i>	<i>1279</i>	<i>0</i>	<i>1381</i>	<i>0</i>	<i>92.6</i>	<i>80-120</i>	<i>1317</i>	<i>2.93</i>		

The following samples were analyzed in this batch:

16061821-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88298** Instrument ID **HG1** Method: **SW7470A**

MBLK		Sample ID: MBLK-88298-88298				Units: mg/L		Analysis Date: 7/7/2016 04:01 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911329		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury U 0.00020

LCS		Sample ID: LCS-88298-88298				Units: mg/L		Analysis Date: 7/7/2016 04:03 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911330		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00213 0.00020 0.002 0 106 80-120 0

MS		Sample ID: 16061821-01AMS				Units: mg/L		Analysis Date: 7/7/2016 04:08 PM		
Client ID: TCLP-1		Run ID: HG1_160707A				SeqNo: 3911332		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.0222 0.0020 0.02 -0.00028 112 75-125 0

MSD		Sample ID: 16061821-01AMSD				Units: mg/L		Analysis Date: 7/7/2016 04:10 PM		
Client ID: TCLP-1		Run ID: HG1_160707A				SeqNo: 3911333		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.0212 0.0020 0.02 -0.00028 107 75-125 0.0222 4.61 20

The following samples were analyzed in this batch:

16061821-01A	16061821-02A	16061821-03A
16061821-04A	16061821-05A	16061821-06A
16061821-07A	16061821-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88310** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-88310-88310				Units: mg/Kg		Analysis Date: 7/7/2016 04:30 PM			
Client ID:		Run ID: HG1_160707A				SeqNo: 3911343		Prep Date: 7/7/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Mercury U 0.020

LCS		Sample ID: LCS-88310-88310				Units: mg/Kg		Analysis Date: 7/7/2016 04:32 PM		
Client ID:		Run ID: HG1_160707A				SeqNo: 3911344		Prep Date: 7/7/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1825 0.020 0.1665 0 110 80-120 0

MS		Sample ID: 16061831-01CMS					Units: mg/Kg		Analysis Date: 7/7/2016 05:10 PM		
Client ID:			Run ID: HG1_160707A			SeqNo: 3911361		Prep Date: 7/7/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Mercury 0.145 0.014 0.1159 0.01035 116 75-125 0

MSD		Sample ID: 16061831-01CMSD				Units: mg/Kg		Analysis Date: 7/7/2016 05:12 PM		
Client ID:		Run ID: HG1_160707A			SeqNo: 3911362		Prep Date: 7/7/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1396 0.014 0.1152 0.01035 112 75-125 0.145 3.83 35

The following samples were analyzed in this batch:

16061821-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061821
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88173** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK				Sample ID: MBLK-88173-88173				Units: mg/L			Analysis Date: 7/9/2016 05:09 PM				
Client ID:				Run ID: ICP2_160709A				SeqNo: 3915193			Prep Date: 7/5/2016			DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual					
Arsenic	U	0.0050													
Barium	U	0.0050													
Cadmium	U	0.010													
Chromium	U	0.0050													
Lead	U	0.0050													
Selenium	U	0.010													
Silver	U	0.0050													

LCS				Sample ID: LCS-88173-88173				Units: mg/L			Analysis Date: 7/9/2016 05:15 PM			
Client ID:				Run ID: ICP2_160709A				SeqNo: 3915194			Prep Date: 7/5/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Arsenic	0.09773	0.0050	0.1	0	97.7	80-120	0							
Barium	0.1006	0.0050	0.1	0	101	80-120	0							
Cadmium	0.1012	0.010	0.1	0	101	80-120	0							
Chromium	0.1012	0.0050	0.1	0	101	80-120	0							
Lead	0.1062	0.0050	0.1	0	106	80-120	0							
Selenium	0.0998	0.010	0.1	0	99.8	80-120	0							
Silver	0.108	0.0050	0.1	0	108	80-120	0							

MS				Sample ID: 16061821-01AMS			Units: mg/L		Analysis Date: 7/9/2016 05:37 PM		
Client ID: TCLP-1			Run ID: ICP2_160709A			SeqNo: 3915198		Prep Date: 7/5/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	1.078	0.050	1	-0.003814	108	75-125	0				
Barium	1.655	0.050	1	0.1762	148	75-125	0			S	
Cadmium	1.079	0.10	1	0.002225	108	75-125	0				
Chromium	1.062	0.050	1	0.003438	106	75-125	0				
Lead	1.261	0.050	1	0.1728	109	75-125	0				
Selenium	1.094	0.10	1	-0.0104	110	75-125	0				
Silver	1.084	0.050	1	-0.0004593	108	75-125	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88173** Instrument ID **ICP2** Method: **SW846 6010C**

MSD				Sample ID: 16061821-01AMSD			Units: mg/L		Analysis Date: 7/9/2016 05:43 PM		
Client ID: TCLP-1			Run ID: ICP2_160709A			SeqNo: 3915199		Prep Date: 7/5/2016		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	1.059	0.050	1	-0.003814	106	75-125	1.078	1.74	20	R	
Barium	1.223	0.050	1	0.1762	105	75-125	1.655	30	20		
Cadmium	1.056	0.10	1	0.002225	105	75-125	1.079	2.24	20		
Chromium	1.046	0.050	1	0.003438	104	75-125	1.062	1.48	20		
Lead	1.22	0.050	1	0.1728	105	75-125	1.261	3.29	20		
Selenium	1.065	0.10	1	-0.0104	108	75-125	1.094	2.66	20		
Silver	1.081	0.050	1	-0.0004593	108	75-125	1.084	0.327	20		

The following samples were analyzed in this batch:

16061821-01A	16061821-02A	16061821-03A
16061821-04A	16061821-05A	16061821-06A
16061821-07A	16061821-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88230** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: MBLK-88230-88230				Units: mg/Kg		Analysis Date: 7/9/2016 07:23 PM				
Client ID:		Run ID: ICP2_160709A		SeqNo: 3915218		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.04831	0.25								J
Lead	U	0.25								
Selenium	U	0.50								
Silver	U	0.25								

LCS Sample ID: LCS-88230-88230				Units: mg/Kg		Analysis Date: 7/9/2016 07:29 PM				
Client ID:		Run ID: ICP2_160709A		SeqNo: 3915220		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.596	0.25	5	0	112	80-120	0			
Barium	5.869	0.25	5	0	117	80-120	0			
Cadmium	5.812	0.50	5	0	116	80-120	0			
Chromium	6.081	0.25	5	0	122	80-120	0			S
Lead	6.097	0.25	5	0	122	80-120	0			S
Selenium	5.38	0.50	5	0	108	80-120	0			
Silver	5.892	0.25	5	0	118	80-120	0			

LCS Sample ID: LCS-88230-88230				Units: mg/Kg		Analysis Date: 7/11/2016 12:59 PM				
Client ID:		Run ID: ICP2_160711A		SeqNo: 3918551		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium	5.606	0.25	5	0	112	80-120	0			
Lead	5.926	0.25	5	0	119	80-120	0			

MS Sample ID: 1607017-20AMS				Units: mg/Kg		Analysis Date: 7/9/2016 09:20 PM				
Client ID:		Run ID: ICP2_160709A		SeqNo: 3915240		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	16.88	0.37	7.331	7.486	128	75-125	0			S
Barium	275.1	0.37	7.331	288.6	-184	75-125	0			SO
Cadmium	10.65	0.73	7.331	1.189	129	75-125	0			S
Chromium	26.89	0.37	7.331	14.41	170	75-125	0			S
Lead	409.8	0.37	7.331	328.8	1100	75-125	0			SO
Selenium	8.922	0.73	7.331	0.7087	112	75-125	0			
Silver	8.784	0.37	7.331	0.06547	119	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88230** Instrument ID **ICP2** Method: **SW846 6010C**

MSD					Sample ID: 1607017-20AMSD			Units: mg/Kg		Analysis Date: 7/9/2016 09:26 PM		
Client ID:			Run ID: ICP2_160709A			SeqNo: 3915241		Prep Date: 7/6/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
Arsenic	18.49	0.37	7.375	7.486	149	75-125	16.88	9.06	20	S		
Barium	572.7	0.37	7.375	288.6	3850	75-125	275.1	70.2	20	SRO		
Cadmium	11.34	0.74	7.375	1.189	138	75-125	10.65	6.33	20	S		
Chromium	26.61	0.37	7.375	14.41	165	75-125	26.89	1.04	20	S		
Lead	400.9	0.37	7.375	328.8	977	75-125	409.8	2.19	20	SO		
Selenium	9.899	0.74	7.375	0.7087	125	75-125	8.922	10.4	20			
Silver	9.421	0.37	7.375	0.06547	127	75-125	8.784	7.01	20	S		

The following samples were analyzed in this batch:

16061821-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88151** Instrument ID **SVMS8** Method: **SW8270D**

MBLK		Sample ID: SBLKW1-88151-88151				Units: µg/L		Analysis Date: 7/5/2016 04:00 PM		
Client ID:		Run ID: SVMS8_160705A				SeqNo: 3908781		Prep Date: 7/5/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	U	5.0								
2,4,5-Trichlorophenol	U	5.0								
2,4,6-Trichlorophenol	U	5.0								
2,4-Dinitrotoluene	U	5.0								
Hexachloro-1,3-butadiene	U	5.0								
Hexachlorobenzene	U	5.0								
Hexachloroethane	U	5.0								
m-Cresol	U	5.0								
Nitrobenzene	U	5.0								
o-Cresol	U	5.0								
p-Cresol	U	5.0								
Pentachlorophenol	U	5.0								
Pyridine	U	10								
<i>Surr: 2,4,6-Tribromophenol</i>	<i>30</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>60</i>	<i>38-115</i>	<i>0</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>25.34</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>50.7</i>	<i>32-100</i>	<i>0</i>			
<i>Surr: 2-Fluorophenol</i>	<i>17.26</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>34.5</i>	<i>22-59</i>	<i>0</i>			
<i>Surr: 4-Terphenyl-d14</i>	<i>41.78</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>83.6</i>	<i>23-112</i>	<i>0</i>			
<i>Surr: Nitrobenzene-d5</i>	<i>24.91</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>49.8</i>	<i>31-93</i>	<i>0</i>			
<i>Surr: Phenol-d6</i>	<i>10.7</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>21.4</i>	<i>13-36</i>	<i>0</i>			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88151** Instrument ID **SVMS8** Method: **SW8270D**

LCS		Sample ID: SLCSW1-88151-88151				Units: µg/L		Analysis Date: 7/5/2016 04:20 PM		
Client ID:		Run ID: SVMS8_160705A				SeqNo: 3908782		Prep Date: 7/5/2016		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	12.8	5.0	20	0	64	30-110	0			
2,4,5-Trichlorophenol	14.72	5.0	20	0	73.6	50-110	0			
2,4,6-Trichlorophenol	15.12	5.0	20	0	75.6	50-115	0			
2,4-Dinitrotoluene	15.36	5.0	20	0	76.8	50-120	0			
Hexachloro-1,3-butadiene	12.04	5.0	20	0	60.2	25-105	0			
Hexachlorobenzene	17.13	5.0	20	0	85.6	50-110	0			
Hexachloroethane	11.65	5.0	20	0	58.2	30-95	0			
m-Cresol	11.05	5.0	20	0	55.2	30-110	0			
Nitrobenzene	14.04	5.0	20	0	70.2	45-110	0			
o-Cresol	12.27	5.0	20	0	61.4	40-110	0			
p-Cresol	11.05	5.0	20	0	55.2	30-110	0			
Pentachlorophenol	16.55	5.0	20	0	82.8	40-115	0			
Pyridine	8.23	10	20	0	41.2	10-71	0			J
Surr: 2,4,6-Tribromophenol	42.83	0	50	0	85.7	38-115	0			
Surr: 2-Fluorobiphenyl	35.04	0	50	0	70.1	32-100	0			
Surr: 2-Fluorophenol	20.72	0	50	0	41.4	22-59	0			
Surr: 4-Terphenyl-d14	49.3	0	50	0	98.6	23-112	0			
Surr: Nitrobenzene-d5	35.73	0	50	0	71.5	31-93	0			
Surr: Phenol-d6	12.92	0	50	0	25.8	13-36	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
Work Order: 16061821
Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88151** Instrument ID **SVMS8** Method: **SW8270D**

MS				Sample ID: 1607006-01A MS			Units: µg/L		Analysis Date: 7/5/2016 07:59 PM	
Client ID:				Run ID: SVMS8_160705A			SeqNo: 3908783		Prep Date: 7/5/2016	
							DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,4-Dichlorobenzene	294.6	100	400	0	73.6	30-110	0			
2,4,5-Trichlorophenol	316.8	100	400	0	79.2	50-110	0			
2,4,6-Trichlorophenol	336	100	400	0	84	50-115	0			
2,4-Dinitrotoluene	300.4	100	400	0	75.1	50-120	0			
Hexachloro-1,3-butadiene	273.6	100	400	0	68.4	25-105	0			
Hexachlorobenzene	346	100	400	0	86.5	50-110	0			
Hexachloroethane	274.4	100	400	0	68.6	30-95	0			
m-Cresol	246.4	100	400	0	61.6	30-110	0			
Nitrobenzene	296.2	100	400	0	74	45-110	0			
o-Cresol	275.4	100	400	0	68.8	40-110	0			
p-Cresol	246.4	100	400	0	61.6	30-110	0			
Pentachlorophenol	357	100	400	0	89.2	40-115	0			
Pyridine	137	200	400	0	34.2	10-80	0			J
Surr: 2,4,6-Tribromophenol	918.6	0	1000	0	91.9	38-115	0			
Surr: 2-Fluorobiphenyl	759.2	0	1000	0	75.9	32-100	0			
Surr: 2-Fluorophenol	466	0	1000	0	46.6	22-59	0			
Surr: 4-Terphenyl-d14	968.4	0	1000	0	96.8	23-112	0			
Surr: Nitrobenzene-d5	773.4	0	1000	0	77.3	31-93	0			
Surr: Phenol-d6	310.4	0	1000	0	31	13-36	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061821
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **88151** Instrument ID **SVMS8** Method: **SW8270D**

MSD				Sample ID: 1607006-01A MSD			Units: µg/L		Analysis Date: 7/5/2016 08:20 PM		
Client ID:		Run ID: SVMS8_160705A			SeqNo: 3908784		Prep Date: 7/5/2016		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,4-Dichlorobenzene	240	100	400	0	60	30-110	294.6	20.4	30		
2,4,5-Trichlorophenol	312.6	100	400	0	78.2	50-110	316.8	1.33	30		
2,4,6-Trichlorophenol	322.6	100	400	0	80.6	50-115	336	4.07	30		
2,4-Dinitrotoluene	317.6	100	400	0	79.4	50-120	300.4	5.57	30		
Hexachloro-1,3-butadiene	232.4	100	400	0	58.1	25-105	273.6	16.3	30		
Hexachlorobenzene	348.2	100	400	0	87	50-110	346	0.634	30		
Hexachloroethane	227	100	400	0	56.8	30-95	274.4	18.9	30		
m-Cresol	247.2	100	400	0	61.8	30-110	246.4	0.324	30		
Nitrobenzene	287	100	400	0	71.8	45-110	296.2	3.16	30		
o-Cresol	269.2	100	400	0	67.3	40-110	275.4	2.28	30		
p-Cresol	247.2	100	400	0	61.8	30-110	246.4	0.324	30		
Pentachlorophenol	361.4	100	400	0	90.4	40-115	357	1.22	30		
Pyridine	143	200	400	0	35.8	10-80	137	0	30	J	
Surr: 2,4,6-Tribromophenol	924.4	0	1000	0	92.4	38-115	918.6	0.629	0		
Surr: 2-Fluorobiphenyl	739	0	1000	0	73.9	32-100	759.2	2.7	0		
Surr: 2-Fluorophenol	467.2	0	1000	0	46.7	22-59	466	0.257	0		
Surr: 4-Terphenyl-d14	995.8	0	1000	0	99.6	23-112	968.4	2.79	0		
Surr: Nitrobenzene-d5	754.6	0	1000	0	75.5	31-93	773.4	2.46	0		
Surr: Phenol-d6	312.8	0	1000	0	31.3	13-36	310.4	0.77	0		

The following samples were analyzed in this batch:

16061821-01A	16061821-02A	16061821-03A
16061821-04A	16061821-05A	16061821-06A
16061821-07A	16061821-09A	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Tetra Tech
 Work Order: 16061821
 Project: Elkem Carbide X9025-14-0002-019-017

QC BATCH REPORT

Batch ID: **R190899** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R190899				Units: % of sample		Analysis Date: 7/5/2016 04:55 PM		
Client ID:		Run ID: MOIST_160705A				SeqNo: 3907832		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.050

LCS		Sample ID: LCS-R190899				Units: % of sample		Analysis Date: 7/5/2016 04:55 PM		
Client ID:		Run ID: MOIST_160705A				SeqNo: 3907831		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 16061672-01A DUP				Units: % of sample		Analysis Date: 7/5/2016 04:55 PM		
Client ID:		Run ID: MOIST_160705A				SeqNo: 3907809		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 21.22 0.050 0 0 0 21.24 0.0942 20

DUP		Sample ID: 16061672-03A DUP				Units: % of sample		Analysis Date: 7/5/2016 04:55 PM		
Client ID:		Run ID: MOIST_160705A				SeqNo: 3907812		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 13.61 0.050 0 0 0 14.58 6.88 20

The following samples were analyzed in this batch:

16061821-08A	16061821-10A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Joe Ribar

From: Monnig, Rob <rob.monnig@tetrattech.com>
Sent: Friday, July 01, 2016 11:33 AM
To: Joe Ribar
Cc: Jeplawy, Joann
Subject: RE: Elkem Carbide X9025-14-0002-019-017

Joe – All the requested analysis on the COC is correct, that is:

SED-67 – PCBs

TCLP-8 – RCRA Metals and TPH (do not run as a TCLP)

“TCLP-8” is not actually a TCLP sample. Is it possible to rename this sample to “TRENCH DRAIN”? I could correct the COC and send you a copy.

Just FYI – The ISM samples to be run in triplicate by the lab, as indicated on COC, are: DU-02-DUP, DU-10-TRIP, DU-11-DUP, and DU-06.

Thanks and have a good 4th!
Rob

From: Joe Ribar [<mailto:Joe.Ribar@ALSGlobal.com>]
Sent: Friday, July 01, 2016 9:54 AM
To: Monnig, Rob <rob.monnig@tetrattech.com>
Cc: Jeplawy, Joann <Joann.Jeplawy@tetrattech.com>
Subject: Re: Elkem Carbide X9025-14-0002-019-017

Thank you.

Sent from my iPhone

On Jul 1, 2016, at 10:50 AM, Monnig, Rob <rob.monnig@tetrattech.com> wrote:

Thanks Joe. I just looked over the work orders and everything looks good, except:

- **SED-67** is listed on WO16061792 with the ISM samples, but I think it should be a non-ISM sample run for PCBs (just like SS-66). Possibly there was an error on the COC or maybe it was in a bag, which would have been confusing.
- **TCLP-8** should likely be run for TCLP SVOCs, TCLP metals, and TCLP mercury (not DRO/GRO/Hg/Metals)

I don't have the COC in front of me, but I'm checking this morning with the field samplers and will get back to you soon to confirm.

From: Joe Ribar [<mailto:Joe.Ribar@ALSGlobal.com>]
Sent: Friday, July 01, 2016 9:13 AM
To: Monnig, Rob <rob.monnig@tetrattech.com>
Subject: Re: Elkem Carbide X9025-14-0002-019-017

**Environmental**Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070**Chain of Custody Form**

Page 1 of 1

COC ID: 36395

Houston, TX
+1 281 530 5656Middletown, PA
+1 717 944 5541Spring City, PA
+1 610 948 4903Salt Lake City, UT
+1 801 266 7700South Charleston, WV
+1 304 356 3168York, PA
+1 717 505 5280

Customer Information		Project Information		Parameter/Method Request for Analysis															
Purchase Order		Project Name	Elkem Carbide	A TCL SVOCs															
Work Order		Project Number	X9025.14.0002.019-017	B RCRA Metals															
Company Name	Tetra Tech	Bill To Company	Tetra Tech	C TCL VOCs															
Send Report To	Kaitlyn Bahr	Invoice Attn	Emily Fisher	D Moisture															
Address	415 Oak Street	Address	415 Oak Street	E TPH (OA1/OA2)															
City/State/Zip	Kansas City, MO 64108	City/State/Zip	Kansas City, MO 64108	F PCBs															
Phone	(816) 412-1755	Phone	(816) 412-1755	G Dissolved RCRA Metals															
Fax	(816) 410-1748	Fax	(816) 410-1748	H															
e-Mail Address	kaitlyn.bahr@tetratech.com	e-Mail Address	emily.fisher@tetratech.com	I TCLP Metals															
				J TCLP SVOCs															

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	TCLP-1	6/29/16	0836	Bulk											X	X	
2	TCLP-2		0845												X	X	
3	TCLP-3		0857												X	X	
4	TCLP-4		0945												X	X	
5	TCLP-5		0923												X	X	
6	TCLP-6		0910												X	X	
7	TCLP-7		1000												X	X	
8	TCLP-8		0915					X			X						
9	TCLP-9		0930												X	X	
10	SS-606		0850	soil								X					

Sampler(s) Please Print & Sign Kaitlyn Bahr Ka = Be		Shipment Method FedEx		Turnaround Time in Business Days (BD) <input type="checkbox"/> 10 BD <input type="checkbox"/> 5 BD <input type="checkbox"/> 3 BD <input type="checkbox"/> 2 BD <input type="checkbox"/> 1 BD				Results Due Date:	
Relinquished by: Ka = Be	Date: 6/29/16	Time: 1200	Received by: FedEx	Notes:					
Relinquished by: FedEx	Date: 6/30/16	Time: 0930	Received by (Laboratory):	Cooler ID	Cooler Temp	QC Package: (Check One Box Below)			
Logged by (Laboratory): Kev	Date: 6/30/16	Time: 1455	Checked by (Laboratory):		3.8°C	<input type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist		
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035					5.0°C	<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Level IV		
						<input type="checkbox"/> Level IV SWB46/CLP			
						<input type="checkbox"/> Other			

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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**ALS Environmental**

3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

Date: 6/29/14 Time: 0300
Name: Kaitlyn Bahr
Company: Tetra Tech

Seal Broken By:

Date:

**ALS Environmental**

3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL

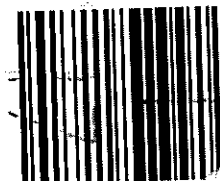
Date: 6/29/14 Time: 0300
Name: Kaitlyn Bahr
Company: Tetra Tech

Seal Broken By:

Date:

IPS# 6557 1266 &
2263

XX HLM



Sample Receipt Checklist

Client Name: **TETRATECH - MO**

Date/Time Received: **30-Jun-16 09:30**

Work Order: **16061821**

Received by: **KRW**

Checklist completed by Keith Wurenga 30-Jun-16
eSignature Date

Reviewed by: Joseph Ribar 30-Jun-16
eSignature Date

Matrices: **Solid**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>3.8/3.8 5.0/5.0 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/30/2016 3:03:03 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

APPENDIX E

SCREENING OF SAMPLING RESULTS

TABLE E-1																																		
DECISION UNIT SAMPLING RESULTS COMPARED TO IOWA STATEWIDE STANDARDS																																		
Sample	Date	1,1'-Biphenyl	2-Methylnaphthalene	2-Methylphenol	3&4-Methylphenol	Acenaphthene	Acenaphthylene	Acetophenone	Anthracene	Arsenic	Atrazine	Barium	Benzaldehyde	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Cadmium	Carbazole	Chromium	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Lead	Mercury	Naphthalene	Phenanthrene	Pyrene	Selenium	Silver
Iowa Statewide Standard for Soil		31,000	230	3,100	6,100	3,400	1,700	-	17,000	17	2,100	15,000	-	3.10	0.31	3.1	170	31	70	120	97,000	310	0.31	76	2,300	2,300	3.1	400	23	1,100	1,700	1,700	390	370
DU-01	06/28/16	0.054 U	0.15	0.09 U	0.067 U	0.84	0.058 U	0.052 U	2.2	7.4	0.053 U	84	0.51 U	<8.4>	<8.1>	<11>	6.5	3.6	20	1.5	29	9.9	<1.8>	0.38	17	0.76	<6.5>	<540>	0.04	0.31	11	15	0.57 J	0.48
DU-01-DUP	06/28/16	0.11 U	0.089 J	0.18 U	0.14 U	0.75	0.12 U	0.11 U	2.2	7.6	0.11 U	90	1 U	<8.8>	<8.7>	<12>	7	4	40	1.5	25	9.9	<1.8>	0.1 U	19	0.64	<7.5>	<470>	0.052	0.16	10	16	0.6 J	0.54
DU-01-TRIP	06/28/16	0.055 U	0.18	0.092 U	0.069 U	1.2	0.082	0.053 U	3.1	4.9	0.054 U	98	0.52 U	<10>	<9.8>	<13>	8.1	4.9	17	2.1	29	11	<2.2>	0.49	20	1	<8.4>	<470>	0.038	0.25	13	18	1.2 U	0.69
DU-02	06/28/16	0.06 U	0.051 J	0.099 U	0.074 U	0.37	0.064 U	0.058 U	1.1	9.4	0.058 U	93	0.56 U	<4.6>	<4.9>	<6.8>	4	2.3	1.7	0.71	15	5.6	<0.96>	0.054 U	10	0.28	<4.4>	56	0.022	0.047 U	5.2	8.9	1.5 J	0.44
DU-02-DUP A	06/28/16	0.056 U	0.035 U	0.093 U	0.069 U	0.31	0.059 U	0.054 U	0.93	11	0.054 U	90	0.53 U	<4.8>	<5.3>	<7.6>	4.6	2.3	1.4	0.54	17	5.9	<1.1>	0.05 U	9.9	0.25	<4.8>	53	0.022	0.044 U	4.5	9.6	2.5 J	0.16 J
DU-02-DUP B	06/28/16	0.054 U	0.05 J	0.089 U	0.066 U	0.39	0.057 U	0.052 U	1	8.2	0.052 U	79	0.51 U	<6>	<6.7>	<10>	5.1	3.7	1.2 J	0.58	12	7.3	<1.1>	0.13 J	14	0.29	<5.7>	46	0.027	0.042 U	5.2	12	1.2 U	0.26 U
DU-02-DUP C	06/28/16	0.054 U	0.06 J	0.089 U	0.067 U	0.54	0.057 U	0.052 U	1.3	8.4	0.052 U	96	0.51 U	<7.1>	<7.8>	<12>	5.9	3.5	1.3 J	0.74	12	8.6	<1.3>	0.17 J	17	0.37	<6.7>	42	0.029	0.042 U	6.5	14	1.2 U	0.27 J
DU-02-TRIP	06/28/16	0.11 U	0.33	0.18 U	0.14 U	1.4	0.12 U	0.11 U	2.9	9.7	0.11 U	83	1.1 U	<8.2>	<8.6>	<12>	6.2	3.3	1.5	2.2	16	8.7	<1.8>	0.66 J	20	1.3	<8.2>	47	0.028	0.34	12	15	1.6 J	0.093 J
DU-03	06/28/16	0.25 J	0.76	0.23 U	0.55 J	10	0.26	0.13 U	23	12	0.13 U	150	1.3 U	<72>	<71>	<92>	36	26	11	15	54	75	<12>	4.3	170	7.7	<43>	<760>	0.072	0.96	110	140	1.5 U	0.5 J
DU-03-DUP	06/28/16	0.51 J	1.3	0.44 J	0.44 J	21	0.29	0.1 U	40	11	0.11 U	190	1 U	<85>	<83>	<110>	40	30	8	24	41	84	<15>	9.3	210	16	<62>	<520>	0.083	2	160	180	0.52 J	0.48 J
DU-03-TRIP	06/28/16	0.36 J	0.91	0.18 U	0.14 U	18	0.21	0.11 U	38	9	0.11 U	100	1 U	<75>	<76>	<96>	43	<36>	13	23	35	74	<13>	7.4	170	14	<56>	<470>	0.082	1.3	140	170	1.1 U	0.32 J
DU-04	06/28/16	0.084	0.43	0.018 U	0.082	0.63	0.056	0.01 U	1.9	6.3	0.01 U	110	0.1 U	<6.9>	<7.2>	<10>	5.1	3.3	2.7 J	1.2	36	7.7	<1.5>	0.43	13	0.53	<6.1>	390	0.12	0.37	8.7	14	1.2 U	0.29 J
DU-04-DUP	06/28/16	0.087	0.43	0.056 J	0.09	0.71	0.075	0.013 U	2.1	6.8	0.013 U	73	0.12 U	<8.6>	<9.2>	<12>	6.2	4.3	3 J	1.4	23	9.7	<2>	0.47	18	0.64	<7.3>	370	0.075	0.4	10	16	1.3 U	0.29 U
DU-04-TRIP	06/28/16	0.051 J	0.26	0.018 U	0.065 J	0.27	0.027	0.01 U	0.86	5.9	0.011 U	81	0.1 U	<4>	<3.7>	<6.5>	3	1.9	2.6 J	0.58	20	4.8	<1.1>	0.2	7.8	0.2	<3.3>	<430>	0.1	0.2	3.7	7.8	0.9 U	0.4 J
DU-05	06/28/16	0.34 J	0.86	0.18 U	0.13 U	3.7	0.16	0.1 U	9.5	9.2	0.11 U	150	1 U	<31>	<28>	<39>	20	13	1.8 J	6.2	17	32	<7>	2.1	74	2.8	<25>	110	0.092	1.1	35	64	2.1 J	0.24 U
DU-05-DUP	06/28/16	0.33	0.82	0.018 U	0.063 J	3	0.11	0.011 U	7.2	6.3	0.011 U	97	0.1 U	<21>	<23>	<32>	16	9.9	1.3 J	4.5	21	24	<3.3>	2	49	2.5	<19>	120	0.27	1	30	44	2.4 J	0.24 U
DU-05-TRIP	06/28/16	0.37	0.96	0.02 U	0.069 J	3	0.15	0.012 U	8.3	8	0.012 U	140	0.11 U	<24>	<26>	<35>	17	12	1.4 J	3.8	23	28	<3.5>	2.2	55	2.6	<21>	140	0.19	0.87	32	49	1.9 J	0.29 U
DU-06	06/28/16	0.052 J	0.3	0.017 U	0.051 J	0.28	0.075	0.01 U	0.84	8.3	0.01 U	230	0.099 U	<3.3>	<3.3>	<5.3>	2.5	1.4	0.85 J	0.51	15	4.2	<0.9>	0.19	6.1	0.22	2.7	85	0.028	0.33	3.2	6.5	1.9 J	0.25 U
DU-06-DUP	06/28/16	0.061 J	0.4	0.018 U	0.065 J	0.51	0.057	0.013 J	2.8	6.1	0.011 U	170	0.1 U	<5.2>	<5.5>	<7.2>	3.4	1.9	0.88 J	1.3	13	6.1	<1.2>	0.29	11	0.6	<3.5>	59	0.024	0.33	8.4	9.7	1.5 J	0.23 U
DU-06-TRIP	06/28/16	0.035 J	0.24	0.018 U	0.05 J	0.25	0.045	0.01 U	0.83	7.3	0.01 U	190	0.1 U	<3.3>	<3.1>	<5.1>	2.4	1.3	1.1 J	0.52	18	3.9	<0.91>	0.14	7	0.22	2.6	64	0.03	0.22	3.1	7.3	1.3 J	0.21 U
DU-06 B	06/28/16	0.055 U	0.15	0.091 U	0.068 U	0.82	0.11	0.053 U	1.9	7.5	0.053 U	280	0.52 U	<6.3>	<6.4>	<8.9>	4.4	3	0.98 J	1.1	18	7.5	<1.4>	0.38	14	0.72	<5.3>	78	0.03	0.16	7.4	11	1.7 J	0.25 U
DU-06 C	06/28/16	0.055 U	0.14	0.092 U	0.068 U	0.57	0.081	0.053 U	1.2	7.5	0.053 U	300	0.52 U	<4.9>	<5.1>	<7.2>	3.5	2.2	0.81 J	0.66	14	5.8	<1>	0.25 J	11	0.36	<4.2>	82	0.03	0.078	5	8.9	1.3 J	0.25 U
DU-07	06/28/16	0.34 J	1.3	0.18 U	0.14 U	9	0.2	0.11 U	17	8.8	0.11 U	79	1 U	<31>	<25>	<35>	15	11	8.9	10	31	33	<4.8>	4.6	77	8.7	<18>	230	0.57	1.4	76	68	3.9 J	0.66 J
DU-07-DUP	06/28/16	0.21 U	0.38	0.35 U	0.26 U	1.9	0.23 U	0.21 U	4.8	8.3	0.21 U	69	2 U	<14>	<15>	<21>	9.6	6.2	7.6	3.2	33	15	<2.8>	0.91 J	30	1.6	<12>	200	1.1	0.41	20	32	3.2 J	0.81 J
DU-07-TRIP	06/28/16	0.11 U																																

TABLE E-2

SOIL SAMPLING RESULTS (B-51 - B-55) COMPARED TO IOWA STATEWIDE STANDARDS

Sample	Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Iowa Statewide Standard for Soil		17	15,000	70	97,000	400	23	390	370
B-51 (1-2 ft)	06/27/16	11	220	1.1	12	350	0.13	0.27 J	0.14 J
B-51 (3-4 ft)	06/27/16	13	150	0.04 U	16	23	0.047	0.31 J	0.051 U
B-51 (5-6 ft)	06/27/16	14	130	0.1 J	22	38	0.037	0.28 U	0.061 U
B-51 (7-8 ft)	06/27/16	11	130	0.11 J	19	51	0.055	0.24 U	0.053 U
B-52 (1-2 ft)	06/27/16	9.3	170	0.054 J	11	57	0.024	0.39 J	0.051 U
B-52 (3-4 ft)	06/27/16	<27>	450	0.049 U	22	30	0.046	0.56 J	0.064 U
B-52 (5-6 ft)	06/27/16	10	490	0.23 J	21	52	0.084	0.25 U	0.056 U
B-52 (7-8 ft)	06/27/16	5.6	130	0.039 U	14	13	0.027	0.23 U	0.051 U
B-53 (1-2 ft)	06/28/16	8.8	470	0.043 U	20	14	0.049	0.57 J	0.055 U
B-53 (3-4 ft)	06/28/16	15	280	0.05 U	23	14	0.069	0.31 J	0.064 U
B-53 (5-6 ft)	06/28/16	12	340	0.17 J	21	18	0.026	0.28 U	0.062 U
B-53 (7-8 ft)	06/28/16	6.5	110	0.041 U	19	10	0.029	0.24 U	0.053 U
B-54 (1-2 ft)	06/28/16	<20>	240	0.047 U	23	34	0.029	0.75 J	0.06 U
B-54 (3-4 ft)	06/28/16	14	150	0.048 U	22	21	0.052	0.28 U	0.062 U
B-54 (5-6 ft)	06/28/16	8.2	160	0.046 U	22	18	0.023	0.27 U	0.059 U
B-54 (7-8 ft)	06/28/16	7.5	140	0.041 U	15	15	0.036	0.24 U	0.053 U
B-55 (1-2 ft)	06/28/16	9.1	380	2.6	21	<520>	0.23	0.73 J	0.39 J
B-55 (3-4 ft)	06/28/16	9	350	1.4	17	390	0.28	0.85 J	0.078 J
B-55 (5-6 ft)	06/28/16	<21>	630	2.9	21	29	0.036	5.1 U	0.67
B-55 (7-8 ft)	06/28/16	6.2	160	0.04 U	11	20	0.021	0.23 U	0.051 U

Notes:

All concentrations are milligrams per kilogram (mg/kg).

Shading and brackets indicate a detected concentration exceeding the Iowa Statewide Standard.

ft Feet

Data Qualifiers:

J The identification of the analyte is acceptable; the reported value is an estimate.

U The analyte was not detected at or above the reporting limit.

TABLE E-3

SOIL SAMPLING RESULTS (B-56 - B-60) COMPARED TO IOWA STATEWIDE STANDARDS

Sample	Date	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Carbazole	Chrysene	Dibenzo(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
Iowa Statewide Standard for Soil		0.31	3.1	170	31	120	310	0.31	76	2,300	2,300	3.1	1,100	1,700	1,700
B-56 (1-2 ft)	06/28/16	0.26	0.33	0.19	0.11	0.04 J	0.31	0.058	0.011 U	0.48	0.011 U	0.22	0.0098 U	0.25	0.46
B-56 (3-4 ft)	06/28/16	<1.1>	1.7	0.85	0.49	0.17	1.3	0.25	0.02 J	1.9	0.068	0.92	0.01 U	0.81	2.1
B-56 (5-6 ft)	06/28/16	<1.2>	1.7	0.86	0.58	0.21	1.4	0.25	0.02 J	2	0.064	0.96	0.01 U	0.89	2.2
B-56 (7-8 ft)	06/28/16	<2.6>	<3.7>	1.8	1.2	0.44	3.1	<0.52>	0.037 J	4.6	0.1	2	0.01 U	2.2	4.1
B-57 (1-2 ft)	06/28/16	0.13	0.16	0.086	0.081	0.062 J	0.11	0.05	0.012 U	0.2	0.042	0.11	0.01 U	0.12	0.18
B-57 (3-4 ft)	06/28/16	0.095	0.11	0.042	0.062	0.056 J	0.046	0.0091 U	0.012 U	0.13	0.012 U	0.077	0.011 U	0.072	0.091
B-57 (5-6 ft)	06/28/16	0.23	0.33	0.16	0.14	0.067 J	0.25	0.069	0.012 U	0.4	0.045	0.2	0.01 U	0.17	0.41
B-57 (7-8 ft)	06/28/16	<0.44>	0.65	0.32	0.23	0.09	0.49	0.11	0.011 U	0.79	0.05	0.38	0.01 U	0.34	0.89
B-58 (1-2 ft)	06/28/16	<0.35>	0.53	0.24	0.17	0.088	0.38	0.094	0.018 J	0.59	0.048	0.28	0.01 U	0.31	0.61
B-58 (3-4 ft)	06/28/16	<1.2>	1.9	0.86	0.65	0.24	1.5	0.27	0.054 J	2.3	0.1	0.93	0.01 U	1.2	2.5
B-58 (5-6 ft)	06/28/16	0.084	0.098	0.034	0.05	0.051 J	0.041	0.0086 U	0.012 U	0.12	0.012 U	0.065	0.01 U	0.069	0.081
B-58 (7-8 ft)	06/28/16	0.0096 U	0.012 U	0.012 U	0.012 U	0.0085 U	0.02	0.0085 U	0.012 U	0.087	0.011 U	0.011 U	0.01 U	0.0073 U	0.043
B-59 (1-2 ft)	06/28/16	0.24	0.33	0.17	0.12	0.061 J	0.22	0.071	0.011 U	0.38	0.042	0.2	0.0099 U	0.16	0.4
B-59 (3-4 ft)	06/28/16	<0.4>	0.56	0.28	0.21	0.095	0.46	0.1	0.011 U	0.84	0.064	0.32	0.01 U	0.47	0.9
B-59 (5-6 ft)	06/28/16	<0.37>	0.53	0.23	0.18	0.098	0.39	0.093	0.012 U	0.76	0.061	0.27	0.01 U	0.42	0.72
B-59 (7-8 ft)	06/28/16	0.23	0.32	0.16	0.13	0.062 J	0.22	0.07	0.012 U	0.37	0.012 U	0.2	0.01 U	0.16	0.42
B-60 (1-2 ft)	06/28/16	0.21	0.28	0.14	0.12	0.063 J	0.21	0.064	0.011 U	0.31	0.039	0.16	0.0097 U	0.15	0.33
B-60 (3-4 ft)	06/28/16	0.17	0.2	0.1	0.088	0.065 J	0.13	0.009 U	0.012 U	0.25	0.012 U	0.13	0.011 U	0.13	0.23
B-60 (5-6 ft)	06/28/16	0.15	0.18	0.089	0.087	0.064 J	0.13	0.058	0.013 U	0.22	0.012 U	0.12	0.011 U	0.13	0.21
B-60 (7-8 ft)	06/28/16	0.2	0.23	0.16	0.089	0.04 J	0.23	0.058	0.012 U	0.35	0.012 U	0.19	0.011 J	0.14	0.25

Notes:

All concentrations are milligrams per kilogram (mg/kg). Only analytes detected in at least one soil sample are shown.

Shading and brackets indicate a detected concentration exceeding the Iowa Statewide Standard.

ft

Feet

Data Qualifiers:

J The identification of the analyte is acceptable; the reported value is an estimate.

U The analyte was not detected at or above the reporting limit.

TABLE E-4

SOIL SAMPLING RESULTS (B-61 - B-65) COMPARED TO IOWA STATEWIDE STANDARDS

Sample	Date	2-Butanone	Acetone	Arsenic	Barium	Cadmium	Carbon disulfide	Chromium	DRO (C10-C20)	Ethylbenzene	GRO (C6-C10)	Isopropylbenzene	Lead	m,p-Xylene	Mercury	Methylcyclohexane	ORO (C20-C34)	Selenium	Silver	Toluene	Xylenes, Total
Iowa Statewide Standard for Soil		46,000	68,000	17	15,000	70	7,600	97,000	28,000	7,600	-	7,600	400	15,000	23	-	9,400	390	370	6,100	15,000
B-61 (4-5)	06/27/16	0.0094	0.053	5.7	94	0.073 J	0.00017 U	13	13	0.00010 U	1.1 U	0.00013 U	8.4	0.00033 U	0.032	0.00020 U	14	0.27 U	0.061 U	0.00023 J	0.00049 U
B-61 (5-6)	06/27/16	0.00079 U	0.032	7.1	310	1.4	0.00030 U	18	14	0.00011 U	1.2 U	0.00014 U	12	0.00034 U	0.025	0.00020 U	26	0.24 U	0.053 U	0.00012 U	0.00050 U
B-62 (4-5)	06/27/16	0.062 U	0.083 U	13	170	0.049 U	0.016 U	25	300	6.2	1500	2.9	38	0.21	0.038	11	440	0.46 J	0.063 U	0.015 U	0.21
B-62 (16-17)	06/27/16	0.061 U	0.082 U	7	230	0.068 J	0.09	16	84	0.5	140	0.3	260	0.028 J	0.87	0.019 U	130	0.27 U	0.06 U	0.015 U	0.035 U
B-63 (6-8)	06/28/16	0.0071 J	0.055	16	1700	12	0.0032 J	19	43	0.00016 U	1.3 U	0.00020 U	<5600>	0.00049 U	0.38	0.00029 U	87	1.1 J	0.29 J	0.00017 U	0.00072 U
B-63 (24-26)	06/28/16	0.00085 U	0.013	4.6	82	0.044 U	0.00019 U	10	27	0.00012 U	1 U	0.00015 U	38	0.00037 U	0.027	0.00022 U	63	0.26 U	0.057 U	0.00012 U	0.00054 U
B-64 (6-8)	06/28/16	0.00086 U	0.025	9	140	0.037 U	0.00079 J	20	43	0.00012 U	1.1 U	0.00015 U	9.5	0.00037 U	0.025	0.00022 U	110	0.22 U	0.048 U	0.00013 U	0.00055 U
B-64 (26-28)	06/28/16	0.00088 U	0.0035 J	5.2	310	0.047 U	0.00020 U	18	1.7 U	0.00012 U	1.3 U	0.00015 U	14	0.00038 U	0.032	0.00022 U	3.4 U	0.28 U	0.061 U	0.00013 U	0.00056 U
B-65 (2-4)	06/28/16	0.0078 J	0.041	8.9	300	0.88	0.0097	13	16	0.00013 U	1.3 U	0.00016 U	22	0.00041 U	0.021	0.00024 U	31	0.56 J	0.054 U	0.00014 U	0.00061 U
B-65 (6-8)	06/28/16	0.0059 J	0.041	8.8	300	0.25 J	0.0025 J	18	74	0.00014 U	1.3 U	0.00017 U	40	0.00043 U	0.016 J	0.00025 U	120	0.79 J	0.41 J	0.00015 U	0.00063 U

Notes:
All concentrations are milligrams per kilogram (mg/kg). Only analytes detected in at least one soil sample are shown.
Shading and brackets indicate a detected concentration exceeding the Iowa Statewide Standard.
ft Feet

Data Qualifiers:
J The identification of the analyte is acceptable; the reported value is an estimate.
U The analyte was not detected at or above the reporting limit.

TABLE E-5**SOIL AND SEDIMENT SAMPLING RESULTS (SS-66 AND SED-67) COMPARED TO IOWA STATEWIDE STANDARDS**

Sample	Date	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs, Total
Iowa Statewide Standard for Soil		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SS-66	06/29/16	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.024 U	0.024 U	0.024 U
SED-67	06/28/16	0.02 HU	0.02 HU	0.02 HU	0.02 HU	0.02 HU	0.032 HU	0.032 HU	0.032 HU

Notes:

All concentrations are milligrams per kilogram (mg/kg).

Shading and brackets indicate a detected concentration exceeding the Iowa Statewide Standard.

PCB Polychlorinated biphenyl

Data Qualifiers:

H Analyzed outside of holding time.

U The analyte was not detected at or above the reporting limit.

TABLE E-6**GROUNDWATER SAMPLING RESULTS COMPARED TO IOWA STATEWIDE STANDARDS**

Sample	Date	Acetone	Arsenic	Barium	Cadmium	Chloroform	Chromium	DRO (C10-C20)	Lead
Iowa State-wide Non-Protected Groundwater Standard		32,000	50	10,000	NE	NE	NE	44,000	75
Iowa State-wide Protected Groundwater Standard		6,300	10	2,000	5	80	NE	2,200	15
B-61 GW	6/28/2016	0.92 U	1.2 J	330	11	0.26 U	2.8 J	370	26
Rinsate	6/28/2016	7.9 J	3 J	100	0.58 J	0.26 U	4.8 J	870	20
Trip Blank - Water	6/28/2016	0.92 U	-	-	-	0.93 J	-	-	-

Notes:

All concentrations are micrograms per liter (µg/L). Only analytes detected in at least one water sample are shown.

DRO Diesel-range Organics

NE Not established

Data Qualifiers:

J The identification of the analyte is acceptable; the reported value is an estimate.

U The analyte was not detected at or above the reporting limit.

TABLE E-7

SPILL MATERIAL SAMPLES COMPARED TO TCLP LIMITS

Sample	Date	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Arsenic	Barium	Cadmium	Chromium	Hexachloro-1,3-butadiene	Hexachlorobenzene	Hexachloroethane	Lead	m-Cresol	Mercury	Nitrobenzene	Pentachlorophenol	Pyridine	Selenium	Silver
TCLP Regulatory Limit		7,500	130	400,000	2,000	5,000	100,000	1,000	5,000	500	130	3,000	5,000	200,000	200	2,000	100,000	5,000	1,000	5,000
TCLP-1	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	180	7.8 U	3.4 J	5.6 U	8.8 U	4.2 U	170	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-2	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	120	7.8 U	1.7 U	5.6 U	8.8 U	4.2 U	13 U	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-3	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	110	7.8 U	2.7 J	5.6 U	8.8 U	4.2 U	25 J	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-4	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	320	7.8 U	1.7 U	5.6 U	8.8 U	4.2 U	18 J	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-5	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	630	41 J	1.8 J	5.6 U	8.8 U	4.2 U	32 J	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-6	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	500	7.8 U	1.7 U	5.6 U	8.8 U	4.2 U	290	38 J	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-7	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	420	100	4 J	5.6 U	8.8 U	4.2 U	250	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U
TCLP-9	6/29/2016	6.4 U	8.4 U	3.4 U	5 U	16 U	1,100	54 J	2.5 J	5.6 U	8.8 U	4.2 U	76	3.9 U	0.19 U	5.2 U	19 U	2 U	32 U	2.8 U

Notes:

All concentrations are micrograms per liter (µg/L).

TCLP Toxicity characteristic leaching procedure

Data Qualifiers:

J The identification of the analyte is acceptable; the reported value is an estimate.

U The analyte was not detected at or above the reporting limit.

TABLE E-8

TRENCH DRAIN MATERIAL COMPARED TO IOWA STATEWIDE STANDARDS

Sample	Date	Arsenic	Barium	Cadmium	Chromium	DRO (C10-C20)	GRO (C6-C10)	Lead	Mercury	ORO (C20-C34)	Selenium	Silver
Iowa Statewide Standard for Soil		17	15,000	70	97,000	28,000	NE	400	23	9,400	390	370
Trench Drain	06/29/16	7.2	62	14	150	12,000	1.2 U	280	0.21	250,000	0.77 J	0.57

Notes:

All concentrations are milligrams per kilogram (mg/kg).

Iowa Statewide Standards for Soil are shown for reference.

DRO Diesel-range organics

NE Not established

ORO Oil-range organics

Data Qualifiers:

U The analyte was not detected at or above the reporting limit.

APPENDIX F
CUMULATIVE RISK CALCULATIONS

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-51 (1-2 ft)	Arsenic *	7440-38-2	11	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	abl	7439-92-1	350	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	8.7E-01	3.2E-01	1.8E-01
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	8.7E-01	3.2E-01	1.8E-01
B-51 (3-4 ft)	Arsenic *	7440-38-2	13	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	23	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	5.7E-02	2.1E-02	1.2E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	5.7E-02	2.1E-02	1.2E-02
B-51 (5-6 ft)	Arsenic *	7440-38-2	14	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	38	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	9.5E-02	3.5E-02	1.9E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	9.5E-02	3.5E-02	1.9E-02
B-51 (7-8 ft)	Arsenic *	7440-38-2	11	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	51	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	1.3E-01	4.6E-02	2.6E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.3E-01	4.6E-02	2.6E-02
B-52 (1-2 ft)	Arsenic *	7440-38-2	9.3	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	57	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	1.4E-01	5.2E-02	2.9E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.4E-01	5.2E-02	2.9E-02
B-52 (3-4 ft)	Arsenic *	7440-38-2	27	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	2.57E-05	5.65E-06	6.03E-07	4.6E-01	9.1E-02	9.4E-02
	Lead	7439-92-1	30	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	7.5E-02	2.7E-02	1.5E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	2.57E-05	5.65E-06	6.03E-07	5.4E-01	1.2E-01	1.1E-01
B-52 (5-6 ft)	Arsenic *	7440-38-2	10	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	52	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	1.3E-01	4.7E-02	2.6E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.3E-01	4.7E-02	2.6E-02
B-52 (7-8 ft)	Arsenic *	7440-38-2	5.6	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	13	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	3.2E-02	1.2E-02	6.6E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	3.2E-02	1.2E-02	6.6E-03
B-53 (1-2 ft)	Arsenic *	7440-38-2	8.8	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	14	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	3.5E-02	1.3E-02	7.1E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	3.5E-02	1.3E-02	7.1E-03
B-53 (3-4 ft)	Arsenic *	7440-38-2	15	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	14	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	3.5E-02	1.3E-02	7.1E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	3.5E-02	1.3E-02	7.1E-03
B-53 (5-6 ft)	Arsenic *	7440-38-2	12	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	18	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	4.5E-02	1.6E-02	9.1E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	4.5E-02	1.6E-02	9.1E-03

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-53 (7-8 ft)	Arsenic *	7440-38-2	6.5	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	10	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	2.5E-02	9.1E-03	5.1E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	2.5E-02	9.1E-03	5.1E-03
B-54 (1-2 ft)	Arsenic *	7440-38-2	20	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	7.71E-06	1.70E-06	1.81E-07	1.4E-01	2.7E-02	2.8E-02
	Lead	7439-92-1	34	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	8.5E-02	3.1E-02	1.7E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	7.71E-06	1.70E-06	1.81E-07	2.2E-01	5.8E-02	4.5E-02
B-54 (3-4 ft)	Arsenic *	7440-38-2	14	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	21	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	5.2E-02	1.9E-02	1.1E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	5.2E-02	1.9E-02	1.1E-02
B-54 (5-6 ft)	Arsenic *	7440-38-2	8.2	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	18	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	4.5E-02	1.6E-02	9.1E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	4.5E-02	1.6E-02	9.1E-03
B-54 (7-8 ft)	Arsenic *	7440-38-2	7.5	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	15	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	3.7E-02	1.4E-02	7.6E-03
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	3.7E-02	1.4E-02	7.6E-03
B-55 (1-2 ft)	Arsenic *	7440-38-2	9.1	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	520	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	1.3E+00	4.7E-01	2.6E-01
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	1.3E+00	4.7E-01	2.6E-01
B-55 (3-4 ft)	Arsenic *	7440-38-2	9	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	390	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	9.7E-01	3.5E-01	2.0E-01
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	9.7E-01	3.5E-01	2.0E-01
B-55 (5-6 ft)	Arsenic *	7440-38-2	21	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	1.03E-05	2.26E-06	2.41E-07	1.8E-01	3.7E-02	3.8E-02
	Lead	7439-92-1	29	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	7.2E-02	2.6E-02	1.5E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	1.03E-05	2.26E-06	2.41E-07	2.6E-01	6.3E-02	5.2E-02
B-55 (7-8 ft)	Arsenic *	7440-38-2	6.2	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	20	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	5.0E-02	1.8E-02	1.0E-02
	Cumulative Risk	-	-	-	-	-	-	-	-	-	0.00E+00	0.00E+00	0.00E+00	5.0E-02	1.8E-02	1.0E-02

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-56 (1-2 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0078 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.015 J	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	4.4E-06	8.1E-07	9.0E-07
	Anthracene	120-12-7	0.052	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	3.0E-06	5.6E-07	6.2E-07
	Benzo(a)anthracene	56-55-3	0.25	2.34	26.71	0.62	-	-	-	-	4.03E-07	1.07E-07	9.36E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.26	0.23	2.67	0.06	-	-	-	-	4.19E-06	1.11E-06	9.74E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.33	2.34	26.71	0.62	-	-	-	-	5.32E-07	1.41E-07	1.24E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.19	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	1.1E-03	2.1E-04	2.3E-04
	Benzo(k)fluoranthene	207-08-9	0.11	23.45	267.09	6.20	-	-	-	-	1.77E-08	4.69E-09	4.12E-10	-	-	-
	Carbazole	86-74-8	0.04 J	95.79	1042.75	24.27	-	-	-	-	1.65E-09	4.18E-10	3.84E-11	-	-	-
	Chrysene	218-01-9	0.31	234.47	2673.80	62.03	-	-	-	-	5.00E-09	1.32E-09	1.16E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.058	0.23	2.67	0.06	-	-	-	-	9.35E-07	2.47E-07	2.17E-08	-	-	-
	Fluoranthene	206-44-0	0.48	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	2.1E-04	3.9E-05	4.3E-05
	Fluorene	86-73-7	0.011 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.22	2.34	26.71	0.62	-	-	-	-	3.55E-07	9.38E-08	8.24E-09	-	-	-
	Naphthalene	91-20-3	0.0098 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.46	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	2.7E-04	5.0E-05	5.5E-05
	Cumulative Risk										6.44E-06	1.70E-06	1.50E-07	1.6E-03	3.0E-04	3.3E-04
B-56 (3-4 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0083 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.058	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	1.7E-05	3.1E-06	3.5E-06
	Anthracene	120-12-7	0.18	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.0E-05	2.0E-06	2.2E-06
	Benzo(a)anthracene	56-55-3	1.1	2.34	26.71	0.62	-	-	-	-	1.77E-06	4.69E-07	4.12E-08	-	-	-
	Benzo(a)pyrene	50-32-8	1.1	0.23	2.67	0.06	-	-	-	-	1.77E-05	4.69E-06	4.12E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	1.7	2.34	26.71	0.62	-	-	-	-	2.74E-06	7.25E-07	6.37E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.85	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	4.9E-03	9.2E-04	1.0E-03
	Benzo(k)fluoranthene	207-08-9	0.49	23.45	267.09	6.20	-	-	-	-	7.90E-08	2.09E-08	1.83E-09	-	-	-
	Carbazole	86-74-8	0.17	95.79	1042.75	24.27	-	-	-	-	7.00E-09	1.77E-09	1.63E-10	-	-	-
	Chrysene	218-01-9	1.3	234.47	2673.80	62.03	-	-	-	-	2.10E-08	5.54E-09	4.86E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.25	0.23	2.67	0.06	-	-	-	-	4.03E-06	1.07E-06	9.36E-08	-	-	-
	Fluoranthene	206-44-0	1.9	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	8.3E-04	1.5E-04	1.7E-04
	Fluorene	86-73-7	0.068	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	3.0E-05	5.5E-06	6.1E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.92	2.34	26.71	0.62	-	-	-	-	1.48E-06	3.92E-07	3.44E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	2.1	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.2E-03	2.3E-04	2.5E-04
	Cumulative Risk										2.79E-05	7.37E-06	6.47E-07	7.0E-03	1.3E-03	1.5E-03

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-56 (5-6 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0083 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.05	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	1.5E-05	2.7E-06	3.0E-06
	Anthracene	120-12-7	0.19	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.1E-05	2.1E-06	2.3E-06
	Benzo(a)anthracene	56-55-3	1.2	2.34	26.71	0.62	-	-	-	-	1.93E-06	5.12E-07	4.49E-08	-	-	-
	Benzo(a)pyrene	50-32-8	1.2	0.23	2.67	0.06	-	-	-	-	1.93E-05	5.12E-06	4.49E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	1.7	2.34	26.71	0.62	-	-	-	-	2.74E-06	7.25E-07	6.37E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.86	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	5.0E-03	9.3E-04	1.0E-03
	Benzo(k)fluoranthene	207-08-9	0.58	23.45	267.09	6.20	-	-	-	-	9.35E-08	2.47E-08	2.17E-09	-	-	-
	Carbazole	86-74-8	0.21	95.79	1042.75	24.27	-	-	-	-	8.65E-09	2.19E-09	2.01E-10	-	-	-
	Chrysene	218-01-9	1.4	234.47	2673.80	62.03	-	-	-	-	2.26E-08	5.97E-09	5.24E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.25	0.23	2.67	0.06	-	-	-	-	4.03E-06	1.07E-06	9.36E-08	-	-	-
	Fluoranthene	206-44-0	2	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	8.7E-04	1.6E-04	1.8E-04
	Fluorene	86-73-7	0.064	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	2.8E-05	5.2E-06	5.7E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.96	2.34	26.71	0.62	-	-	-	-	1.55E-06	4.09E-07	3.59E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	2.2	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.3E-03	2.4E-04	2.6E-04
	Cumulative Risk										2.97E-05	7.86E-06	6.90E-07	7.2E-03	1.3E-03	1.5E-03
B-56 (7-8 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0081 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.11	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	3.2E-05	6.0E-06	6.6E-06
	Anthracene	120-12-7	0.46	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	2.7E-05	5.0E-06	5.5E-06
	Benzo(a)anthracene	56-55-3	2.8	2.34	26.71	0.62	-	-	-	-	4.51E-06	1.19E-06	1.05E-07	-	-	-
	Benzo(a)pyrene	50-32-8	2.6	0.23	2.67	0.06	-	-	-	-	4.19E-05	1.11E-05	9.74E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	3.7	2.34	26.71	0.62	-	-	-	-	5.97E-06	1.58E-06	1.39E-07	-	-	-
	Benzo(g,h,i)perylene	191-24-2	1.8	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	1.0E-02	2.0E-03	2.2E-03
	Benzo(k)fluoranthene	207-08-9	1.2	23.45	267.09	6.20	-	-	-	-	1.93E-07	5.12E-08	4.49E-09	-	-	-
	Carbazole	86-74-8	0.44	95.79	1042.75	24.27	-	-	-	-	1.81E-08	4.59E-09	4.22E-10	-	-	-
	Chrysene	218-01-9	3.1	234.47	2673.80	62.03	-	-	-	-	5.00E-08	1.32E-08	1.16E-09	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.52	0.23	2.67	0.06	-	-	-	-	8.38E-06	2.22E-06	1.95E-07	-	-	-
	Fluoranthene	206-44-0	4.6	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	2.0E-03	3.7E-04	4.1E-04
	Fluorene	86-73-7	0.1	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	4.4E-05	8.1E-06	9.0E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	2	2.34	26.71	0.62	-	-	-	-	3.22E-06	8.53E-07	7.49E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	4.1	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	2.4E-03	4.4E-04	4.9E-04
	Cumulative Risk										6.43E-05	1.70E-05	1.49E-06	1.5E-02	2.8E-03	3.1E-03

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-57 (1-2 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0082 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.021	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.2E-06	2.3E-07	2.5E-07
	Benzo(a)anthracene	56-55-3	0.11	2.34	26.71	0.62	-	-	-	-	1.77E-07	4.69E-08	4.12E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.13	0.23	2.67	0.06	-	-	-	-	2.10E-06	5.54E-07	4.87E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.16	2.34	26.71	0.62	-	-	-	-	2.58E-07	6.82E-08	5.99E-09	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.086	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	5.0E-04	9.3E-05	1.0E-04
	Benzo(k)fluoranthene	207-08-9	0.081	23.45	267.09	6.20	-	-	-	-	1.31E-08	3.45E-09	3.03E-10	-	-	-
	Carbazole	86-74-8	0.062 J	95.79	1042.75	24.27	-	-	-	-	2.55E-09	6.47E-10	5.95E-11	-	-	-
	Chrysene	218-01-9	0.11	234.47	2673.80	62.03	-	-	-	-	1.77E-09	4.69E-10	4.11E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.05	0.23	2.67	0.06	-	-	-	-	8.06E-07	2.13E-07	1.87E-08	-	-	-
	Fluoranthene	206-44-0	0.2	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	8.7E-05	1.6E-05	1.8E-05
	Fluorene	86-73-7	0.042	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	1.8E-05	3.4E-06	3.8E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.11	2.34	26.71	0.62	-	-	-	-	1.77E-07	4.69E-08	4.12E-09	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.18	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.0E-04	2.0E-05	2.2E-05
	Cumulative Risk										3.53E-06	9.34E-07	8.20E-08	7.1E-04	1.3E-04	1.5E-04
B-57 (3-4 ft)	2-Chloronaphthalene	91-58-7	0.012 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0086 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.012 U	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	-	-	-
	Benzo(a)anthracene	56-55-3	0.075	2.34	26.71	0.62	-	-	-	-	1.21E-07	3.20E-08	2.81E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.095	0.23	2.67	0.06	-	-	-	-	1.53E-06	4.05E-07	3.56E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.11	2.34	26.71	0.62	-	-	-	-	1.77E-07	4.69E-08	4.12E-09	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.042	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	2.4E-04	4.6E-05	5.0E-05
	Benzo(k)fluoranthene	207-08-9	0.062	23.45	267.09	6.20	-	-	-	-	1.00E-08	2.64E-09	2.32E-10	-	-	-
	Carbazole	86-74-8	0.056 J	95.79	1042.75	24.27	-	-	-	-	2.31E-09	5.85E-10	5.37E-11	-	-	-
	Chrysene	218-01-9	0.046	234.47	2673.80	62.03	-	-	-	-	7.42E-10	1.96E-10	1.72E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.0091 U	0.23	2.67	0.06	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	206-44-0	0.13	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	5.7E-05	1.1E-05	1.2E-05
	Fluorene	86-73-7	0.012 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.077	2.34	26.71	0.62	-	-	-	-	1.24E-07	3.28E-08	2.88E-09	-	-	-
	Naphthalene	91-20-3	0.011 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.091	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	5.3E-05	9.9E-06	1.1E-05
	Cumulative Risk										1.97E-06	5.20E-07	4.57E-08	3.5E-04	6.6E-05	7.3E-05

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-57 (5-6 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0081 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.038	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	2.2E-06	4.1E-07	4.5E-07
	Benzo(a)anthracene	56-55-3	0.23	2.34	26.71	0.62	-	-	-	-	3.71E-07	9.81E-08	8.61E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.23	0.23	2.67	0.06	-	-	-	-	3.71E-06	9.81E-07	8.61E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.33	2.34	26.71	0.62	-	-	-	-	5.32E-07	1.41E-07	1.24E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.16	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	9.3E-04	1.7E-04	1.9E-04
	Benzo(k)fluoranthene	207-08-9	0.14	23.45	267.09	6.20	-	-	-	-	2.26E-08	5.97E-09	5.24E-10	-	-	-
	Carbazole	86-74-8	0.067 J	95.79	1042.75	24.27	-	-	-	-	2.76E-09	6.99E-10	6.43E-11	-	-	-
	Chrysene	218-01-9	0.25	234.47	2673.80	62.03	-	-	-	-	4.03E-09	1.07E-09	9.35E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.069	0.23	2.67	0.06	-	-	-	-	1.11E-06	2.94E-07	2.58E-08	-	-	-
	Fluoranthene	206-44-0	0.4	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.7E-04	3.3E-05	3.6E-05
	Fluorene	86-73-7	0.045	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	2.0E-05	3.7E-06	4.0E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.2	2.34	26.71	0.62	-	-	-	-	3.22E-07	8.53E-08	7.49E-09	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.41	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	2.4E-04	4.4E-05	4.9E-05
	Cumulative Risk										6.08E-06	1.61E-06	1.41E-07	1.4E-03	2.5E-04	2.8E-04
B-57 (7-8 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0079 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.022	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	6.4E-06	1.2E-06	1.3E-06
	Anthracene	120-12-7	0.086	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	5.0E-06	9.3E-07	1.0E-06
	Benzo(a)anthracene	56-55-3	0.47	2.34	26.71	0.62	-	-	-	-	7.58E-07	2.00E-07	1.76E-08	-	-	-
	Benzo(a)pyrene	50-32-8	0.44	0.23	2.67	0.06	-	-	-	-	7.09E-06	1.88E-06	1.65E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.65	2.34	26.71	0.62	-	-	-	-	1.05E-06	2.77E-07	2.43E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.32	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	1.9E-03	3.5E-04	3.8E-04
	Benzo(k)fluoranthene	207-08-9	0.23	23.45	267.09	6.20	-	-	-	-	3.71E-08	9.81E-09	8.61E-10	-	-	-
	Carbazole	86-74-8	0.09	95.79	1042.75	24.27	-	-	-	-	3.71E-09	9.40E-10	8.63E-11	-	-	-
	Chrysene	218-01-9	0.49	234.47	2673.80	62.03	-	-	-	-	7.90E-09	2.09E-09	1.83E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.11	0.23	2.67	0.06	-	-	-	-	1.77E-06	4.69E-07	4.12E-08	-	-	-
	Fluoranthene	206-44-0	0.79	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	3.4E-04	6.4E-05	7.1E-05
	Fluorene	86-73-7	0.05	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	2.2E-05	4.1E-06	4.5E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.38	2.34	26.71	0.62	-	-	-	-	6.13E-07	1.62E-07	1.42E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.89	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	5.2E-04	9.7E-05	1.1E-04
	Cumulative Risk										1.13E-05	3.00E-06	2.63E-07	2.8E-03	5.1E-04	5.7E-04

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-58 (1-2 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.019	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	8.3E-05	1.5E-05	1.7E-05
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.066	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	3.8E-06	7.2E-07	7.9E-07
	Benzo(a)anthracene	56-55-3	0.36	2.34	26.71	0.62	-	-	-	-	5.80E-07	1.54E-07	1.35E-08	-	-	-
	Benzo(a)pyrene	50-32-8	0.35	0.23	2.67	0.06	-	-	-	-	5.64E-06	1.49E-06	1.31E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.53	2.34	26.71	0.62	-	-	-	-	8.54E-07	2.26E-07	1.98E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.24	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	1.4E-03	2.6E-04	2.9E-04
	Benzo(k)fluoranthene	207-08-9	0.17	23.45	267.09	6.20	-	-	-	-	2.74E-08	7.25E-09	6.36E-10	-	-	-
	Carbazole	86-74-8	0.088	95.79	1042.75	24.27	-	-	-	-	3.63E-09	9.19E-10	8.44E-11	-	-	-
	Chrysene	218-01-9	0.38	234.47	2673.80	62.03	-	-	-	-	6.13E-09	1.62E-09	1.42E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.094	0.23	2.67	0.06	-	-	-	-	1.52E-06	4.01E-07	3.52E-08	-	-	-
	Fluoranthene	206-44-0	0.59	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	2.6E-04	4.8E-05	5.3E-05
	Fluorene	86-73-7	0.048	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	2.1E-05	3.9E-06	4.3E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.28	2.34	26.71	0.62	-	-	-	-	4.51E-07	1.19E-07	1.05E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.61	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	3.5E-04	6.6E-05	7.3E-05
	Cumulative Risk										9.08E-06	2.40E-06	2.11E-07	2.1E-03	3.9E-04	4.4E-04
B-58 (3-4 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.032	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	1.4E-04	2.6E-05	2.9E-05
	Acenaphthene	83-32-9	0.095	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	2.8E-05	5.2E-06	5.7E-06
	Anthracene	120-12-7	0.29	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.7E-05	3.1E-06	3.5E-06
	Benzo(a)anthracene	56-55-3	1.3	2.34	26.71	0.62	-	-	-	-	2.10E-06	5.54E-07	4.87E-08	-	-	-
	Benzo(a)pyrene	50-32-8	1.2	0.23	2.67	0.06	-	-	-	-	1.93E-05	5.12E-06	4.49E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	1.9	2.34	26.71	0.62	-	-	-	-	3.06E-06	8.10E-07	7.11E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.86	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	5.0E-03	9.3E-04	1.0E-03
	Benzo(k)fluoranthene	207-08-9	0.65	23.45	267.09	6.20	-	-	-	-	1.05E-07	2.77E-08	2.43E-09	-	-	-
	Carbazole	86-74-8	0.24	95.79	1042.75	24.27	-	-	-	-	9.89E-09	2.51E-09	2.30E-10	-	-	-
	Chrysene	218-01-9	1.5	234.47	2673.80	62.03	-	-	-	-	2.42E-08	6.40E-09	5.61E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.27	0.23	2.67	0.06	-	-	-	-	4.35E-06	1.15E-06	1.01E-07	-	-	-
	Fluoranthene	206-44-0	2.3	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.0E-03	1.9E-04	2.1E-04
	Fluorene	86-73-7	0.1	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	4.4E-05	8.1E-06	9.0E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.93	2.34	26.71	0.62	-	-	-	-	1.50E-06	3.97E-07	3.48E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	2.5	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.5E-03	2.7E-04	3.0E-04
	Cumulative Risk										3.05E-05	8.07E-06	7.08E-07	7.7E-03	1.4E-03	1.6E-03

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-58 (5-6 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0081 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.011 U	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	-	-	-
	Benzo(a)anthracene	56-55-3	0.063	2.34	26.71	0.62	-	-	-	-	1.02E-07	2.69E-08	2.36E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.084	0.23	2.67	0.06	-	-	-	-	1.35E-06	3.58E-07	3.15E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.098	2.34	26.71	0.62	-	-	-	-	1.58E-07	4.18E-08	3.67E-09	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.034	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	2.0E-04	3.7E-05	4.1E-05
	Benzo(k)fluoranthene	207-08-9	0.05	23.45	267.09	6.20	-	-	-	-	8.06E-09	2.13E-09	1.87E-10	-	-	-
	Carbazole	86-74-8	0.051 J	95.79	1042.75	24.27	-	-	-	-	2.10E-09	5.32E-10	4.89E-11	-	-	-
	Chrysene	218-01-9	0.041	234.47	2673.80	62.03	-	-	-	-	6.61E-10	1.75E-10	1.53E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.0086 U	0.23	2.67	0.06	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	206-44-0	0.12	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	5.2E-05	9.8E-06	1.1E-05
	Fluorene	86-73-7	0.012 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.065	2.34	26.71	0.62	-	-	-	-	1.05E-07	2.77E-08	2.43E-09	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.081	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	4.7E-05	8.8E-06	9.7E-06
	Cumulative Risk										1.73E-06	4.58E-07	4.02E-08	3.0E-04	5.5E-05	6.1E-05
B-58 (7-8 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.008 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.011 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.011 U	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	-	-	-
	Benzo(a)anthracene	56-55-3	0.045	2.34	26.71	0.62	-	-	-	-	7.25E-08	1.92E-08	1.68E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.0096 U	0.23	2.67	0.06	-	-	-	-	-	-	-	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.012 U	2.34	26.71	0.62	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.012 U	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	-	-	-
	Benzo(k)fluoranthene	207-08-9	0.012 U	23.45	267.09	6.20	-	-	-	-	-	-	-	-	-	-
	Carbazole	86-74-8	0.0085 U	95.79	1042.75	24.27	-	-	-	-	-	-	-	-	-	-
	Chrysene	218-01-9	0.02	234.47	2673.80	62.03	-	-	-	-	3.22E-10	8.53E-11	7.48E-12	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.0085 U	0.23	2.67	0.06	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	206-44-0	0.087	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	3.8E-05	7.1E-06	7.8E-06
	Fluorene	86-73-7	0.011 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.011 U	2.34	26.71	0.62	-	-	-	-	-	-	-	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.043	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	2.5E-05	4.7E-06	5.1E-06
	Cumulative Risk										7.29E-08	1.93E-08	1.69E-09	6.3E-05	1.2E-05	1.3E-05

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-59 (1-2 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0079 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.011 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.036	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	2.1E-06	3.9E-07	4.3E-07
	Benzo(a)anthracene	56-55-3	0.23	2.34	26.71	0.62	-	-	-	-	3.71E-07	9.81E-08	8.61E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.24	0.23	2.67	0.06	-	-	-	-	3.87E-06	1.02E-06	8.99E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.33	2.34	26.71	0.62	-	-	-	-	5.32E-07	1.41E-07	1.24E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.17	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	9.9E-04	1.8E-04	2.0E-04
	Benzo(k)fluoranthene	207-08-9	0.12	23.45	267.09	6.20	-	-	-	-	1.93E-08	5.12E-09	4.49E-10	-	-	-
	Carbazole	86-74-8	0.061 J	95.79	1042.75	24.27	-	-	-	-	2.51E-09	6.37E-10	5.85E-11	-	-	-
	Chrysene	218-01-9	0.22	234.47	2673.80	62.03	-	-	-	-	3.55E-09	9.38E-10	8.23E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.071	0.23	2.67	0.06	-	-	-	-	1.14E-06	3.03E-07	2.66E-08	-	-	-
	Fluoranthene	206-44-0	0.38	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.7E-04	3.1E-05	3.4E-05
	Fluorene	86-73-7	0.042	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	1.8E-05	3.4E-06	3.8E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.2	2.34	26.71	0.62	-	-	-	-	3.22E-07	8.53E-08	7.49E-09	-	-	-
	Naphthalene	91-20-3	0.0099 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.4	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	2.3E-04	4.3E-05	4.8E-05
	Cumulative Risk										6.26E-06	1.66E-06	1.45E-07	1.4E-03	2.6E-04	2.9E-04
B-59 (3-4 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0079 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.047	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	1.4E-05	2.5E-06	2.8E-06
	Anthracene	120-12-7	0.11	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	6.4E-06	1.2E-06	1.3E-06
	Benzo(a)anthracene	56-55-3	0.44	2.34	26.71	0.62	-	-	-	-	7.09E-07	1.88E-07	1.65E-08	-	-	-
	Benzo(a)pyrene	50-32-8	0.4	0.23	2.67	0.06	-	-	-	-	6.45E-06	1.71E-06	1.50E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.56	2.34	26.71	0.62	-	-	-	-	9.03E-07	2.39E-07	2.10E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.28	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	1.6E-03	3.0E-04	3.4E-04
	Benzo(k)fluoranthene	207-08-9	0.21	23.45	267.09	6.20	-	-	-	-	3.39E-08	8.96E-09	7.86E-10	-	-	-
	Carbazole	86-74-8	0.095	95.79	1042.75	24.27	-	-	-	-	3.91E-09	9.92E-10	9.11E-11	-	-	-
	Chrysene	218-01-9	0.46	234.47	2673.80	62.03	-	-	-	-	7.42E-09	1.96E-09	1.72E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.1	0.23	2.67	0.06	-	-	-	-	1.61E-06	4.27E-07	3.74E-08	-	-	-
	Fluoranthene	206-44-0	0.84	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	3.7E-04	6.8E-05	7.5E-05
	Fluorene	86-73-7	0.064	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	2.8E-05	5.2E-06	5.7E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.32	2.34	26.71	0.62	-	-	-	-	5.16E-07	1.36E-07	1.20E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.9	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	5.2E-04	9.8E-05	1.1E-04
	Cumulative Risk										1.02E-05	2.71E-06	2.38E-07	2.6E-03	4.8E-04	5.3E-04

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-59 (5-6 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0083 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.042	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	1.2E-05	2.3E-06	2.5E-06
	Anthracene	120-12-7	0.094	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	5.5E-06	1.0E-06	1.1E-06
	Benzo(a)anthracene	56-55-3	0.39	2.34	26.71	0.62	-	-	-	-	6.29E-07	1.66E-07	1.46E-08	-	-	-
	Benzo(a)pyrene	50-32-8	0.37	0.23	2.67	0.06	-	-	-	-	5.97E-06	1.58E-06	1.39E-07	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.53	2.34	26.71	0.62	-	-	-	-	8.54E-07	2.26E-07	1.98E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.23	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	1.3E-03	2.5E-04	2.8E-04
	Benzo(k)fluoranthene	207-08-9	0.18	23.45	267.09	6.20	-	-	-	-	2.90E-08	7.68E-09	6.74E-10	-	-	-
	Carbazole	86-74-8	0.098	95.79	1042.75	24.27	-	-	-	-	4.04E-09	1.02E-09	9.40E-11	-	-	-
	Chrysene	218-01-9	0.39	234.47	2673.80	62.03	-	-	-	-	6.29E-09	1.66E-09	1.46E-10	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.093	0.23	2.67	0.06	-	-	-	-	1.50E-06	3.97E-07	3.48E-08	-	-	-
	Fluoranthene	206-44-0	0.76	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	3.3E-04	6.2E-05	6.8E-05
	Fluorene	86-73-7	0.061	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	2.7E-05	5.0E-06	5.5E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.27	2.34	26.71	0.62	-	-	-	-	4.35E-07	1.15E-07	1.01E-08	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.72	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	4.2E-04	7.8E-05	8.6E-05
	Cumulative Risk										9.42E-06	2.49E-06	2.19E-07	2.1E-03	4.0E-04	4.4E-04
B-59 (7-8 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0084 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.034	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	2.0E-06	3.7E-07	4.1E-07
	Benzo(a)anthracene	56-55-3	0.22	2.34	26.71	0.62	-	-	-	-	3.55E-07	9.38E-08	8.24E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.23	0.23	2.67	0.06	-	-	-	-	3.71E-06	9.81E-07	8.61E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.32	2.34	26.71	0.62	-	-	-	-	5.16E-07	1.36E-07	1.20E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.16	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	9.3E-04	1.7E-04	1.9E-04
	Benzo(k)fluoranthene	207-08-9	0.13	23.45	267.09	6.20	-	-	-	-	2.10E-08	5.54E-09	4.87E-10	-	-	-
	Carbazole	86-74-8	0.062 J	95.79	1042.75	24.27	-	-	-	-	2.55E-09	6.47E-10	5.95E-11	-	-	-
	Chrysene	218-01-9	0.22	234.47	2673.80	62.03	-	-	-	-	3.55E-09	9.38E-10	8.23E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.07	0.23	2.67	0.06	-	-	-	-	1.13E-06	2.99E-07	2.62E-08	-	-	-
	Fluoranthene	206-44-0	0.37	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.6E-04	3.0E-05	3.3E-05
	Fluorene	86-73-7	0.012 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.2	2.34	26.71	0.62	-	-	-	-	3.22E-07	8.53E-08	7.49E-09	-	-	-
	Naphthalene	91-20-3	0.01 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.42	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	2.4E-04	4.6E-05	5.0E-05
	Cumulative Risk										6.06E-06	1.60E-06	1.41E-07	1.3E-03	2.5E-04	2.8E-04

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-60 (1-2 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0077 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.011 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.026	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.5E-06	2.8E-07	3.1E-07
	Benzo(a)anthracene	56-55-3	0.19	2.34	26.71	0.62	-	-	-	-	3.06E-07	8.10E-08	7.11E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.21	0.23	2.67	0.06	-	-	-	-	3.39E-06	8.96E-07	7.86E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.28	2.34	26.71	0.62	-	-	-	-	4.51E-07	1.19E-07	1.05E-08	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.14	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	8.1E-04	1.5E-04	1.7E-04
	Benzo(k)fluoranthene	207-08-9	0.12	23.45	267.09	6.20	-	-	-	-	1.93E-08	5.12E-09	4.49E-10	-	-	-
	Carbazole	86-74-8	0.063 J	95.79	1042.75	24.27	-	-	-	-	2.60E-09	6.58E-10	6.04E-11	-	-	-
	Chrysene	218-01-9	0.21	234.47	2673.80	62.03	-	-	-	-	3.39E-09	8.96E-10	7.85E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.064	0.23	2.67	0.06	-	-	-	-	1.03E-06	2.73E-07	2.40E-08	-	-	-
	Fluoranthene	206-44-0	0.31	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.4E-04	2.5E-05	2.8E-05
	Fluorene	86-73-7	0.039	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	1.7E-05	3.2E-06	3.5E-06
	Indeno(1,2,3-cd)pyrene	193-39-5	0.16	2.34	26.71	0.62	-	-	-	-	2.58E-07	6.82E-08	5.99E-09	-	-	-
	Naphthalene	91-20-3	0.0097 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.33	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.9E-04	3.6E-05	3.9E-05
	Cumulative Risk										5.46E-06	1.44E-06	1.27E-07	1.2E-03	2.2E-04	2.4E-04
B-60 (3-4 ft)	2-Chloronaphthalene	91-58-7	0.012 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0085 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.023	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.3E-06	2.5E-07	2.8E-07
	Benzo(a)anthracene	56-55-3	0.16	2.34	26.71	0.62	-	-	-	-	2.58E-07	6.82E-08	5.99E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.17	0.23	2.67	0.06	-	-	-	-	2.74E-06	7.25E-07	6.37E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.2	2.34	26.71	0.62	-	-	-	-	3.22E-07	8.53E-08	7.49E-09	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.1	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	5.8E-04	1.1E-04	1.2E-04
	Benzo(k)fluoranthene	207-08-9	0.088	23.45	267.09	6.20	-	-	-	-	1.42E-08	3.75E-09	3.29E-10	-	-	-
	Carbazole	86-74-8	0.065 J	95.79	1042.75	24.27	-	-	-	-	2.68E-09	6.79E-10	6.23E-11	-	-	-
	Chrysene	218-01-9	0.13	234.47	2673.80	62.03	-	-	-	-	2.10E-09	5.54E-10	4.86E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.009 U	0.23	2.67	0.06	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	206-44-0	0.25	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.1E-04	2.0E-05	2.2E-05
	Fluorene	86-73-7	0.012 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.13	2.34	26.71	0.62	-	-	-	-	2.10E-07	5.54E-08	4.87E-09	-	-	-
	Naphthalene	91-20-3	0.011 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.23	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.3E-04	2.5E-05	2.8E-05
	Cumulative Risk										3.55E-06	9.39E-07	8.24E-08	8.3E-04	1.5E-04	1.7E-04

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-60 (5-6 ft)	2-Chloronaphthalene	91-58-7	0.012 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.0087 U	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	-	-	-
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.021	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.2E-06	2.3E-07	2.5E-07
	Benzo(a)anthracene	56-55-3	0.14	2.34	26.71	0.62	-	-	-	-	2.26E-07	5.97E-08	5.24E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.15	0.23	2.67	0.06	-	-	-	-	2.42E-06	6.40E-07	5.62E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.18	2.34	26.71	0.62	-	-	-	-	2.90E-07	7.68E-08	6.74E-09	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.089	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	5.2E-04	9.7E-05	1.1E-04
	Benzo(k)fluoranthene	207-08-9	0.087	23.45	267.09	6.20	-	-	-	-	1.40E-08	3.71E-09	3.26E-10	-	-	-
	Carbazole	86-74-8	0.064 J	95.79	1042.75	24.27	-	-	-	-	2.64E-09	6.68E-10	6.14E-11	-	-	-
	Chrysene	218-01-9	0.13	234.47	2673.80	62.03	-	-	-	-	2.10E-09	5.54E-10	4.86E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.058	0.23	2.67	0.06	-	-	-	-	9.35E-07	2.47E-07	2.17E-08	-	-	-
	Fluoranthene	206-44-0	0.22	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	9.6E-05	1.8E-05	2.0E-05
	Fluorene	86-73-7	0.012 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.12	2.34	26.71	0.62	-	-	-	-	1.93E-07	5.12E-08	4.49E-09	-	-	-
	Naphthalene	91-20-3	0.011 U	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	0.21	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.2E-04	2.3E-05	2.5E-05
	Cumulative Risk										4.08E-06	1.08E-06	9.48E-08	7.4E-04	1.4E-04	1.5E-04
B-60 (7-8 ft)	2-Chloronaphthalene	91-58-7	0.011 U	-	-	-	30066.1	6086.8	30358.2	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.015 J	-	-	-	1114.0	229.4	1229.0	Respi	-	-	-	6.5E-05	1.2E-05	1.3E-05
	Acenaphthene	83-32-9	0.012 U	-	-	-	16711.2	3440.4	18433.2	Liver	-	-	-	-	-	-
	Anthracene	120-12-7	0.029	-	-	-	83542.2	17202.8	92165.9	Liver/Other	-	-	-	1.7E-06	3.1E-07	3.5E-07
	Benzo(a)anthracene	56-55-3	0.19	2.34	26.71	0.62	-	-	-	-	3.06E-07	8.10E-08	7.11E-09	-	-	-
	Benzo(a)pyrene	50-32-8	0.2	0.23	2.67	0.06	-	-	-	-	3.22E-06	8.53E-07	7.49E-08	-	-	-
	Benzo(b)fluoranthene	205-99-2	0.23	2.34	26.71	0.62	-	-	-	-	3.71E-07	9.81E-08	8.61E-09	-	-	-
	Benzo(g,h,i)perylene	191-24-2	0.16	-	-	-	835.5	172.0	921.7	Kidney	-	-	-	9.3E-04	1.7E-04	1.9E-04
	Benzo(k)fluoranthene	207-08-9	0.089	23.45	267.09	6.20	-	-	-	-	1.43E-08	3.80E-09	3.33E-10	-	-	-
	Carbazole	86-74-8	0.04 J	95.79	1042.75	24.27	-	-	-	-	1.65E-09	4.18E-10	3.84E-11	-	-	-
	Chrysene	218-01-9	0.23	234.47	2673.80	62.03	-	-	-	-	3.71E-09	9.81E-10	8.60E-11	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.058	0.23	2.67	0.06	-	-	-	-	9.35E-07	2.47E-07	2.17E-08	-	-	-
	Fluoranthene	206-44-0	0.35	-	-	-	11139.6	2293.7	12289.5	Blood/Kidney/Liver	-	-	-	1.5E-04	2.8E-05	3.1E-05
	Fluorene	86-73-7	0.012 U	-	-	-	11139.6	2293.7	12289.5	Blood/Liver	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	193-39-5	0.19	2.34	26.71	0.62	-	-	-	-	3.06E-07	8.10E-08	7.11E-09	-	-	-
	Naphthalene	91-20-3	0.011 J	-	-	-	5570.1	1146.8	6144.8	Nerve/Other	-	-	-	9.6E-06	1.8E-06	2.0E-06
	Pyrene	129-00-0	0.25	-	-	-	8354.9	1720.3	9217.4	Kidney	-	-	-	1.5E-04	2.7E-05	3.0E-05
	Cumulative Risk										5.16E-06	1.37E-06	1.20E-07	1.3E-03	2.4E-04	2.7E-04
B-61 (4-5)	Arsenic *	7440-38-2	5.7	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	8.4	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	2.1E-02	7.6E-03	4.2E-03
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	2.1E-02	7.6E-03	4.2E-03
B-61 (5-6)	Arsenic *	7440-38-2	7.1	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	12	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	3.0E-02	1.1E-02	6.1E-03
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	3.0E-02	1.1E-02	6.1E-03

Appendix F
Cumulative Risk Calculations - Soil Borings and Sediment Samples

Sample Information and Results				Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Sample	Analyte	CAS Number	Result (mg/kg)	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
B-62 (4-5)	Arsenic *	7440-38-2	13	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	38	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	9.5E-02	3.5E-02	1.9E-02
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	9.5E-02	3.5E-02	1.9E-02
B-62 (16-17)	Arsenic *	7440-38-2	7	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	260	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	6.5E-01	2.4E-01	1.3E-01
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	6.5E-01	2.4E-01	1.3E-01
B-63 (6-8)	Arsenic *	7440-38-2	16	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	5600	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	1.4E+01	5.1E+00	2.8E+00
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	1.4E+01	5.1E+00	2.8E+00
B-63 (24-26)	Arsenic *	7440-38-2	4.6	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	38	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	9.5E-02	3.5E-02	1.9E-02
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	9.5E-02	3.5E-02	1.9E-02
B-64 (6-8)	Arsenic *	7440-38-2	9	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	9.5	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	2.4E-02	8.6E-03	4.8E-03
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	2.4E-02	8.6E-03	4.8E-03
B-64 (26-28)	Arsenic *	7440-38-2	5.2	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	14	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	3.5E-02	1.3E-02	7.1E-03
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	3.5E-02	1.3E-02	7.1E-03
B-65 (2-4)	Arsenic *	7440-38-2	8.9	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	22	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	5.5E-02	2.0E-02	1.1E-02
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	5.5E-02	2.0E-02	1.1E-02
B-65 (6-8)	Arsenic *	7440-38-2	8.8	1.77	16.58	0.39	106.5	21.6	109.6	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00
	Lead	7439-92-1	40	-	-	-	1980.0	400.1	1101.1	Devel/Heart/Kidney	-	-	-	1.0E-01	3.6E-02	2.0E-02
	Cumulative Risk										0.00E+00	0.00E+00	0.00E+00	1.0E-01	3.6E-02	2.0E-02

Notes

¹ Site-specific screening level calculated using the Iowa Department of Natural Resources (IDNR) Cumulative Risk Calculator
* The IDNR universal arsenic background concentration of 17 mg/kg is subtracted from arsenic concentrations before determining cancer and non-cancer risks. Thus, sample concentrations of 17 mg/kg or less yield risk values of 0.
CAS Chemical Abstracts Services
mg/kg Milligrams per kilogram
J The reported value is an estimate.
U The analyte was not detected.

Appendix F
Cumulative Risk Calculations - Decision Units

Sample Information and Results								Site-Specific Screening Level ¹ [Cancer Risk = 1E-06] (mg/kg)			Site-Specific Screening Level ¹ [Hazard Index = 1.0] (mg/kg)				Cancer Risk			Non-Cancer Risk		
Decision Unit	Analyte	CAS Number	Individual Sample Results (mg/kg)	Number of Detected Results	Maximum Result (mg/kg)	Exposure Point Concentration		Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
						(mg/kg)	EPC Method of Calculation ²													
DU-01	2-Chloronaphthalene	91-58-7	0.047 HU / 0.095 HU / 0.048 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.15 H / 0.089 JH / 0.18 H	3	0.18	0.22	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	0.84 H / 0.75 H / 1.2 H	3	1.2	1.33	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	2.2 H / 2.2 H / 3.1 H	3	3.1	3.38	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	7.4 / 7.6 / 4.9	3	7.6	9.17	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	8.4 H / 8.8 H / 10 H	3	10	10.47	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.69E-05	4.47E-06	3.92E-07	-	-	-
	Benzo(a)pyrene	50-32-8	8.1 H / 8.7 H / 9.8 H	3	9.8	10.32	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	1.66E-04	4.40E-05	3.86E-06	-	-	-
	Benzo(b)fluoranthene	205-99-2	11 H / 12 H / 13 H	3	13	13.69	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	2.21E-05	5.84E-06	5.12E-07	-	-	-
	Benzo(g,h,i)perylene	191-24-2	6.5 H / 7 H / 8.1 H	3	8.1	8.58	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.05	0.01	0.01
	Benzo(k)fluoranthene	207-08-9	3.6 H / 4 H / 4.9 H	3	4.9	5.29	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	8.53E-07	2.26E-07	1.98E-08	-	-	-
	Carbazole	86-74-8	1.5 H / 1.5 H / 2.1 H	3	2.1	2.28	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	9.41E-08	2.38E-08	2.19E-09	-	-	-
	Chrysene	218-01-9	9.9 H / 9.9 H / 11 H	3	11	11.34	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	1.83E-07	4.84E-08	4.24E-09	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	1.8 H / 1.8 H / 2.2 H	3	2.2	2.32	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	3.74E-05	9.91E-06	8.70E-07	-	-	-
	Fluoranthene	206-44-0	17 H / 19 H / 20 H	3	20	21.24	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.01	0.00	0.00
	Fluorene	86-73-7	0.76 H / 0.64 H / 1 H	3	1	1.11	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	6.5 H / 7.5 H / 8.4 H	3	8.4	9.07	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.46E-05	3.87E-06	3.40E-07	-	-	-
	Lead	7439-92-1	540 / 470 / 470	3	540	561.47	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	1.40	0.51	0.28
	Naphthalene	91-20-3	0.31 H / 0.16 H / 0.25 H	3	0.31	0.37	95% UCL of Mean (n=3)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00
	Pyrene	129-00-0	15 H / 16 H / 18 H	3	18	18.91	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.01	0.00	0.00
Cumulative Risk															2.59E-04	6.84E-05	6.00E-06	1.48	0.52	0.30

Appendix F
Cumulative Risk Calculations - Decision Units

						Exposure Point Concentration															
Decision Unit	Analyte	CAS Number	Individual Sample Results (mg/kg)	Number of Detected Results	Maximum Result (mg/kg)	(EPC) (mg/kg)	EPC Method of Calculation ²	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	
DU-02	2-Chloronaphthalene	91-58-7	0.051 HU / 0.048 HU / 0.096 HU / 0.046 HU / 0.046 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-	
	2-Methylnaphthalene	91-57-6	0.051 JH / 0.035 HU / 0.33 H / 0.05 JH / 0.06 JH	4	0.33	0.29	95% UCL of Mean (n=4)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00	
	Acenaphthene	83-32-9	0.37 H / 0.31 H / 1.4 H / 0.39 H / 0.54 H	5	1.4	1.03	95% UCL of Mean (n=5)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00	
	Anthracene	120-12-7	1.1 H / 0.93 H / 2.9 H / 1 H / 1.3 H	5	2.9	2.23	95% UCL of Mean (n=5)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00	
	Arsenic	7440-38-2	9.4 / 11 / 9.7 / 8.2 / 8.4	5	11	10.41	95% UCL of Mean (n=5)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	
	Benzo(a)anthracene	56-55-3	4.6 H / 4.8 H / 8.2 H / 6 H / 7.1 H	5	8.2	7.60	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	1.22E-05	3.24E-06	2.84E-07	-	-	-	
	Benzo(a)pyrene	50-32-8	4.9 H / 5.3 H / 8.6 H / 6.7 H / 7.8 H	5	8.6	8.17	95% UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	1.32E-04	3.48E-05	3.06E-06	-	-	-	
	Benzo(b)fluoranthene	205-99-2	6.8 H / 7.6 H / 12 H / 10 H / 12 H	5	12	11.99	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	1.93E-05	5.11E-06	4.49E-07	-	-	-	
	Benzo(g,h,i)perylene	191-24-2	4 H / 4.6 H / 6.2 H / 5.1 H / 5.9 H	5	6.2	6.02	95% UCL of Mean (n=5)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.04	0.01	0.01	
	Benzo(k)fluoranthene	207-08-9	2.3 H / 2.3 H / 3.3 H / 3.7 H / 3.5 H	5	3.7	3.66	95% UCL of Mean (n=5)	6.20	23.45	267.09	-	-	-	-	5.90E-07	1.56E-07	1.37E-08	-	-	-	
	Carbazole	86-74-8	0.71 H / 0.54 H / 2.2 H / 0.58 H / 0.74 H	5	2.2	1.62	95% UCL of Mean (n=5)	24.27	95.79	1042.75	-	-	-	-	6.69E-08	1.69E-08	1.56E-09	-	-	-	
	Chrysene	218-01-9	5.6 H / 5.9 H / 8.7 H / 7.3 H / 8.6 H	5	8.7	8.61	95% UCL of Mean (n=5)	62.03	234.47	2673.80	-	-	-	-	1.39E-07	3.67E-08	3.22E-09	-	-	-	
	Dibenzo(a,h)anthracene	53-70-3	0.96 H / 1.1 H / 1.8 H / 1.1 H / 1.3 H	5	1.8	1.57	95% UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	2.52E-05	6.68E-06	5.86E-07	-	-	-	
	Fluoranthene	206-44-0	10 H / 9.9 H / 20 H / 14 H / 17 H	5	20	18.38	95% UCL of Mean (n=5)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.01	0.00	0.00	
	Fluorene	86-73-7	0.28 H / 0.25 H / 1.3 H / 0.29 H / 0.37 H	5	1.3	0.93	95% UCL of Mean (n=5)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00	
	Indeno(1,2,3-cd)pyrene	193-39-5	4.4 H / 4.8 H / 8.2 H / 5.7 H / 6.7 H	5	8.2	7.42	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	1.20E-05	3.17E-06	2.78E-07	-	-	-	
	Lead	7439-92-1	56 / 53 / 47 / 46 / 42	5	56	54.17	95% UCL of Mean (n=5)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.14	0.05	0.03	
	Naphthalene	91-20-3	0.047 HU / 0.044 HU / 0.34 H / 0.042 HU / 0.042 HU	1	0.34	0.34	Maximum Concentration (n=1)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00	
	Pyrene	129-00-0	8.9 H / 9.6 H / 15 H / 12 H / 14 H	5	15	14.44	95% UCL of Mean (n=5)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.01	0.00	0.00	
Cumulative Risk															2.01E-04	5.32E-05	4.67E-06	0.19	0.06	0.04	

Appendix F
Cumulative Risk Calculations - Decision Units

						Exposure Point															
Decision		CAS	Individual Sample	Number of	Maximum	Concentration															
Unit	Analyte	Number	Results (mg/kg)	Detected Results	Result (mg/kg)	(EPC)	EPC Method of Calculation ²	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	
DU-03	2-Chloronaphthalene	91-58-7	0.12 HU / 0.094 HU / 0.095 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-	
	2-Methylnaphthalene	91-57-6	0.76 H / 1.3 H / 0.91 H	3	1.3	1.46	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.01	0.00	0.00	
	Acenaphthene	83-32-9	10 H / 21 H / 18 H	3	21	25.92	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.01	0.00	0.00	
	Anthracene	120-12-7	23 H / 40 H / 38 H	3	40	49.33	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00	
	Arsenic	7440-38-2	12/11/2009	3	12	13.24	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	
	Benzo(a)anthracene	56-55-3	72 H / 85 H / 75 H	3	85	88.81	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.43E-04	3.79E-05	3.33E-06	-	-	-	
	Benzo(a)pyrene	50-32-8	71 H / 83 H / 76 H	3	83	86.83	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	1.40E-03	3.70E-04	3.25E-05	-	-	-	
	Benzo(b)fluoranthene	205-99-2	92 H / 110 H / 96 H	3	110	115.27	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.86E-04	4.92E-05	4.32E-06	-	-	-	
	Benzo(g,h,i)perylene	191-24-2	36 H / 40 H / 43 H	3	43	45.59	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.27	0.05	0.05	
	Benzo(k)fluoranthene	207-08-9	26 H / 30 H / 36 H	3	36	39.15	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	6.31E-06	1.67E-06	1.47E-07	-	-	-	
	Carbazole	86-74-8	15 H / 24 H / 23 H	3	24	28.98	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	1.19E-06	3.03E-07	2.78E-08	-	-	-	
	Chrysene	218-01-9	75 H / 84 H / 74 H	3	84	86.95	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	1.40E-06	3.71E-07	3.25E-08	-	-	-	
	Dibenzo(a,h)anthracene	53-70-3	12 H / 15 H / 13 H	3	15	15.91	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	2.56E-04	6.79E-05	5.96E-06	-	-	-	
	Fluoranthene	206-44-0	170 H / 210 H / 170 H	3	210	222.27	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.10	0.02	0.02	
	Fluorene	86-73-7	7.7 H / 16 H / 14 H	3	16	19.87	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.01	0.00	0.00	
	Indeno(1,2,3-cd)pyrene	193-39-5	43 H / 62 H / 56 H	3	62	70.04	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.13E-04	2.99E-05	2.62E-06	-	-	-	
	Lead	7439-92-1	760 / 520 / 470	3	760	844.69	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	2.11	0.77	0.43	
	Naphthalene	91-20-3	0.96 H / 2 H / 1.3 H	3	2	2.31	95% UCL of Mean (n=3)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00	
	Pyrene	129-00-0	140 H / 180 H / 170 H	3	180	198.43	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.12	0.02	0.02	
	Cumulative Risk															2.11E-03	5.57E-04	4.89E-05	2.62	0.86	0.53

Appendix F
Cumulative Risk Calculations - Decision Units

				Number of Detected Results	Maximum Result (mg/kg)	Exposure Point Concentration														
Decision Unit	Analyte	CAS Number	Individual Sample Results (mg/kg)			(EPC) (mg/kg)	EPC Method of Calculation ²	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
DU-04	2-Chloronaphthalene	91-58-7	0.0092 HU / 0.011 HU / 0.0093 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.43 H / 0.43 H / 0.26 H	3	0.43	0.54	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	0.63 H / 0.71 H / 0.27 H	3	0.71	0.93	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	1.9 H / 2.1 H / 0.86 H	3	2.1	2.74	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	6.3 / 6.8 / 5.9	3	6.8	7.09	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	6.9 H / 8.6 H / 4 H	3	8.6	10.42	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.68E-05	4.44E-06	3.90E-07	-	-	-
	Benzo(a)pyrene	50-32-8	7.2 H / 9.2 H / 3.7 H	3	9.2	11.39	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	1.84E-04	4.86E-05	4.27E-06	-	-	-
	Benzo(b)fluoranthene	205-99-2	10 H / 12 H / 6.5 H	3	12	14.19	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	2.29E-05	6.05E-06	5.31E-07	-	-	-
	Benzo(g,h,i)perylene	191-24-2	5.1 H / 6.2 H / 3 H	3	6.2	7.51	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.04	0.01	0.01
	Benzo(k)fluoranthene	207-08-9	3.3 H / 4.3 H / 1.9 H	3	4.3	5.20	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	8.38E-07	2.22E-07	1.95E-08	-	-	-
	Carbazole	86-74-8	1.2 H / 1.4 H / 0.58 H	3	1.4	1.78	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	7.34E-08	1.86E-08	1.71E-09	-	-	-
	Chrysene	218-01-9	7.7 H / 9.7 H / 4.8 H	3	9.7	11.55	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	1.86E-07	4.93E-08	4.32E-09	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	1.5 H / 2 H / 1.1 H	3	2	2.29	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	3.70E-05	9.78E-06	8.59E-07	-	-	-
	Fluoranthene	206-44-0	13 H / 18 H / 7.8 H	3	18	21.53	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.01	0.00	0.00
	Fluorene	86-73-7	0.53 H / 0.64 H / 0.2 H	3	0.64	0.84	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	6.1 H / 7.3 H / 3.3 H	3	7.3	9.03	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	1.46E-05	3.85E-06	3.38E-07	-	-	-
	Lead	7439-92-1	390 / 370 / 430	3	430	448.17	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	1.12	0.41	0.23
	Naphthalene	91-20-3	0.37 H / 0.4 H / 0.2 H	3	0.4	0.51	95% UCL of Mean (n=3)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00
	Pyrene	129-00-0	14 H / 16 H / 7.8 H	3	16	19.81	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.01	0.00	0.00
	Cumulative Risk														2.76E-04	7.30E-05	6.41E-06	1.19	0.42	0.24

Appendix F
Cumulative Risk Calculations - Decision Units

				Number of Detected Results	Maximum Result (mg/kg)	Exposure Point Concentration														
Decision Unit	Analyte	CAS Number	Individual Sample Results (mg/kg)			(EPC) (mg/kg)	EPC Method of Calculation ²	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
DU-05	2-Chloronaphthalene	91-58-7	0.094 HU / 0.0095 HU / 0.01 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.86 H / 0.82 H / 0.96 H	3	0.96	1.00	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	3.7 H / 3 H / 3 H	3	3.7	3.91	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	9.5 H / 7.2 H / 8.3 H	3	9.5	10.27	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	9.2 / 6.3 / 8	3	9.2	10.29	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	31 H / 21 H / 24 H	3	31	33.98	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	5.48E-05	1.45E-05	1.27E-06	-	-	-
	Benzo(a)pyrene	50-32-8	28 H / 23 H / 26 H	3	28	29.91	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	4.82E-04	1.28E-04	1.12E-05	-	-	-
	Benzo(b)fluoranthene	205-99-2	39 H / 32 H / 35 H	3	39	41.25	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	6.65E-05	1.76E-05	1.54E-06	-	-	-
	Benzo(g,h,i)perylene	191-24-2	20 H / 16 H / 17 H	3	20	21.18	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.12	0.02	0.03
	Benzo(k)fluoranthene	207-08-9	13 H / 9.9 H / 12 H	3	13	14.30	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	2.31E-06	6.10E-07	5.35E-08	-	-	-
	Carbazole	86-74-8	6.2 H / 4.5 H / 3.8 H	3	6.2	6.91	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	2.85E-07	7.22E-08	6.63E-09	-	-	-
	Chrysene	218-01-9	32 H / 24 H / 28 H	3	32	34.74	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	5.60E-07	1.48E-07	1.30E-08	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	7 H / 3.3 H / 3.5 H	3	7	8.11	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	1.31E-04	3.46E-05	3.04E-06	-	-	-
	Fluoranthene	206-44-0	74 H / 49 H / 55 H	3	74	81.34	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.04	0.01	0.01
	Fluorene	86-73-7	2.8 H / 2.5 H / 2.6 H	3	2.8	2.89	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	25 H / 19 H / 21 H	3	25	26.82	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	4.32E-05	1.14E-05	1.00E-06	-	-	-
	Lead	7439-92-1	110 / 120 / 140	3	140	149.09	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.37	0.14	0.08
		Naphthalene	91-20-3	1.1 H / 1 H / 0.87 H	3	1.1	1.18	95% UCL of Mean (n=3)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00
	Pyrene	129-00-0	64 H / 44 H / 49 H	3	64	69.88	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.04	0.01	0.01
Cumulative Risk															7.81E-04	2.07E-04	1.81E-05	0.58	0.17	0.12

Appendix F
Cumulative Risk Calculations - Decision Units

<u>Decision</u> <u>Unit</u>	<u>Analyte</u>	<u>CAS</u> <u>Number</u>	<u>Individual Sample</u> <u>Results (mg/kg)</u>	<u>Number of</u> <u>Detected</u> <u>Results</u>	<u>Maximum</u> <u>Result</u> <u>(mg/kg)</u>	<u>Exposure Point</u> <u>Concentration</u> <u>(EPC)</u>		<u>EPC Method of Calculation</u> ²	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>	<u>Target Organs</u>	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>
DU-06	2-Chloronaphthalene	91-58-7	0.009 HU / 0.0094 HU / 0.0092 HU / 0.047 HU / 0.047 HU	0	-	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.3 H / 0.4 H / 0.24 H / 0.15 H / 0.14 H	5	0.4	0.35	95% UCL of Mean (n=5)	-	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	0.28 H / 0.51 H / 0.25 H / 0.82 H / 0.57 H	5	0.82	0.71	95% UCL of Mean (n=5)	-	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	0.84 H / 2.8 H / 0.83 H / 1.9 H / 1.2 H	5	2.8	2.32	95% UCL of Mean (n=5)	-	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	8.3 / 6.1 / 7.3 / 7.5 / 7.5	5	8.3	8.10	95% UCL of Mean (n=5)	0.39	1.77	16.58	-	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	3.3 H / 5.2 H / 3.3 H / 6.3 H / 4.9 H	5	6.3	5.84	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	-	9.41E-06	2.49E-06	2.19E-07	-	-	-
	Benzo(a)pyrene	50-32-8	3.3 H / 5.5 H / 3.1 H / 6.4 H / 5.1 H	5	6.4	6.05	95% UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	-	9.75E-05	2.58E-05	2.26E-06	-	-	-
	Benzo(b)fluoranthene	205-99-2	5.3 H / 7.2 H / 5.1 H / 8.9 H / 7.2 H	5	8.9	8.24	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	-	1.33E-05	3.51E-06	3.08E-07	-	-	-
	Benzo(g,h,i)perylene	191-24-2	2.5 H / 3.4 H / 2.4 H / 4.4 H / 3.5 H	5	4.4	4.02	95% UCL of Mean (n=5)	-	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.02	0.00	0.00
	Benzo(k)fluoranthene	207-08-9	1.4 H / 1.9 H / 1.3 H / 3 H / 2.2 H	5	3	2.62	95% UCL of Mean (n=5)	6.20	23.45	267.09	-	-	-	-	-	4.22E-07	1.12E-07	9.79E-09	-	-	-
	Carbazole	86-74-8	0.51 H / 1.3 H / 0.52 H / 1.1 H / 0.66 H	5	1.3	1.16	95% UCL of Mean (n=5)	24.27	95.79	1042.75	-	-	-	-	-	4.79E-08	1.21E-08	1.11E-09	-	-	-
	Chrysene	218-01-9	4.2 H / 6.1 H / 3.9 H / 7.5 H / 5.8 H	5	7.5	6.91	95% UCL of Mean (n=5)	62.03	234.47	2673.80	-	-	-	-	-	1.11E-07	2.95E-08	2.58E-09	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	0.9 H / 1.2 H / 0.91 H / 1.4 H / 1 H	5	1.4	1.29	95% UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	-	2.07E-05	5.49E-06	4.82E-07	-	-	-
	Fluoranthene	206-44-0	6.1 H / 11 H / 7 H / 14 H / 11 H	5	14	12.91	95% UCL of Mean (n=5)	-	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.01	0.00	0.00
	Fluorene	86-73-7	0.22 H / 0.6 H / 0.22 H / 0.72 H / 0.36 H	5	0.72	0.64	95% UCL of Mean (n=5)	-	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	2.7 H / 3.5 H / 2.6 H / 5.3 H / 4.2 H	5	5.3	4.73	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	-	7.63E-06	2.02E-06	1.77E-07	-	-	-
	Lead	7439-92-1	85 / 59 / 64 / 78 / 82	5	85	84.52	95% UCL of Mean (n=5)	-	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.21	0.08	0.04
	Naphthalene	91-20-3	0.33 H / 0.33 H / 0.22 H / 0.16 H / 0.078 H	5	0.33	0.33	95% UCL of Mean (n=5)	-	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00
	Pyrene	129-00-0	6.5 H / 9.7 H / 7.3 H / 11 H / 8.9 H	5	11	10.41	95% UCL of Mean (n=5)	-	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.01	0.00	0.00
Cumulative Risk																1.49E-04	3.94E-05	3.46E-06	0.25	0.08	0.05

Appendix F
Cumulative Risk Calculations - Decision Units

						Exposure Point															
Decision		CAS	Individual Sample	Number of	Maximum	Concentration			Site	Site	Constr.	Site	Site	Constr.	Target Organs	Site	Site	Constr.	Site	Site	Constr.
Unit	Analyte	Number	Results (mg/kg)	Detected	Result	(mg/kg)	EPC Method of Calculation ²	Resident	Worker	Worker	Resident	Worker	Worker		Resident	Worker	Worker	Resident	Worker	Worker	
DU-07	2-Chloronaphthalene	91-58-7	0.095 HU / 0.18 HU / 0.094 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-	
	2-Methylnaphthalene	91-57-6	1.3 H / 0.38 H / 0.53 H	3	1.3	1.57	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.01	0.00	0.00	
	Acenaphthene	83-32-9	9 H / 1.9 H / 1.5 H	3	9	11.25	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00	
	Anthracene	120-12-7	17 H / 4.8 H / 3.7 H	3	17	20.94	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00	
	Arsenic	7440-38-2	8.8 / 8.3 / 10	3	10	10.51	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00	
	Benzo(a)anthracene	56-55-3	31 H / 14 H / 10 H	3	31	37.13	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	5.99E-05	1.58E-05	1.39E-06	-	-	-	
	Benzo(a)pyrene	50-32-8	25 H / 15 H / 10 H	3	25	29.54	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	4.76E-04	1.26E-04	1.11E-05	-	-	-	
	Benzo(b)fluoranthene	205-99-2	35 H / 21 H / 14 H	3	35	41.36	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	6.67E-05	1.76E-05	1.55E-06	-	-	-	
	Benzo(g,h,i)perylene	191-24-2	15 H / 9.6 H / 7.1 H	3	15	17.37	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.10	0.02	0.02	
	Benzo(k)fluoranthene	207-08-9	11 H / 6.2 H / 4.9 H	3	11	12.78	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	2.06E-06	5.45E-07	4.79E-08	-	-	-	
	Carbazole	86-74-8	10 H / 3.2 H / 2.2 H	3	10	12.29	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	5.06E-07	1.28E-07	1.18E-08	-	-	-	
	Chrysene	218-01-9	33 H / 15 H / 11 H	3	33	39.42	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	6.36E-07	1.68E-07	1.47E-08	-	-	-	
	Dibenzo(a,h)anthracene	53-70-3	4.8 H / 2.8 H / 2.3 H	3	4.8	5.53	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	8.92E-05	2.36E-05	2.07E-06	-	-	-	
	Fluoranthene	206-44-0	77 H / 30 H / 23 H	3	77	92.84	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.04	0.01	0.01	
	Fluorene	86-73-7	8.7 H / 1.6 H / 1.3 H	3	8.7	10.93	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00	
	Indeno(1,2,3-cd)pyrene	193-39-5	18 H / 12 H / 8.7 H	3	18	20.85	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	3.36E-05	8.89E-06	7.81E-07	-	-	-	
	Lead	7439-92-1	230 / 200 / 250	3	250	269.09	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.67	0.24	0.14	
	Naphthalene	91-20-3	1.4 H / 0.41 H / 0.66 H	3	1.4	1.69	95% UCL of Mean (n=3)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00	
	Pyrene	129-00-0	68 H / 32 H / 20 H	3	68	82.11	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.05	0.01	0.01	
Cumulative Risk															7.29E-04	1.93E-04	1.69E-05	0.88	0.28	0.18	

Appendix F
Cumulative Risk Calculations - Decision Units

				Number of Detected	Maximum Result (mg/kg)	Exposure Point Concentration														
Decision Unit	Analyte	CAS Number	Individual Sample Results (mg/kg)			(EPC) (mg/kg)	EPC Method of Calculation ²	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
DU-08	2-Chloronaphthalene	91-58-7	0.091 U / 0.18 U / 0.18 U	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.58 / 0.98 / 1.9	3	1.9	2.29	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.01	0.00	0.00
	Acenaphthene	83-32-9	9.4 / 15 / 28	3	28	33.55	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.01	0.00	0.00
	Anthracene	120-12-7	28 / 41 / 75	3	75	88.91	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.01	0.00	0.00
	Arsenic	7440-38-2	6.2 / 7.2 / 11	3	11	12.40	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	93 / 170 / 210	3	210	257.92	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	4.16E-04	1.10E-04	9.66E-06	-	-	-
	Benzo(a)pyrene	50-32-8	92 / 170 / 210	3	210	258.50	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	4.17E-03	1.10E-03	9.68E-05	-	-	-
	Benzo(b)fluoranthene	205-99-2	120 / 230 / 270	3	270	337.61	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	5.44E-04	1.44E-04	1.26E-05	-	-	-
	Benzo(g,h,i)perylene	191-24-2	56 / 110 / 120	3	120	153.38	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.89	0.17	0.18
	Benzo(k)fluoranthene	207-08-9	35 / 69 / 75	3	75	96.03	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	1.55E-05	4.10E-06	3.60E-07	-	-	-
	Carbazole	86-74-8	12/22/2028	3	28	34.29	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	1.41E-06	3.58E-07	3.29E-08	-	-	-
	Chrysene	218-01-9	100 / 180 / 220	3	220	269.67	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	4.35E-06	1.15E-06	1.01E-07	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	16 / 27 / 31	3	31	37.76	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	6.09E-04	1.61E-04	1.41E-05	-	-	-
	Fluoranthene	206-44-0	220 / 380 / 530	3	530	638.02	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.28	0.05	0.06
	Fluorene	86-73-7	8.4 / 14 / 24	3	24	28.79	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.01	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	75 / 140 / 160	3	160	199.92	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	3.22E-04	8.53E-05	7.49E-06	-	-	-
	Lead	7439-92-1	940 / 530 / 500	3	940	1071.10	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	2.68	0.97	0.54
		Naphthalene	91-20-3	1.1 / 1.4 / 2.7	3	2.7	3.17	95% UCL of Mean (n=3)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00
	Pyrene	129-00-0	190 / 350 / 510	3	510	619.74	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.36	0.07	0.07
Cumulative Risk															6.08E-03	1.61E-03	1.41E-04	4.25	1.27	0.86

Appendix F
Cumulative Risk Calculations - Decision Units

		Exposure Point Concentration																		
Decision		CAS	Individual Sample	Number of	Maximum			Site	Site	Constr.	Site	Site	Constr.		Site	Site	Constr.	Site	Site	Constr.
Unit	Analyte	Number	Results (mg/kg)	Results	(mg/kg)	(mg/kg)	EPC Method of Calculation ²	Resident	Worker	Worker	Resident	Worker	Worker	Target Organs	Resident	Worker	Worker	Resident	Worker	Worker
DU-09	2-Chloronaphthalene	91-58-7	0.094 HU / 0.096 HU / 0.099 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.51 H / 0.22 H / 0.16 H	3	0.51	0.61	95% UCL of Mean (n=3)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	3 H / 0.51 H / 0.31 H	3	3	3.80	95% UCL of Mean (n=3)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	7.2 H / 1.3 H / 0.64 H	3	7.2	9.14	95% UCL of Mean (n=3)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	16 / 14 / 15	3	16	16.69	95% UCL of Mean (n=3)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	25 H / 6.4 H / 3.4 H	3	25	31.33	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	5.05E-05	1.34E-05	1.17E-06	-	-	-
	Benzo(a)pyrene	50-32-8	27 H / 6 H / 3.4 H	3	27	33.95	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	5.47E-04	1.45E-04	1.27E-05	-	-	-
	Benzo(b)fluoranthene	205-99-2	36 H / 8.6 H / 4.4 H	3	36	45.26	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	7.30E-05	1.93E-05	1.69E-06	-	-	-
	Benzo(g,h,i)perylene	191-24-2	19 H / 4.6 H / 2.4 H	3	19	23.87	95% UCL of Mean (n=3)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.14	0.03	0.03
	Benzo(k)fluoranthene	207-08-9	11 H / 3 H / 1.6 H	3	11	13.75	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	2.22E-06	5.86E-07	5.15E-08	-	-	-
	Carbazole	86-74-8	7.4 H / 1.2 H / 0.77 H	3	7.4	9.38	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	3.86E-07	9.79E-08	8.99E-09	-	-	-
	Chrysene	218-01-9	30 H / 6.7 H / 3.6 H	3	30	37.76	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	6.09E-07	1.61E-07	1.41E-08	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	6.4 H / 0.66 H / 0.95 H	3	6.4	8.12	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	1.31E-04	3.46E-05	3.04E-06	-	-	-
	Fluoranthene	206-44-0	38 H / 11 H / 5.6 H	3	38	47.46	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.02	0.00	0.00
	Fluorene	86-73-7	2.9 H / 0.64 H / 0.46 H	3	2.9	3.63	95% UCL of Mean (n=3)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	23 H / 5.1 H / 2.8 H	3	23	28.94	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	4.67E-05	1.23E-05	1.08E-06	-	-	-
	Lead	7439-92-1	43 / 43 / 51	3	51	53.45	95% UCL of Mean (n=3)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.13	0.05	0.03
	Naphthalene	91-20-3	0.49 H / 0.087 HU / 0.091 HU	1	0.49	0.49	Maximum Concentration (n=1)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00
	Pyrene	129-00-0	36 H / 13 H / 5.8 H	3	36	44.86	95% UCL of Mean (n=3)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.03	0.00	0.01
	Cumulative Risk														8.52E-04	2.25E-04	1.98E-05	0.33	0.08	0.07

Appendix F
Cumulative Risk Calculations - Decision Units

<u>Decision</u> <u>Unit</u>	<u>Analyte</u>	<u>CAS</u> <u>Number</u>	<u>Individual Sample</u> <u>Results (mg/kg)</u>	<u>Number of</u> <u>Detected</u> <u>Results</u>	<u>Maximum</u> <u>Result</u> <u>(mg/kg)</u>	<u>Exposure Point</u> <u>Concentration</u> <u>(EPC)</u> <u>(mg/kg)</u>		<u>EPC Method of Calculation</u> ²	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>	<u>Target Organs</u>	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>	<u>Site</u> <u>Resident</u>	<u>Site</u> <u>Worker</u>	<u>Constr.</u> <u>Worker</u>
DU-10	2-Chloronaphthalene	91-58-7	0.094 HU / 0.094 HU / 0.09 HU / 0.047 HU / 0.047 HU	0	-	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	1.4 H / 0.67 H / 0.79 H / 0.3 H / 0.35 H	5	1.4	1.12	95%	UCL of Mean (n=5)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	15 H / 4.1 H / 7.2 H / 4.2 H / 5 H	5	15	11.48	95%	UCL of Mean (n=5)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	43 H / 12 H / 20 H / 13 H / 15 H	5	43	32.89	95%	UCL of Mean (n=5)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	8.4 / 6 / 5 / 6.1 / 6.3	5	8.4	7.55	95%	UCL of Mean (n=5)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	91 H / 30 H / 47 H / 38 H / 45 H	5	91	72.86	95%	UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	1.17E-04	3.11E-05	2.73E-06	-	-	-
	Benzo(a)pyrene	50-32-8	86 H / 26 H / 37 H / 38 H / 44 H	5	86	68.30	95%	UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	1.10E-03	2.91E-04	2.56E-05	-	-	-
	Benzo(b)fluoranthene	205-99-2	110 H / 37 H / 59 H / 53 H / 64 H	5	110	90.66	95%	UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	1.46E-04	3.87E-05	3.39E-06	-	-	-
	Benzo(g,h,i)perylene	191-24-2	63 H / 19 H / 26 H / 26 H / 27 H	5	63	48.90	95%	UCL of Mean (n=5)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.28	0.05	0.06
	Benzo(k)fluoranthene	207-08-9	31 H / 11 H / 18 H / 17 H / 17 H	5	31	25.82	95%	UCL of Mean (n=5)	6.20	23.45	267.09	-	-	-	-	4.16E-06	1.10E-06	9.67E-08	-	-	-
	Carbazole	86-74-8	18 H / 4.8 H / 8.9 H / 5.9 H / 6.9 H	5	18	13.96	95%	UCL of Mean (n=5)	24.27	95.79	1042.75	-	-	-	-	5.75E-07	1.46E-07	1.34E-08	-	-	-
	Chrysene	218-01-9	100 H / 31 H / 51 H / 43 H / 47 H	5	100	79.73	95%	UCL of Mean (n=5)	62.03	234.47	2673.80	-	-	-	-	1.29E-06	3.40E-07	2.98E-08	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	12 H / 5.3 H / 6.8 H / 6.5 H / 7.3 H	5	12	10.04	95%	UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	1.62E-04	4.28E-05	3.76E-06	-	-	-
	Fluoranthene	206-44-0	200 H / 68 H / 100 H / 85 H / 120 H	5	200	163.64	95%	UCL of Mean (n=5)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.07	0.01	0.01
	Fluorene	86-73-7	16 H / 4.2 H / 6.5 H / 4.4 H / 5.3 H	5	16	12.01	95%	UCL of Mean (n=5)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.01	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	70 H / 21 H / 28 H / 31 H / 33 H	5	70	54.92	95%	UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	8.85E-05	2.34E-05	2.06E-06	-	-	-
	Lead	7439-92-1	34 / 42 / 36 / 36 / 30	5	42	39.73	95%	UCL of Mean (n=5)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.10	0.04	0.02
	Naphthalene	91-20-3	1.8 H / 1.3 H / 1.1 H / 0.45 H / 0.51 H	5	1.8	1.57	95%	UCL of Mean (n=5)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00
	Pyrene	129-00-0	180 H / 60 H / 94 H / 94 H / 90 H	5	180	146.52	95%	UCL of Mean (n=5)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.09	0.02	0.02
Cumulative Risk																1.62E-03	4.29E-04	3.76E-05	0.56	0.12	0.11

Appendix F
Cumulative Risk Calculations - Decision Units

<u>Decision</u> <u>Unit</u>	<u>Analyte</u>	<u>CAS</u> <u>Number</u>	<u>Individual Sample</u> <u>Results (mg/kg)</u>	<u>Number of</u> <u>Detected</u> <u>Results</u>	<u>Maximum</u> <u>Result</u> <u>(mg/kg)</u>	<u>Exposure Point</u> <u>Concentration</u> <u>(EPC)</u>	<u>EPC Method of Calculation</u> ²	<u>Site</u>	<u>Site</u>	<u>Constr.</u>	<u>Site</u>	<u>Site</u>	<u>Constr.</u>	<u>Target Organs</u>	<u>Site</u>	<u>Site</u>	<u>Constr.</u>	<u>Site</u>	<u>Site</u>	<u>Constr.</u>
						<u>(mg/kg)</u>		<u>Resident</u>	<u>Worker</u>	<u>Worker</u>	<u>Resident</u>	<u>Worker</u>	<u>Worker</u>		<u>Resident</u>	<u>Worker</u>	<u>Worker</u>	<u>Resident</u>	<u>Worker</u>	<u>Worker</u>
DU-11	2-Chloronaphthalene	91-58-7	0.094 HU / 0.093 HU / 0.094 HU / 0.046 HU / 0.047 HU	0	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	0.081 JH / 0.42 H / 0.41 H / 0.51 H / 0.47 H	5	0.51	0.54	95% UCL of Mean (n=5)	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.00	0.00	0.00
	Acenaphthene	83-32-9	1.2 H / 5.1 H / 4.7 H / 13 H / 12 H	5	13	12.05	95% UCL of Mean (n=5)	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	3.1 H / 11 H / 13 H / 40 H / 35 H	5	40	35.79	95% UCL of Mean (n=5)	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	4.9 / 6.2 / 5.6 / 4.6 / 5.2	5	6.2	5.90	95% UCL of Mean (n=5)	0.39	1.77	16.58	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	13 H / 52 H / 52 H / 190 H / 170 H	5	190	170.88	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	2.75E-04	7.29E-05	6.40E-06	-	-	-
	Benzo(a)pyrene	50-32-8	9 H / 32 H / 32 H / 180 H / 160 H	5	180	159.49	95% UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	2.57E-03	6.80E-04	5.97E-05	-	-	-
	Benzo(b)fluoranthene	205-99-2	16 H / 78 H / 68 H / 270 H / 240 H	5	270	242.21	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	3.90E-04	1.03E-04	9.07E-06	-	-	-
	Benzo(g,h,i)perylene	191-24-2	7.1 H / 28 H / 24 H / 120 H / 110 H	5	120	108.26	95% UCL of Mean (n=5)	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.63	0.12	0.13
	Benzo(k)fluoranthene	207-08-9	4.8 H / 17 H / 18 H / 85 H / 83 H	5	85	78.83	95% UCL of Mean (n=5)	6.20	23.45	267.09	-	-	-	-	1.27E-05	3.36E-06	2.95E-07	-	-	-
	Carbazole	86-74-8	1.8 H / 4.2 H / 7.2 H / 25 H / 22 H	5	25	22.23	95% UCL of Mean (n=5)	24.27	95.79	1042.75	-	-	-	-	9.16E-07	2.32E-07	2.13E-08	-	-	-
	Chrysene	218-01-9	17 H / 82 H / 73 H / 250 H / 210 H	5	250	220.61	95% UCL of Mean (n=5)	62.03	234.47	2673.80	-	-	-	-	3.56E-06	9.41E-07	8.25E-08	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	2.2 H / 8 H / 6.5 H / 35 H / 32 H	5	35	31.50	95% UCL of Mean (n=5)	0.06	0.23	2.67	-	-	-	-	5.08E-04	1.34E-04	1.18E-05	-	-	-
	Fluoranthene	206-44-0	25 H / 130 H / 110 H / 400 H / 390 H	5	400	375.53	95% UCL of Mean (n=5)	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.16	0.03	0.03
	Fluorene	86-73-7	1.2 H / 3.6 H / 4 H / 10 H / 8.8 H	5	10	9.07	95% UCL of Mean (n=5)	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	8 H / 30 H / 26 H / 140 H / 120 H	5	140	122.49	95% UCL of Mean (n=5)	0.62	2.34	26.71	-	-	-	-	1.97E-04	5.22E-05	4.59E-06	-	-	-
	Lead	7439-92-1	57 / 74 / 68 / 8100 / 56	5	8100	5097.42	95% UCL of Mean (n=5)	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	12.74	4.63	2.57
	Naphthalene	91-20-3	0.086 HU / 0.085 HU / 0.086 HU / 0.82 H / 0.79 H	2	0.82	0.82	Maximum Concentration (n=2)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	0.00	0.00	0.00
	Pyrene	129-00-0	27 H / 110 H / 100 H / 470 H / 390 H	5	470	407.16	95% UCL of Mean (n=5)	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.24	0.04	0.05
Cumulative Risk															3.96E-03	1.05E-03	9.20E-05	13.78	4.82	2.79

Appendix F
Cumulative Risk Calculations - Decision Units

Decision Unit	Analyte	CAS Number	Individual Sample Results (mg/kg)	Number of Detected Results	Maximum Result (mg/kg)	Exposure Point Concentration		EPC Method of Calculation ²	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker	Target Organs	Site Resident	Site Worker	Constr. Worker	Site Resident	Site Worker	Constr. Worker
						(mg/kg)	(EPC)														
DU-12	2-Chloronaphthalene	91-58-7	0.092 HU / 0.093 HU / 0.091 HU	0	-	-	-	Not Calculated (n=0)	-	-	-	6086.8	30358.2	30066.1	Liver/Respi	-	-	-	-	-	-
	2-Methylnaphthalene	91-57-6	1.1 H / 0.95 H / 1.5 H	3	1.5	1.66	95% UCL of Mean (n=3)	-	-	-	-	229.4	1229.0	1114.0	Respi	-	-	-	0.01	0.00	0.00
	Acenaphthene	83-32-9	0.095 HU / 0.096 HU / 0.16 H	1	0.16	0.16	Maximum Concentration (n=1)	-	-	-	-	3440.4	18433.2	16711.2	Liver	-	-	-	0.00	0.00	0.00
	Anthracene	120-12-7	0.57 H / 0.72 H / 1.2 H	3	1.2	1.38	95% UCL of Mean (n=3)	-	-	-	-	17202.8	92165.9	83542.2	Liver/Other	-	-	-	0.00	0.00	0.00
	Arsenic	7440-38-2	14 / 11 / 13	3	14	15.24	95% UCL of Mean (n=3)	0.39	1.77	16.58	-	21.6	109.6	106.5	Gastro/Heart/Skin	0.00E+00	0.00E+00	0.00E+00	0.00	0.00	0.00
	Benzo(a)anthracene	56-55-3	2.9 H / 3.1 H / 4.8 H	3	4.8	5.36	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	-	8.64E-06	2.29E-06	2.01E-07	-	-	-
	Benzo(a)pyrene	50-32-8	3.1 H / 3.2 H / 4.9 H	3	4.9	5.44	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	-	8.77E-05	2.32E-05	2.04E-06	-	-	-
	Benzo(b)fluoranthene	205-99-2	2.5 H / 2.7 H / 4.4 H	3	4.4	4.96	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	-	8.00E-06	2.12E-06	1.86E-07	-	-	-
	Benzo(g,h,i)perylene	191-24-2	2.8 H / 2.9 H / 4.4 H	3	4.4	4.88	95% UCL of Mean (n=3)	-	-	-	-	172.0	921.7	835.5	Kidney	-	-	-	0.03	0.01	0.01
	Benzo(k)fluoranthene	207-08-9	0.78 H / 1 H / 1.4 H	3	1.4	1.59	95% UCL of Mean (n=3)	6.20	23.45	267.09	-	-	-	-	-	2.56E-07	6.78E-08	5.95E-09	-	-	-
	Carbazole	86-74-8	0.64 JH / 0.7 H / 0.94 H	3	0.94	1.03	95% UCL of Mean (n=3)	24.27	95.79	1042.75	-	-	-	-	-	4.23E-08	1.07E-08	9.85E-10	-	-	-
	Chrysene	218-01-9	3.5 H / 4 H / 6 H	3	6	6.73	95% UCL of Mean (n=3)	62.03	234.47	2673.80	-	-	-	-	-	1.09E-07	2.87E-08	2.52E-09	-	-	-
	Dibenzo(a,h)anthracene	53-70-3	1.9 H / 1.9 H / 2.6 H	3	2.6	2.81	95% UCL of Mean (n=3)	0.06	0.23	2.67	-	-	-	-	-	4.54E-05	1.20E-05	1.05E-06	-	-	-
	Fluoranthene	206-44-0	1.6 H / 2.2 H / 4.3 H	3	4.3	5.09	95% UCL of Mean (n=3)	-	-	-	-	2293.7	12289.5	11139.6	Blood/Kidney/Liver	-	-	-	0.00	0.00	0.00
	Fluorene	86-73-7	0.4 H / 0.43 H / 0.5 H	3	0.5	0.53	95% UCL of Mean (n=3)	-	-	-	-	2293.7	12289.5	11139.6	Blood/Liver	-	-	-	0.00	0.00	0.00
	Indeno(1,2,3-cd)pyrene	193-39-5	2 H / 2.1 H / 3.3 H	3	3.3	3.69	95% UCL of Mean (n=3)	0.62	2.34	26.71	-	-	-	-	-	5.94E-06	1.57E-06	1.38E-07	-	-	-
	Lead	7439-92-1	14 / 19 / 19	3	19	22.20	95% UCL of Mean (n=3)	-	-	-	-	400.1	1101.1	1980.0	Devel/Heart/Kidney	-	-	-	0.06	0.02	0.01
	Naphthalene	91-20-3	0.084 HU / 0.085 HU / 0.083 HU	0	-	-	-	Not Calculated (n=0)	-	-	-	1146.8	6144.8	5570.1	Nerve/Other	-	-	-	-	-	-
	Pyrene	129-00-0	2.4 H / 2.9 H / 5.6 H	3	5.6	6.54	95% UCL of Mean (n=3)	-	-	-	-	1720.3	9217.4	8354.9	Kidney	-	-	-	0.00	0.00	0.00
	Cumulative Risk															1.56E-04	4.13E-05	3.62E-06	0.10	0.03	0.02

Notes

¹ Site-specific screening level calculated using the IDNR Cumulative Risk Calculator

² For analytes with three or more detected concentrations, the exposure point concentration is the 95 percent upper confidence limit (95% UCL) of the mean calculated using 1-sided Student's t-test

CAS Chemical Abstracts Services

J The reported value is an estimate.

H Analyzed outside of holding time.

U The analyte was not detected.

APPENDIX G
PROPERTY PROFILE FORM



United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

Form Approved
OMB Number No. 2050-0192
Expires 07-31-2012

PROPERTY PROFILE FORM—Brownfields

Public reporting burden for this collection of information is estimated to average 1.50 hours per response, including the time for reviewing instructions, searching data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate, or any other aspect of this collection of information, including suggestions for reducing this burden, to the Environmental Protection Agency, Office of Environmental Information, Code 2822T, Washington, DC 20460 and to the Paperwork Reduction Project, Office of Management and Budget, Washington, DC 20503. DO NOT RETURN your form to either of these addresses. Send your completed form to the address provided by the issuing office.

PART I- PROPERTY INFORMATION

COOPERATIVE AGREEMENT RECIPIENT INFORMATION

1. Cooperative Agreement Recipient Name (State/Tribe for Section 128(a) Cooperative Agreements; requestor/contractor for TBAs):

City of Keokuk, Iowa

2. Cooperative Agreement Number (contract number for TBAs):

EP-S7-13-06

3. What type of cooperative agreement funding is being used for this property?

- ☐ Assessment ☐ Section 128(a) – State and Tribal Response Program
☐ Revolving Loan Fund ☒ TBA (EPA Regions Only)
☐ Cleanup

4. For Assessment, Cleanup, and Revolving Loan Fund cooperative agreements, what type of funding is being used at this property?

- ☐ Hazardous Substance ☐ Petroleum ☒ Both

5a. Indicate if this form is the initial or Updated Form:

- ☒ Initial Form ☐ Updated Form

5b. If "Updated Form," what's the ACRES Property ID?

PROPERTY BACKGROUND INFORMATION

6. Property Name: Elkem Carbide Site

7a. Street Address: 365 Carbide Lane

7b. City: Keokuk

7c. County: Lee 7d. State: IA

7e. Zip code: 52632

8. Size (in acres): 78.83

9. Parcel Number(s): 21-22-200-031

STATE & TRIBAL BROWNFIELDS/VOLUNTARY RESPONSE PROGRAM INFORMATION

10. State & Tribal Program Enrollment (If the property is not enrolled in a state program, check Property Not Enrolled check box):

Date of Enrollment: ID Number (if applicable): ☐ Property Not Enrolled in a State or Tribal Program

PROPERTY GEOGRAPHIC INFORMATION (EPA Brownfields Program, or its contractors, will provide complete latitude/longitude information if cooperative agreement recipients are unable)

11a. Latitude
(use 00.000000 decimal
degree format):
40.41956

11b. Longitude
(use -000.000000 decimal
degree format):
-91.42108

11c. Horizontal Collection Method:

Global Positioning Method- Unspecified Parameters

11d. Source Map Scale Number (Only if a map/photo was used):

11e. Reference Point (e.g., Center of Facility or Station):

Center of a Facility or Station

11f. Horizontal Reference Datum (Choose one):

- ☐ NAD27-North American Datum of 1927 ☐ WGS84-World Geodetic System of 1984
☒ NAD83-North American Datum of 1983

PART II- ENVIRONMENTAL ACTIVITIES

ENVIRONMENTAL ASSESSMENT INFORMATION (mandatory for Assessment Cooperative Agreements, State & Tribal Property-Specific Assessments, and TBAs; as available for Cleanup and RLF cooperative agreement recipients; CA = Cooperative Agreement)

Table A – Environmental Assessment Activity (If there are multiple assessments, please use a separate line for each assessment)

Environmental Assessment Detail			Source of Funding (enter one source of funding per line; do not include funding received prior to the award of this					Name of Entity Providing Funds	Amount of Funding Expended on this Activity
Activity	Start Date	Completion Date	This US EPA CA	Other Federal	State/Tribal (exclude §128(a) funds)	Local Gov't	Private/ Other		
Phase I	12/17/2015	5/18/2016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EPA	\$4,000.00
Phase II	5/18/2016	9/22/2016	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EPA	\$70,000.00
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

12. Indicate whether cleanup is required: ☒ Yes ☐ No ☐ Unknown

CONTAMINANTS & MEDIA AFFECTED INFORMATION

 (mandatory for all cooperative agreement types)

Table B - Contaminants and Media Affected (check all that apply):

Contaminants			
Class of Contaminant	REC*	Found	Cleaned Up
Petroleum/Petroleum Products	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Controlled Substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asbestos	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PCBs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VOCs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Lead	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other Metals	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
PAHs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SVOCs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Gasoline and Diesel			
No Contaminants	<input type="checkbox"/>		
Unknown	<input type="checkbox"/>		

Media		
Media	Affected	Cleaned Up
Soil	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air	<input type="checkbox"/>	<input type="checkbox"/>
Surface Water	<input type="checkbox"/>	<input type="checkbox"/>
Ground Water	<input type="checkbox"/>	<input type="checkbox"/>
Drinking Water	<input type="checkbox"/>	<input type="checkbox"/>
Sediments	<input type="checkbox"/>	<input type="checkbox"/>
No Media Affected	<input type="checkbox"/>	
Unknown	<input type="checkbox"/>	

*REC = Recognized Environmental Conditions

ENVIRONMENTAL CLEANUP INFORMATION

 (mandatory for Cleanup and RLF

Cooperative Agreements and State & Tribal Property-Specific Cleanups; as available for Assessment Cooperative Agreements and TBAs)

13. Cleanup Activity Start Date: _____ 14. Cleanup Activity Completion Date: _____ 15. Acres Cleaned Up: _____

16. Date No Further Action/Cleanup Completion Document Issued

(If the property was not enrolled in a state or tribal program, leave blank):

Date: _____

17. Number of Cleanup Jobs Leveraged: _____

18. If EPA Brownfields funding was used, indicate the type and amount (If any non-EPA funding was used, fill out Table C):

Type Amount
☐ Cleanup Cooperative Agreement _____
☐ RLF Loan _____
Date RLF Loan Signed _____

Type Amount
☐ RLF Subgrant _____
☐ Section 128(a) State/Tribal Cooperative Agreement _____

Table C - Environmental Cleanup Leveraged Funding Detail

Source of Funding (enter one source of funding per line; do not include funding received prior to the award of this EPA Cooperative Agreement)				Name of Entity Providing Funds	Amount of Funding Expended on this Activity
Other Federal	State/Tribal (exclude §128(a) funds)	Local Gov't	Private/ Other		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

PART II- ENVIRONMENTAL ACTIVITIES (continued)

INSTITUTIONAL & ENGINEERING CONTROLS INFORMATION *(mandatory for all cooperative agreement types)*

19a. Indicate whether Institutional Controls are required: ☐ Yes ☐ No ☒ Unknown

19b. If Institutional Controls were required, indicate the category (check all that apply):

- ☐ Proprietary Controls (e.g., easements, covenants) ☐ Governmental Controls (e.g., zoning, building codes)
- ☐ Informational Devices (e.g., state registries, deed notices) ☐ Enforcement/Permit Tools (e.g., permits, consent decrees)

Additional Institutional Controls Information:

Address of Data Source (URL if available): _____

19c. Indicate whether Institutional Controls in place: ☐ Yes ☒ No Date: _____

20a. Indicate whether Engineering Controls are required: ☒ Yes ☐ No ☐ Unknown

20b. If Engineering Controls were required, indicate the category (check all that apply):

- ☒ Cover Technologies (e.g., Capping) ☐ Immobilization Process (e.g., Encapsulation, In-Situ Solidification) ☐ Engineered Barriers (e.g., Slurry Walls, Sheet)
- ☐ Security (e.g., Guard, Fences) ☐ Other _____

Additional Engineering Controls Information:

A capped and closed landfill that received calcium carbide and other wastes generated from manufacturing processes covers the east portion of the site. The closed landfill appears to have been addressed to the satisfaction of the EPA Region 7 RCRA program without subjecting the landfill to any required controls.

Address of Data Source (URL if available): _____

20c. Indicate whether Engineering Controls in place: ☐ Yes ☒ No Date: _____

REDEVELOPMENT AND OTHER LEVERAGED ACCOMPLISHMENTS *(Mandatory for Assessment, Cleanup and RLF Cooperative Agreements; as available for State and Tribal Property Specific Activities and TBAs)*

21. Redevelopment Start Date: _____ **22.** Redevelopment Completion Date: _____

Table D- Redevelopment Leveraged Funding Detail

Source of Funding (enter one source of funding per line; do not include funding received prior to the award of this EPA Cooperative Agreement)				Name of Entity Providing Funds	Amount of Funding Expended on this Activity
Other Federal	State/Tribal	Local Gov't	Private/ Other		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

23. Number of Redevelopment Jobs Leveraged: _____

24. Future Use and Estimated Acreage (check all that apply; For properties with multi-story buildings only, please indicate also the square footage for each type of reuse (e.g. a three story building with first floor commercial and remaining floors residential)).

- ☐ Multi-story building
- ☒ Greenspace _____ 54 acres _____ sq. ft. ☐ Commercial _____ acres _____ sq. ft.
- ☒ Industrial _____ 25 acres _____ sq. ft. ☐ Residential _____ acres _____ sq. ft.

25. Actual Acreage(s) and Type(s) of Greenspace Created: _____

PART II- ENVIRONMENTAL ACTIVITIES (continued)

ANECDOTAL PROPERTY INFORMATION (as available for all cooperative agreement types)

26. Property Highlights:

The Phase II investigation identified soil concentrations exceeding Iowa Statewide Soil Standards (standards that are protective of unrestricted use scenarios). Further evaluation regarded IDNR criteria for the site resident, site worker, and construction exposure scenarios. This evaluation revealed soil concentrations of concern for each of these scenarios (site resident, site worker, and construction worker). The primary risk drivers were lead and polycyclic aromatic hydrocarbons (PAH) (and especially the PAH benzo[a]pyrene).

PROPERTY PHOTOGRAPH INFORMATION

27. Indicate whether photographs are available: ☒ Yes ☐ No 28. Indicate whether video is available: ☐ Yes ☒ No

PART III- ADDITIONAL PROPERTY INFORMATION

PROPERTY HISTORY INFORMATION

29. Property Description / History / Past Ownership:

The subject property was historically used for zinc refining, production of hardened lead alloy (Frary metal), and manufacture of various carbide products.

30. Predominant Past Use(s) (check all that apply; For properties with multi-story buildings only, please indicate also the square footage for each type of reuse (e.g. a three story building with first floor commercial and remaining floors residential):

☐ Multi-story building

☒ Greenspace 54.00 acres _____ sq. ft. ☐ Commercial _____ acres _____ sq. ft.

☐ Residential _____ acres _____ sq. ft. ☒ Industrial 25.00 acres _____ sq. ft.

OWNERSHIP & SUPERFUND LIABILITY (Mandatory for Cleanup and RLF Cooperative Agreements)

31a. Ownership Entity:

☐ Government (Tribal, State, Local) ☒ Private

32a. During the life of the cooperative agreement, did ownership change?

☐ Yes ☒ No

31b. Current Owner:

365 Carbide Lane, LLC

32b. If "yes," did Superfund federal landowner liability protections factor into the ownership change?

☐ Yes ☐ No ☐ Unknown

PART IV- APPROVALS

33. Cooperative Agreement Recipient Project Manager

Name (please print):

Signature

Date:

34. US EPA Regional Representative

Name (please print):

Signature

Date: