
Storm Drainage System Sediment-Sampling Report Lockheed Martin Middle River Complex 2323 Eastern Boulevard Middle River, Maryland

Prepared for:

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ACRONYMS AND ABBREVIATIONS

BaPEq	benzo(a)pyrene equivalent
COC	chemical(s) of concern
EESH	energy, environment, safety, and health (Lockheed Martin Corporation)
EGIS	electronic geographic information system
EROP	Enterprise Operation
GC	gas chromatography
HASP	health and safety plan
IDW	investigation-derived waste
IRM	interim remedial measure
LMCPI	Lockheed Martin Corporation Properties, Inc.
Lockheed Martin	Lockheed Martin Corporation
MAA	Maryland Aviation Administration
MDE	Maryland Department of the Environment
mg/kg	milligram(s) per kilogram
µg/kg	microgram(s) per kilogram
MRC	Middle River Complex
MSA	Martin State Airport
NPDES	National Pollutant Discharge Elimination System
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PDF	portable document format
PM	project manager
PPE	personal protective equipment
PRG	preliminary remedial goal
QA	quality assurance
QC	quality control
RAL	remedial action level
REC	recognized environmental condition
SIM	selective-ion monitoring
Tetra Tech	Tetra Tech, Inc.
UCC	utility cross-connection
USEPA	United States Environmental Protection Agency
VOC(s)	volatile organic compound(s)

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Section 1

Introduction

On behalf of Lockheed Martin Corporation (Lockheed Martin), Tetra Tech, Inc. (Tetra Tech) has prepared this report describing the sampling and chemical analyses of sediments in storm drainage systems that discharge to two waterways adjacent to the Middle River Complex (MRC) and Martin State Airport (MSA) in Middle River, Maryland (see Figure 1-1). The sampling and chemical analyses provide additional sediment chemical data to support the design of the planned sediment remediation in waterways adjacent to the Middle River Complex. These analyses aim to identify sediment in storm drain systems that may act as continuing sources of polychlorinated biphenyls (PCBs) and/or polycyclic aromatic hydrocarbons (PAHs), possibly resulting in PCB concentrations that exceed the preliminary remedial goals (PRGs) and proposed remedial action levels (RALs) that have been established for sediment in Cow Pen Creek and Dark Head Cove (Tetra Tech, Inc., 2013c). This effort also satisfies a request by the Maryland Department of the Environment (MDE) to sample storm drain systems to determine whether sediment in storm drain systems along Wilson Point Road could contribute polycyclic aromatic hydrocarbons (PAHs) to Dark Head Cove sediment (Maryland Department of the Environment, 2013). The storm drainage systems sampled drain both the Middle River Complex (nine systems) and the adjacent Martin State Airport (four systems).

This report supplements the 2013 *Draft Sediment Remedy Design Investigation Report* (Tetra Tech, Inc., 2014a) for the Middle River Complex. Results from this report will be evaluated along with existing sediment data collected during previous sediment investigations (2005–2012), as well as the sediment work completed in 2013 by Tetra Tech, Inc. for Cow Pen Creek and Dark Head Cove. This report is organized as follows:

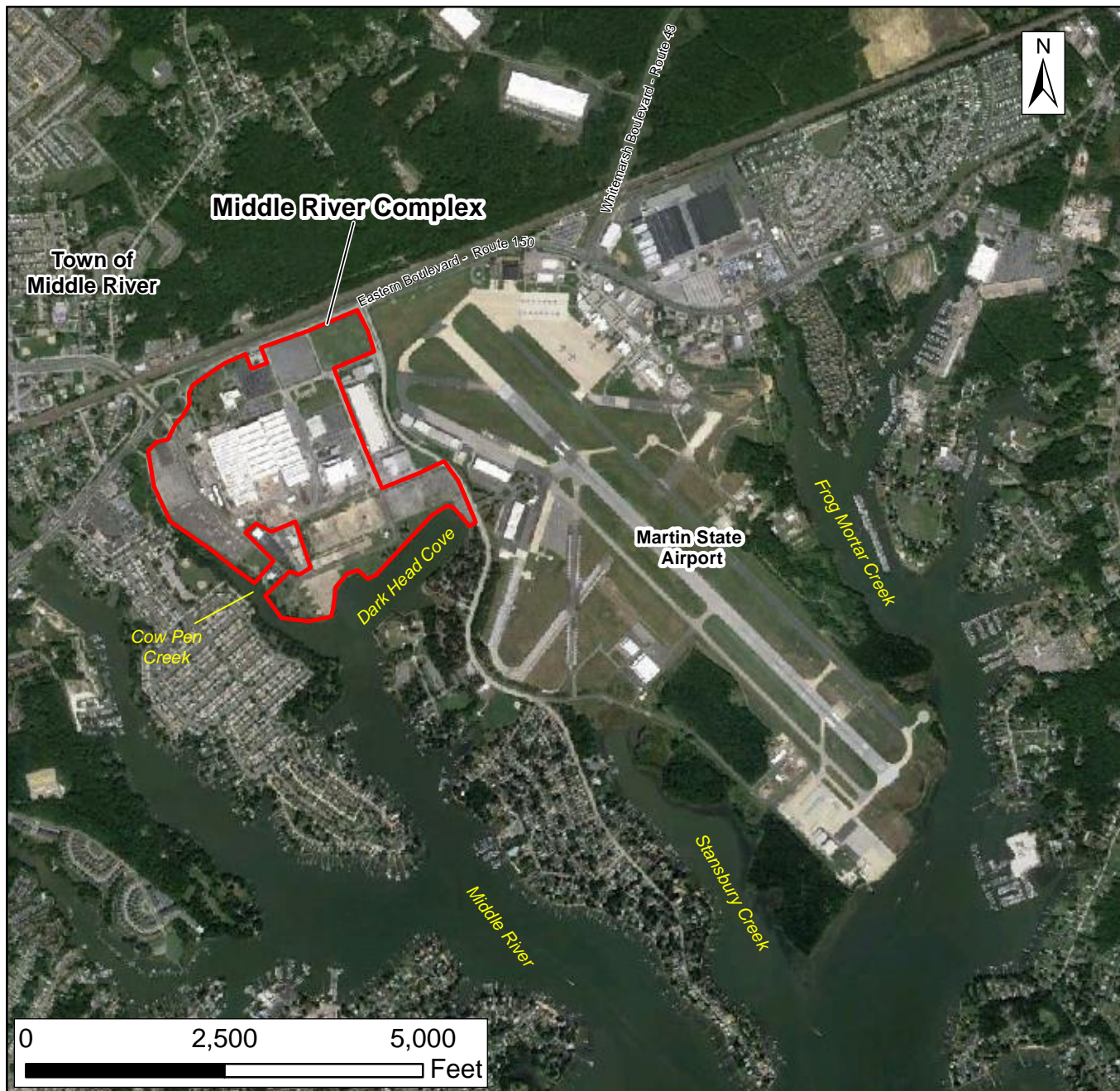
Section 2 – Site Background: Briefly describes the site history and previous investigations related to storm drain sediments at the Middle River Complex.

Section 3 – Investigation Approach and Methodology: Presents the technical approach to the investigation and describes the field methodology for sampling and chemical analyses.

Section 4 – Results: Presents the investigation results.

Section 5 – Summarizes: Summarizes the investigation program.

Section 6 – References: Cites references used in compiling this document.



Source: Google Earth, 2013

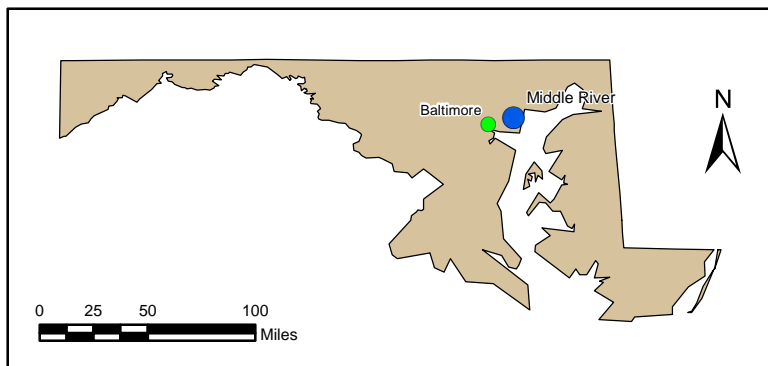


FIGURE 1-1

**MIDDLE RIVER COMPLEX
LOCATION MAP**

*Lockheed Martin Middle River Complex
Middle River, Maryland*

DATE MODIFIED: 5/1/13

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Section 2

Site Background

2.1 SITE DESCRIPTIONS

The following sections briefly describe the Lockheed Martin Corporation (Lockheed Martin) Middle River Complex (MRC) and Martin State Airport (MSA). Details of the area's physical setting, land use, physiography, and subsurface conditions (i.e., soils and geology), and previous studies related to creek-bottom sediments in Cow Pen Creek and Dark Head Cove, are in the 2013 *Draft Sediment Remedy Design Investigation Report* (Tetra Tech, Inc. [Tetra Tech], 2014a), and are not repeated herein.

2.1.1 Middle River Complex

The MRC is at 2323 Eastern Boulevard in Middle River, Maryland. Figure 2-1 is a facility layout map. The site is comprised of approximately 163 acres and 12 main buildings. The property includes an active industrial area and yard, perimeter parking lots, an athletic field, a vacant concrete-covered lot, a trailer and parts storage lot, and numerous grassy areas along the facility perimeter. Locked chain-link fences surround all exterior lots and the main industrial area. The site is bounded by Eastern Boulevard (Route 150) to the north, MSA to the east, Dark Head Cove to the south, and Cow Pen Creek to the west. As shown in Figure 2-1, the MRC currently consists of eight tax parcels or "tax blocks," which are commonly referred to as Block A, B, D, etc.

Currently, the primary activities of LMC Properties, Inc. (LMCPI) (a subsidiary of Lockheed Martin) at the MRC include facility and building management and maintenance. The main site tenant, MRA Systems, Inc. (a subsidiary of General Electric Company), designs, manufactures, fabricates, tests, overhauls, repairs, and maintains aeronautical structures, parts, and components for military and commercial applications. Lockheed Martin Mission Systems & Training is a business segment of Lockheed Martin that conducts engineering activities and fabricates, assembles, tests, and otherwise supports vertical-launch systems. A subsidiary of Lockheed

Martin (Applied NanoStructured Solutions LLC) occupies a portion of the MRC, where it researches and designs nanotechnology applications.

Environmental investigations of the MRC were substantially initiated with a 2003 environmental site assessment which identified several recognized environmental conditions associated with the MRC (Earth Tech, Inc., 2003). Since that time, extensive environmental investigations have been conducted at the MRC and remedies are being implemented under several remedial action plans to mitigate conditions in soil, groundwater, and sediment under a consent order to be issued by the Maryland Department of the Environment (MDE).

2.1.2 Martin State Airport

MSA is at 701 Wilson Point Road in Middle River, Maryland. It is bounded by Frog Mortar Creek to the east and Stansbury Creek to the west (see Figure 2-1). Both creeks are tidal tributaries of the Chesapeake Bay that intersect Middle River, which flows to the bay south of the airport. The current MSA property was part of the Glenn L. Martin Company's original 1,260-acre property, which previously included a manufacturing portion (present-day MRC), as well as previously divested properties now occupied by the Tilley Chemical Company, North American Electric Company, an Exxon service station, the United States Postal Service, the Annex building (currently leased by Ace Logistics, Inc.), and Johnson & Towers, Inc. On September 20, 1975, the Maryland Aviation Administration (MAA) purchased 747 acres that are now used as the airfield, of which 175 acres in the northeastern portion are now leased to the Maryland Air National Guard.

MAA currently operates MSA on behalf of the Maryland Department of Transportation. MSA has an administration building (main terminal building), aircraft hangars, a 7,000-foot long runway, several taxiways, and the Strawberry Point Hangar. MAA manages more than 130,000 square feet of heated hangar space and 190 smaller aircraft T-hangars. The southwestern portion of MSA contains numerous aboveground fuel storage tanks for Jet A and Avgas 100LL fuels. MSA is also home to more than 20 commercial tenants providing fuels and lubricants, helicopter avionics repair, and flight instruction, in addition to hosting the Baltimore County Police aviation and marine units and the Glenn L. Martin Museum (MAA, 2012). Lockheed Martin currently conducts a variety of environmental investigations at MSA, under MDE review and regulation.

2.2 STORM DRAIN SYSTEMS

2.2.1 Middle River Complex

No surface water bodies lie within or cross the MRC. Excluding areas immediately adjacent to Cow Pen Creek and Dark Head Creek, surface water runoff from the MRC discharges from the facility via storm drains. In the outer tax blocks, runoff may also enter creeks directly via overland flow from paved or concrete surfaces (e.g., the sloped concrete ramp in Block F), or in vegetated areas near the creek by overland flow, rills, or gullies. Water from runoff may also infiltrate into the soil and move as shallow subsurface storm-flow, or may locally pond and infiltrate into the soil or be lost to the atmosphere through evaporation.

Stormwater in the industrial portions of the MRC is collected and conveyed through nine primary storm-drainage systems that discharge to Cow Pen Creek and Dark Head Cove via Outfalls 001 through 009 (Figure 2-2). Discharges from These outfalls are regulated under a State of Maryland National Pollutant Discharge Elimination System (NPDES) permit (State discharge permit No. 00-DP-0298, NPDES permit No. MD0002852) issued by the MDE Industrial Discharge Permits Division, Water Management Administration). Four outfalls are monitored monthly for flow, chlorine and pH (Outfalls 002, 004, 007 and 009); Outfall 004 is monitored monthly for oil and grease; and Outfalls 004 and 009 are monitored quarterly for total and dissolved copper. Additionally, stormwater in portions of Block G and Block H is collected and conveyed to Cow Pen Creek by other smaller storm-drainage systems that are not covered under the permit.

2.2.2 Martin State Airport

Surface water runoff from MSA enters surrounding creeks via localized gullies in the eastern and western undeveloped portions of the site, or via storm drains that collect and convey runoff from the airport runway, taxiways, and developed administrative portions of the facility. MSA encompasses 47 drainage areas in three watersheds, forming a total drainage area of 700 acres (MAA, 2008). The airport drainage areas range from seven to more than 170 acres. The western MSA boundary consists of the main terminal building and aircraft hangars. Stormwater runoff from the eastern and southern ends of Dark Head Cove flows via five storm drain systems to MSA outfalls that are monitored for water quality (9OF001, 8OF001, IN159, SW0043, and WROF001A). The monitored outfalls are on MSA property (Figure 2-3), but stormwater from

MSA is conveyed to Dark Head Cove by storm drains running beneath Wilson Point Road, MRC Block D, and Stansbury Apartments.

All stormwater runoff originating from MSA discharges to outfall areas that are monitored monthly to ensure that no oily discharges to surface water occur. Secondary containment drains are also routinely inspected and emptied of stormwater. The facility maintains an NPDES permit (No. MDR 05501, General Discharge Permit No. 05-SF-5501), with an effective date of November 12, 2004, and an expiration date of November 12, 2009. However, the current permit remains in effect because the MDE has administratively extended it until they issue a replacement.

MSA's general industrial permit has no monitoring requirements. However, limited monitoring is performed for the separate municipal permit required for the federal Illicit Discharge Detection and Elimination program. This limited monitoring includes laboratory analysis for ammonia, dissolved oxygen, surfactants, fecal coliform, potassium, water temperature, conductivity, pH, and fluoride concentrations in monitored outfalls during annual inspections. Visual inspections are routinely performed and annual reports are submitted to MDE.

2.3 PREVIOUS INVESTIGATIONS

The following sections summarize previous environmental investigations and an interim remedial measure (IRM) implemented for the chemical characterization and removal of storm drain sediments at the MRC. Lockheed Martin has not conducted previous studies of storm drain sediment at the MSA. However, Lockheed Martin has conducted studies of sediment in Dark Head Cove that include sampling downstream of several MSA storm drain outfalls. Detailed summaries of Dark Head Cove sediment studies are in the 2013 *Draft Sediment Remedy Design Investigation Report* (Tetra Tech, 2014a).

2.3.1 Supplemental Soil and Storm-Drain Sediment Characterization Investigation (Summer 2009)

In 2009, Lockheed Martin investigated sediment in Block E storm-drain systems that discharge to Dark Head Cove (Tetra Tech, 2010). Sediment samples were collected from storm drains to determine if Block E chemicals of concern (COC) (i.e., PCBs, polycyclic aromatic hydrocarbons [PAHs], volatile organic compounds [VOCs], and metals) were present in storm drain sediments,

indicating that these sediments may be past or continuing sources of COC to bottom sediments of Dark Head Cove. Sediment samples were collected from 20 storm-drain catch basins (i.e., grated inlets) and manholes within three storm-drain systems associated with MRC Outfalls 005, 006, and 008. Samples were analyzed at an off-site laboratory for PCBs, PAHs, VOCs, and metals.

PCBs were detected in nearly all sediment samples collected from Block E storm drains, with maximum PCB concentrations (downstream to upstream) of 91 milligrams per kilogram (mg/kg), 102 mg/kg, and 31 mg/kg. All total PCB concentrations in sediment from the Outfall 005 system exceeded the preliminary sediment-cleanup level used at the time of the study (one milligram per kilogram [mg/kg]), and all but one concentration exceeded 10 mg/kg. PAH concentrations (evaluated as benzo(a)pyrene equivalents [BaPEq]), ranged from 0.332-139 mg/kg, with all but three sample concentrations exceeding the preliminary BaPEq cleanup-goal for sediment that was used at the time (0.70 mg/kg). Cadmium concentrations in three samples, and the chromium concentration in one sample, also exceeded the preliminary cleanup goals (eight and 138 mg/kg, respectively) used at the time of the study. VOCs were detected only at trace to low concentrations. Therefore, the project team concluded that PCBs, PAHs, and metals concentrations in Dark Head Cove sediments may be partially attributable to sediment discharging from these three outfalls.

2.3.2 Utility Cross-Connection Study (Summer 2011)

A utility cross-connection (UCC) investigation (Tetra Tech, 2012d) was conducted in 2011 of areas in Blocks G, I, and E that had been identified for *in situ* groundwater remediation in the final *Groundwater Response Action Plan* (Tetra Tech, 2012b). The UCC investigation included the southeastern portion of Block G, the area immediately south and southeast of Building C in Block I, and the southeastern portion of Block E near a 500,000-gallon water tank and REC #3. The investigation sought to identify utilities within the footprint of the proposed groundwater-remedy systems that may act as preferential migration pathways for groundwater contaminants or bioremediation substrates that may be injected into groundwater to remedy VOCs. The UCC investigation results were used to design pilot-scale groundwater-injection tracer tests (Tetra Tech, 2012c) and the full-scale groundwater remedial system designs Tetra Tech, 2013d). No environmental samples were collected for subsurface characterization during the UCC study.

The UCC investigation included reviews of historical drawings, employee interviews, site reconnaissance, geophysical surveys, visual and closed-circuit television inspections of storm drains, and professional land surveying to locate, record, and map subsurface utilities. Historical and current utility records, site reconnaissance, and geophysical surveys indicated numerous underground utilities in the three study areas. Underground utilities include electrical lines, telecommunication lines, domestic- and fire-water lines, sanitary sewer lines, natural gas lines, and storm drains. Known utilities and geophysical anomalies were marked in the field. These locations were professionally surveyed to provide location coordinates and elevations, and to provide detailed maps of the utilities for future remedial designs.

Closed-circuit television was used to inspect and digitally record accessible underground structures. The storm drains were cleaned to remove sediment and debris before the closed-circuit television inspection, to allow for free movement of the crawler camera. Cleaning involved inserting a jet nozzle into the downstream structure of the storm drain and propelling it toward an upstream structure.

As the nozzle was pulled back, liquid and solid material was vacuumed into a jet-vacuum truck. Jet-vacuum-truck contents were transferred to roll-offs or fractionation tanks (located on a containment pad) for characterization and disposal. After a pipe segment had been cleaned, the mobile closed-circuit television truck was positioned at the upstream structure and a robotic crawler camera equipped with a multi-angle lens was inserted into the drainage pipe for video inspection of the downstream structure. All observations were recorded on a hard drive, and an audio commentary accompanied the video inspection.

The results of the utility cross-connection study indicate that the storm-drain and sanitary-sewer lines are at similar elevations to the groundwater table in the three areas where injections of Lactoil® into groundwater are proposed. Block G and Block I were historically active areas, and contain used and abandoned sewers and storm drains. Block G injection areas once contained multiple buildings and a wastewater treatment plant.

Proposed injection areas in Blocks E, G, and I also contain geophysical anomalies that might or might not affect distribution of Lactoil®. Groundwater was observed flowing in a conduit joint in the Block E injection area. Previous pilot work and the results of the utility cross-connection investigation show the potential for injected Lactoil® substrate to enter the storm drain system or

other utility conduit resulting in a possible release to the nearby surface water body. The report recommended pilot-scale bromide-injection tracer tests for the three proposed injection areas to determine optimal substrate-injection rates and evaluate whether injected substrate and VOCs in groundwater would enter the storm-drain or sanitary-sewer systems. Low-flow injection rates were recommended for full-scale implementation, to limit groundwater mounding in the areas where utilities and groundwater were at similar elevations.

2.3.3 Block E Storm-Drain Interim Remedial Measure (Fall 2011)

A storm-drain IRM was completed at Block E in autumn 2011 (Tetra Tech, 2012a). The IRM removed sediment and debris from Block E drainage-system piping and manholes, provided sediment controls, and repaired or replaced inlets and manholes. The IRM was intended to minimize the transport of PCB-contaminated storm-drain sediments to off-site locations (e.g., Dark Head Cove) and to identify and remove flow restrictions where possible. The IRM was not designed to achieve preliminary sediment-cleanup goals, but rather to remove the more mobile sediment that might migrate off-site through the drainage system. The IRM was an initial step in the more comprehensive remediation of PCB-contaminated sediments planned for the Dark Head Cove area. No environmental sampling was conducted as part of the storm-drain IRM except during management of waste sediment removed from the storm drains (i.e., waste profile sampling and analyses).

A Maryland-licensed land surveyor conducted a pre-construction survey to record topographic and as-built features of the planned and potential disturbance areas around the Block E storm-drain system. Following completion of all fieldwork, a post-construction survey documented that the site had been restored to a condition as close as practical to its original pre-construction state. Inlets, manholes, or pipe sections of the storm drain system that were found to be damaged beyond repair or blocked and inaccessible at the beginning of the IRM were generally left as found. The accessible storm drain lines were cleaned of mobile sediment.

Cleaning the storm drains involved inserting a jet nozzle into the downstream structure and propelling it toward the upstream structure. As the nozzle was pulled back, liquid and solid material was vacuumed into a jet-vacuum truck. Hand removal of debris was necessary at some locations due to the large size or heavy weight of the debris in these structures. Jet-vacuum-truck contents were transferred to roll offs or fractionation tanks located on a containment pad. After a

pipe segment had been cleaned, the mobile closed-circuit television truck was positioned at the upstream access structure, and a robotic-crawler camera equipped with a multi-angle lens was inserted into the drainage pipe to video inspect the downstream structure. All observations were recorded on a hard drive, and an audio commentary accompanied the video inspection.

Three additional catch basins were identified in the northeast corner of Block E during a site walk in July 2011, before implementation of the Block E storm-drain system IRM. Two buried manholes (MH-8 and MH-9) were also found near the southeast corner of the former Building D foundation during the IRM. These manholes have grated-steel covers and previously served as catch basins for local runoff. Manhole MH-9 was raised to grade, and a new cover was placed over the manhole opening. Manhole MH-9 is filled with rocks that partially obstruct flow from the upstream pipe; however, some water flows through manhole MH-9 to the downstream catch basin and piping. MH-8 could not be cleaned or filmed because piping was filled with water caused by rocks obstructing the connection from MH-9.

Repairs using brick, concrete, grout, and cast-iron frames and covers were performed as the cleaning of the Block E storm-drain system progressed. Crushed stone backfill and concrete or vegetative surface finishes were used as needed to return the structure/location to its original or better condition. Upon completion of the IRM, all disturbed areas were restored to approximately pre-existing grades. Seed and topsoil were distributed across all disturbed vegetated areas. Land surveys, photographs, and a post-cleaning video survey of the Block E drainage pipes document site restoration activities. Sediment controls, including silt fences and hay bales, were then installed around catch basins and manholes, so that sediment reentering cleaned drain lines was minimized until the area could be stabilized with grass.

2.4 PROBLEM STATEMENT AND CURRENT INVESTIGATION

Various MRC site investigations from 2003–2012 have identified sediment contamination in Cow Pen Creek and Dark Head Cove resulting from historical facility activities (Tetra Tech, 2014a). Sediment impacts include elevated concentrations of PCBs, PAHs, and metals. Sediment sampling results indicate possibly unacceptable (according to environmental regulations) risks to local fauna, including benthic (i.e., sediment dwelling) invertebrates, fish, and piscivorous (fish-eating) birds. Risk drivers include PCBs and, to a lesser extent, PAHs, present in the top 30 inches of the sediment bed. Specifically, PCBs and PAHs were identified in shallow

sediments near the bulkhead; however, only PAHs were identified in Dark Head Cove near MSA. In addition, cadmium and chromium (metals potentially toxic to benthic macroinvertebrates) were found in sediment at deeper intervals. Both metals have also been identified in Cow Pen Creek and Dark Head Cove sediments.

Currently, remediation of sediment is planned for areas where PCBs, PAHs, and metals exceed both proposed cleanup goals (known as preliminary remediation goals [PRGs]) and removal/treatment concentrations (known as remedial action levels [RALs]). RALs identify areas that require treatment or removal to achieve the risk-based PRGs. Site sediments are also being studied to assess the suitability of treating contaminated sediments *in situ* (i.e., in place) to reduce COC bioavailability and minimize disturbance of the habitat.

Other MRC studies have investigated the occurrence and distribution of PCBs, PAHs, VOCs, and metals in surface and subsurface soils in areas adjacent to Cow Pen Creek and Dark Head Cove. Detailed summaries of these soil investigations are in the Tax Blocks E and F soil remedial action plans (Tetra Tech, 2013b and 2014b). At two land parcels (i.e., Tax Blocks E and F) near Dark Head Cove, PAHs were detected in soil at concentrations associated with regulatorily unacceptable human health risks for hypothetical industrial receptors. PCB concentrations in Block E also exceeded acceptable levels in soil (50 mg/kg) according to regulations under the Toxic Substances Control Act of 1976 (40 *Code of Federal Regulation* 761).

Previous sediment sampling results indicate that sediment in Dark Head Cove has been impacted by contamination transported to the cove via storm drains. For example, elevated PCB concentrations have been detected in surface soil near Block E catch basins and in Block E storm-drain sediment (before the storm drain IRM), and elevated PCB concentrations are found in Dark Head Cove sediment samples collected adjacent to the Block E storm-drain outfalls. Sediment in storm drain systems discharging to Cow Pen Creek (Outfalls 001 through 004) have not previously been sampled and chemically characterized for PCBs, PAHs, and metals.

Additionally, the Block E storm drain systems have been active for nearly two years since the IRM was completed in autumn 2011. Therefore, new chemical data are required for active storm-drain systems discharging into Cow Pen Creek and Dark Head Cove, to evaluate if sediment in these systems could, following remediation, act as continuing sources of PCB and/or PAH contamination to sediment in these two water bodies. Sediment in storm drain utilities was

sampled at both MRC and MSA; this report details the scope-of-work performed to address the investigation objective. This work also satisfies a request by MDE to sample storm drain systems to determine whether sediment in storm drain systems along Wilson Point Road would continue to contribute PAHs to sediment of Dark Head Cove (MDE, 2013).



FIGURE 2-1

MIDDLE RIVER COMPLEX
SITE LAYOUT AND TAX BLOCKS

LEGEND

- MIDDLE RIVER COMPLEX TAX BLOCK BOUNDARY
- STRUCTURE
- RAILROAD TRACKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 150 300 600 Feet

DATE MODIFIED:

11/30/11

CREATED BY: MP



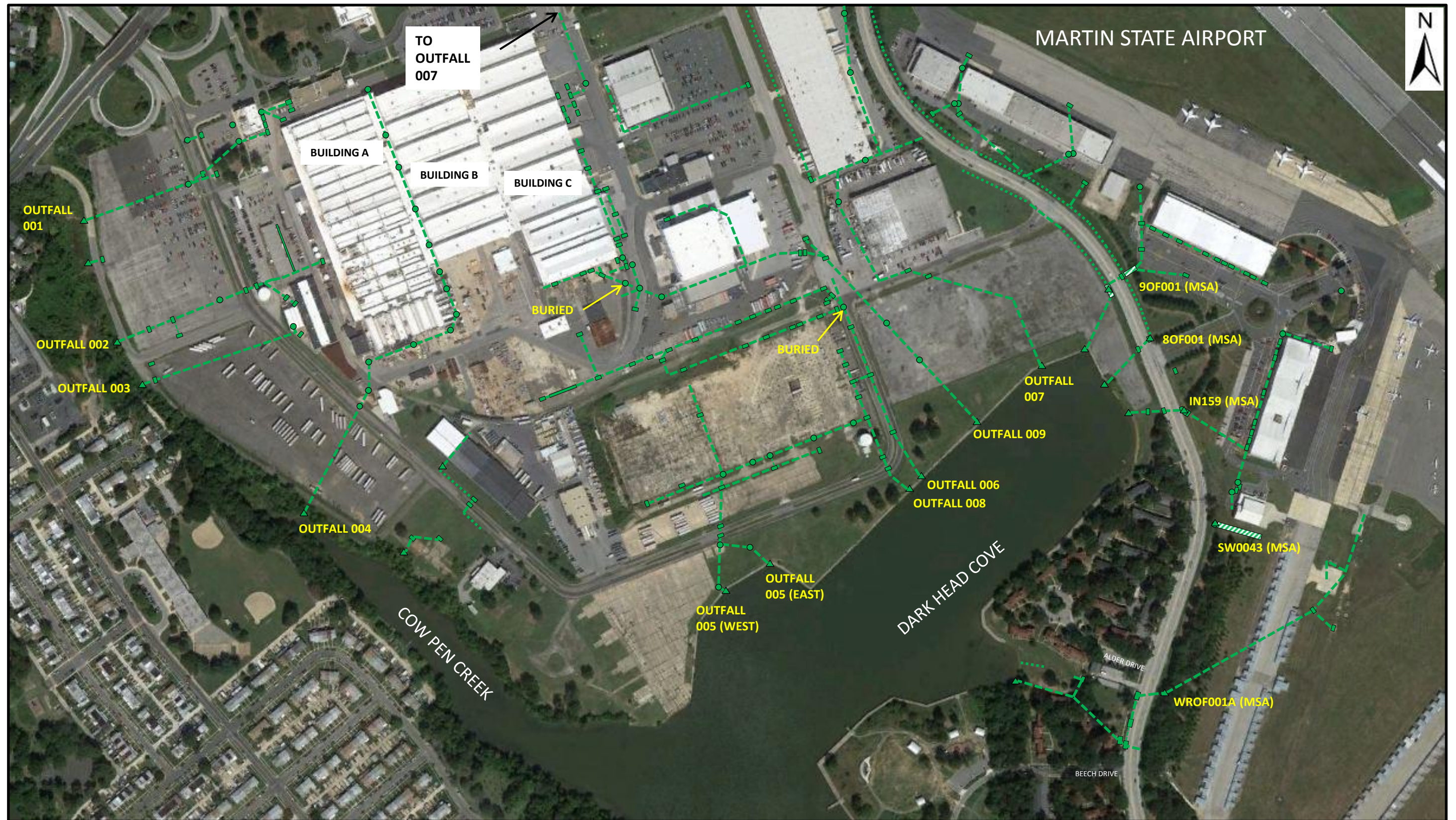
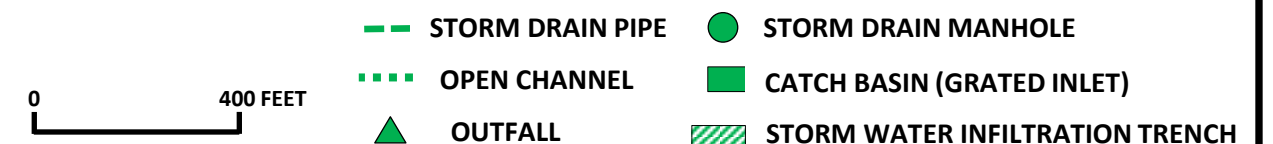


FIGURE 2-2
LOCATIONS OF COW PEN CREEK AND DARK HEAD COVE STORM DRAINAGE SYSTEMS AND OUTFALLS
MIDDLE RIVER COMPLEX AND MARTIN STATE AIRPORT, MIDDLE RIVER, MARYLAND

BASED ON TAI 2002 UTILITY PLAN, MARTIN STATE AIRPORT UTILITY COVERAGE, AERIAL PHOTOGRAPHS, TETRA TECH FIELD SURVEYS, AND TETRA TECH SITE INSPECTIONS;
 ALL UTILITIES BASED ON TAI 2002 UTILITY PLAN AND MARTIN STATE AIRPORT COVERAGE NOT VERIFIED IN THE FIELD



Section 3

Investigation Approach and Methodology

Tetra Tech, Inc. (Tetra Tech) collected samples of accumulated sediment for laboratory chemical analyses from nine Middle River Complex (MRC) and four Martin State Airport (MSA) storm drainage systems that discharge to Cow Pen Creek or Dark Head Cove (Figure 3-1). Tetra Tech obtained permission from MSA before sampling began. This investigation entailed the following field and post-field activities:

- mobilization/demobilization of sampling staff and equipment
- collection of sediment samples from storm drainage systems that discharge into Cow Pen Creek and Dark Head Cove
- collection, storage, and characterization of investigation-derived waste (IDW), and disposal of that waste at an off-site Lockheed Martin-approved disposal facility
- laboratory chemical analyses and chemical-data validation on the sediment samples
- evaluation of the sampling results

3.1 MOBILIZATION/DEMOBILIZATION

Following regulatory approval of the work plan (Tetra Tech, 2013a), the Tetra Tech field operations leader coordinated mobilization, which included procuring the required subcontractor (laboratory) and mobilizing personnel and materials to the field. Mobilization also included locating the appropriate equipment required for the field tasks, purchasing necessary equipment as required, and staging equipment for efficient loading and transportation to the site. Mobilization began on December 17, 2013 and included the following:

- mobilization of equipment and materials to the site
- implementation of:
 - site-specific health and safety plan (HASP)

-
- emergency response plan
 - sampling and analysis plan
 - waste management plan conforming to Lockheed Martin's *Energy, Environment, Safety, and Health (EESH) Remediation Waste Management Procedure No: EROP-03, Revision 4* (effective April 17, 2009) (Lockheed Martin. 2009a)
 - quality assurance (QA)/quality control (QC) plan
 - data management plan
 - set up a decontamination area

Demobilization included:

- demobilization of equipment and materials from the site
- general cleanup and trash removal
- management of IDW

Field activities planned for the locations identified in this investigation were coordinated with Lockheed Martin, LMC Properties, Inc. and Martin State Airport (MSA). No drilling or excavating was performed for this study; therefore, no utility clearance was required before sampling.

3.2 SEDIMENT SAMPLING AND ANALYSES

Storm-drain-sediment sampling locations are shown in Figure 3-1. Sediment samples were collected December 18–20, 2013 from the nine primary MRC storm-drainage systems (Outfalls 001–009) and four MSA storm-drain systems (Outfalls 9OF001, 8OF001, IN159, and WROF001A) that discharge to Dark Head Cove. Attempts were made to collect sediment samples from accessible locations (e.g., manholes or catch basins) containing sufficient sediment to obtain a sample aliquot upstream of the discharge point (i.e., outfall) for each storm drain system. Many access points lacked sediment, or lacked sufficient sediment for the required sample aliquot. Therefore, manholes or catch basins sampled for several systems were located substantially upstream of outfalls (e.g., MRC Outfalls 001, 002, 006, and 007), or in some cases only one or two samples per system could be sampled (e.g., MRC Outfalls 003 and 004, and MSA Outfalls 8OF001 and IN159).

Thirty-two sediment samples were collected, with sequential sample designations SD-163 to SD-194. SW0043 is an MSA outfall to Dark Head Cove from an infiltration basin that receives direct runoff from a nearby building, grassy areas, and a taxiway. The basin has no upstream catch basins or piping. Sediment was not present in the infiltration basin or in the outfall manhole near the property boundary; therefore, a sediment sample could not be collected for this stormwater system.

Grab samples were collected from each location using a flat, stainless steel scoop (AMS, Inc. Model 428.06 #12). The sample aliquot was homogenized using the scoop and stainless steel bowls. After each sample had been homogenized, the sediment was placed into a sample container supplied by the analytical laboratory, and the sample container was then immediately placed in a cooler containing ice. All reusable equipment contacting sediments was decontaminated between sampling locations, as described in Section 3.4. Sediment samples were analyzed for polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and percent moisture using methods listed in Table 3-1.

Sample descriptions were recorded, noting color, grain size, sorting, texture, odor, and any other pertinent sediment characteristics. Grain size was determined by comparing sediment grains to a grain-size chart. Location and construction information for each sampled catch basin or manhole were recorded. Location information includes the facility location (MRC or MSA), outfall number, catch basin or manhole number (if available), and a location sketch. Construction information includes material type (i.e., concrete, brick and mortar, etc.); utility dimensions (length, width, bottom depth); an estimate of the amount of sediment present (i.e., area and thickness); and the number, size, material, and locations of inflow and outflow structures. Inflow/outflow structures could not be observed in flooded catch basins or manholes, and the presence and quantity of sediment could only be estimated by the field crew using sampling tools and probes. The field information was documented on a Tetra Tech sediment-sampling form (Appendix A).

3.3 SAMPLE NOMENCLATURE AND HANDLING

Sediment samples submitted to the laboratory were labeled with an “SD” prefix, identifying the sampled medium as sediment, followed by a three-digit numeral to identify the sampling location (numbers 163–194), followed by the sampling depth-interval, beginning at the top of the

sediment surface. For example, SD-184-0–2 designates a surface sediment sample collected at location SD-184 from a sediment depth-interval of zero to two inches. Proper custody procedures were followed throughout all phases of sample collection and handling. Laboratory-cleaned sample containers were released under signature from the laboratory and were accepted under signature by the samplers. Transport containers were sealed with strapping tape and a tamper-proof custody seal. The custody seal contains the signature of the individual releasing the transport container, along with the date and time.

Chain of custody protocols were used throughout sample handling to establish the evidentiary integrity of sample containers. These protocols demonstrate that the samples were handled and transferred in a manner that would prevent tampering. Sample chain of custody forms are in the data validation reports in Appendix B.

3.4 EQUIPMENT DECONTAMINATION

Reusable sampling equipment (scoop and bowls) was decontaminated between sampling locations before each use. Decontamination solutions were collected for appropriate disposal. Decontamination consisted of the following steps:

- Liquinox[®] and potable-water wash
- Potable-water rinse
- Reagent-grade isopropanol rinse (achieved by thoroughly wetting the equipment with isopropanol)
- Analyte-free water rinse
- Air drying

3.5 WASTE MANAGEMENT

The project followed a waste management plan conforming to *Lockheed Martin EESH Remediation Waste Management Procedure EROP-03, Revision 4* (Lockheed Martin, 2009a) and *Remediation ESH Contractor Handbook*, (Lockheed Martin, 2009b). IDW, consisting of equipment rinse water and personal protective equipment (PPE), was generated during this sampling event. PPE was placed in trash bags and disposed of in a Lockheed Martin-designated trash container. All drums were appropriately labeled and logged on a drum inventory form. IDW

was characterized and disposed of in accordance with applicable state and federal regulations. IDW generated during this investigation was disposed of as non-hazardous waste.

3.6 DATA MANAGEMENT

Data handling procedures followed by the laboratory met the requirements set forth in the laboratory subcontract. All analytical and field data are maintained in Tetra Tech project files. The project files contain copies of the chain of custody forms, sampling log forms, sampling location maps, and QA/QC documentation.

3.6.1 Data Tracking and Control

A cradle-to-grave sample-tracking system was used throughout the investigation. Before field mobilization, the field operations leader coordinated and initiated sample tracking. Sample labels were preprinted before entering the field with sample ID, date, and time, then handwritten in the field. Labels were reviewed for accuracy and for adherence to work plan requirements. The project manager (PM) coordinated with the analytical laboratory personnel to ensure that they were aware of the number and type of samples and analyses they would receive. When field sampling was underway, the field operations leader forwarded the chain of custody forms to the PM or designee and to the laboratory at the end of each day of sampling. The PM/designee confirmed that the chain of custody forms provided the information required by the work plan.

This data management system ensures early detection of possible field errors so adjustments can be made while the field team is mobilized. After successful completion of all requested analyses, the laboratory submitted an electronic deliverable for every sample delivery group. When all electronic deliverables have been received from the laboratory, the PM/designee ensured that the laboratory performed all requested analyses.

3.6.2 Sample Information

Data from field measurements were recorded using the appropriate log sheets (see Appendix A). Reduction of field data entailed summarizing and presenting the data in tabular form. Reducing laboratory data entailed manipulating raw data-instrument output into reportable results. Laboratory data were verified by the group supervisor and by the laboratory's QC documentation department.

3.6.3 Project Data Compilation

The analytical laboratory generated an Adobe *Acrobat*® portable document format (PDF) file of the analytical data packages, as well as electronic database deliverables. The electronic database was checked against the PDF file provided by the laboratory and updated based on data-qualifier flags applied during data validation, as required. Sediment data were incorporated into the electronic geographic information system (EGIS) database. All data, such as units of measure and chemical nomenclature, were reviewed and corrected, if necessary, to maintain consistency with the project database.

3.6.4 Geographical Information System

Data management systems now in use consist of a relational database and an EGIS to manage MRC environmental information. The relational database stores chemical, geological, hydrogeological, and other data collected during environmental investigations. The EGIS is built from the relational database and contains subsets of the larger data pool. The EGIS can post environmental data onto base maps to represent the information graphically. Upon compilation of sample, chemical, and positional data, the data were incorporated into the MRC and MSA EGIS.

3.7 DATA VALIDATION

A party independent of the analytical laboratory validated the data by reviewing it to ensure that specific criteria had been met. These criteria are concerned with specifications that are not sample-dependent; they specify performance requirements that should be fully under a laboratory's control. For organic-data analyses, specific validation areas include blanks, performance-evaluation-standard materials, and instrument-performance checks. The chemical data were validated by Tetra Tech's data validation group in Pittsburgh, Pennsylvania.

Chemical data were supplied by the laboratory as hard-copy reports and electronic databases. After sampling was complete, chemical data were validated to assess their reliability and accuracy, in accordance with established United States Environmental Protection Agency (USEPA) protocols. This review was based on USEPA Region 3 guidelines (USEPA, 1993 and 1994) and the specifics of the analytical method employed. Data validation reports with chains of custody and a data table of all sampling results (including non-detects) are in Appendices B (data validation reports) and C (data table).

Collectively, these data are acceptable for their intended use. For this validation, the following data qualifiers (i.e., flags) were applied to chemical results presented in this report:

J The analyte is considered present in the sample; however, the value is estimated and may not be accurate or precise.

U Not detected; the analyte is considered not detected at the reported value.

The qualifiers appear in the chemical-results tables in Section 4 and Appendix C, and in the data validation report in Appendix B.

Table 3-1

**Sampling and Chemical Analyses for Storm Drainage System Sediment Samples—2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland**

Sampling location and number	Sampling depth	Sample analyses and methods	Rationale/purpose
SD-163 through SD-194 (32 sediment samples) MRC Outfall 001 MRC Outfall 007 SD-163-0-1 SD-190-0-1 SD-164-0-1 SD-191-0-1 SD-165-0-1 MRC Outfall 009 MRC Outfall 002 SD-184-0-2 SD-166-0-1 SD-185-0-1 SD-167-0-1 SD-186-0-1 SD-168-0-1 MSA Outfall 9OF001 MRC Outfall 003 SD-176-0-3 SD-169-0-1 SD-177-0-2 MRC Outfall 004 SD-180-0-1 SD-170-0-1 MSA Outfall 8OF001 MRC Outfalls 005/008 SD-178-0-1 SD-171-0-1 SD-179-0-1 SD-172-0-3 MSA Outfall IN159 SD-173-0-3 SD-174-0-1 SD-181-0-1 SD-175-0-1 SD-182-0-3 MSA Outfall SD-183-0-1 WROF001 MRC Outfall 006 (downstream) SD-187-0-1 SD-192-0-1 SD-188-0-1 SD-193-0-1 SD-189-0-1 SD-194-0-1	0-1 inch 0-2 inches or 0-3 inches	<u>Laboratory analyses:</u> PCBs by SW846 Method 8082 PAHs by SW846 Method 8270 (GC/SIM) percent moisture	Sample and chemically analyze sediments that are currently in storm drainage utility lines that could represent a continuing source of PAHs or PCBs to sediments of Cow Pen Creek and Dark Head Cove.

GC = gas chromatography

MRC = Middle River Complex

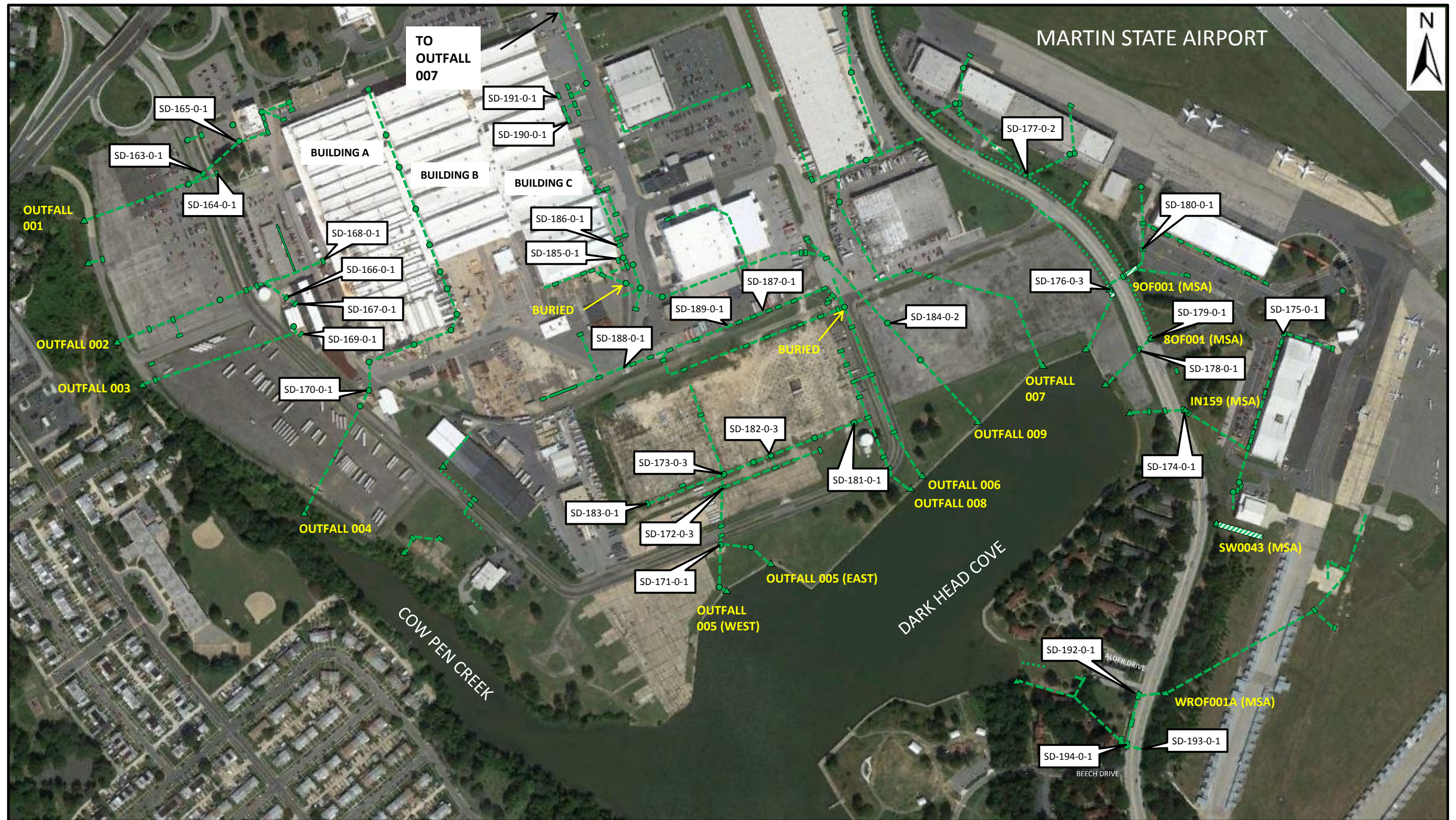
MSA = Martin State Airport

PAHs = polycyclic aromatic hydrocarbons

PCBs = polychlorinated biphenyls

SD = sediment

SIM = selective-ion methodology



Section 4

Results

This section presents the results of the 2013 storm-drain-sediment field investigation. This investigation sought to provide data to chemically characterize and identify sediments currently in storm-drain utility lines, because they may represent a continuing source of polychlorinated biphenyls (PCBs) or polycyclic aromatic hydrocarbons (PAHs) to Cow Pen Creek or Dark Head Cove sediment. These data were collected to support the remedial design for sediment in Cow Pen Creek and Dark Head Cove.

Most catch basins and manholes inspected lacked sediment or lacked sufficient sediment for a sample aliquot. Most appurtenances sampled contained one inch or less of sediment. These observations were not unexpected, because prior camera studies of the storm drain system (Tetra Tech, Inc. [Tetra Tech], 2012a, 2012d) have shown that sediment tends to accumulate at pipe joints (particularly offset joints or mineral encrustations), and not necessarily in accessible portions of catch basins and manholes. One manhole at sampling location SD-173-0-3 (at a manhole that could not be cleaned as part of the 2011 storm drain interim remedial measure [IRM]) was entirely filled with soil.

Validated chemical data for the 32 storm-drain-sediment samples were used to generate a statistical summary table (Table 4-1) and a table summarizing positive detections of the chemical analytes (Table 4-2). Samples were analyzed for PCBs and PAHs. Total PCBs and benzo(a)pyrene-equivalent (BaPEq) concentrations were calculated for each sample and these were compared to the proposed point-based (i.e., single sample) remedial action levels (RALs) in the Middle River Complex (MRC) sediment feasibility study (Tetra Tech, 2013c). PAH concentrations for each sample were typically converted to a BaPEq concentration so that risk could be evaluated using a single risk-based value for PAHs. The BaPEq is the sum of all carcinogenic PAH concentrations that have been adjusted by applying chemical-specific toxicity-equivalence factors relative to benzo(a)pyrene. For reference, Table 4-2 also shows the

point-based preliminary remediation goals (PRGs) for total PCBs and BaPEq (Tetra Tech, 2013c).

The point-based PRG and point-based RAL are the same for total PCBs (0.676 milligrams per kilogram (mg/kg), whereas the PRG for BaPEq (0.70 mg/kg) is approximately one order of magnitude (i.e., a power of 10) lower than the RAL (6.50 mg/kg). *The Middle River Complex (MRC) sediment feasibility study developed PCB RALs to be protective of both human health and ecological receptors at the site. The RALs were developed using United States Environmental Protection Agency (USEPA)-approved methodologies that incorporate the most current scientific knowledge on the effects of these compounds on potential receptors. USEPA considers the ecological RAL, which is the consensus-based freshwater probable-effect concentration developed by MacDonald, et al., (1996, 2000a, b) and adopted by the USEPA Biological Technical Assistance Group (USEPA, 2006a, b), to be protective of benthic invertebrates. Although the human health RAL is lower than the ecological sediment RAL, the human health RAL is an area-weighted concentration that cannot be compared directly to the point-based (i.e., single sample) storm drain system sediment concentrations; therefore the lowest point-based RAL of 0.676 mg/kg developed for ecological receptors was selected to screen the storm drain sediment sample results in this report. Based on the sediment risk assessment, this ecological-based remedial level (0.676 mg/kg) would also not present an unacceptable human health risk if a human receptor were to directly contact the sediments. Additionally, based on the low volume of sediments in the storm drain system, contribution of storm drain sediment to Dark Head Cove at concentrations at or below 0.676 mg/kg would not substantially contribute to the areal extent of PCB in sediment in the receiving waters (i.e., not substantially raise the area-wide PCB concentration).*

Table 4-2 and Figure 4-1 show total PCB and BaPEq sampling results that exceed the proposed point-based sediment RALs (0.676 milligrams per kilogram [mg/kg] and 6.50 mg/kg, respectively). Total PCB and BaPEq concentrations in these tables are presented in units of both milligrams per kilogram and micrograms per kilogram (µg/kg), for consistency with previous MRC documents.

4.1 POLYCHLORINATED BIPHENYLS

PCBs were detected in all 32 sediment samples (Tables 4-1 and 4-2), at concentrations ranging from 0.0021 mg/kg (sample SD-170-0-1 in the MRC Outfall 004 system) to 780 mg/kg (sample SD-182-0-3 in the MRC Outfall 005 system). As shown in Table 4-2 and Figure 4-1, total PCB concentrations exceed the proposed sediment RAL (0.676 mg/kg) in 10 sediment samples within five outfall systems (MRC outfall systems 005, 007, 008, and 009, and Martin State Airport [MSA] outfall system IN159). Samples exceeding the proposed RAL (0.676 mg/kg) are summarized in Table 4-3.

Sediment samples with the highest concentrations of total PCBs (40–780 mg/kg) were collected in MRC Block E, in the Outfall 005 and 008 systems in the southern portion of the property. One elevated PCB concentration (SD-171-0-1 at 150 mg/kg) was detected at the northern edge of Block F, but it is directly downstream of catch basins and manholes where several of the highest PCB concentrations are present in Block E (e.g., SD-182-0-3 [780 mg/kg], SD-173-0-3 [220 mg/kg], and SD-172-0-3 [54 mg/kg]). Lower exceedances were detected at concentrations ranging from 0.74–1.71 mg/kg, in samples collected southeast and east of MRC Building C (samples SD-185-0-1 and SD-191-0-1) and northeast of the Hangar 4–6 building at Martin State Airport (MSA) (sample SD-175-0-1).

4.2 BENZO(A)PYRENE EQUIVALENT

PAHs were detected in all 32 sediment samples (Tables 4-1 and 4-2), with BaPEq concentrations ranging from 0.098 mg/kg (sample SD-169-0-1 in MRC Outfall 003 system) to 64.0 mg/kg (sample SD-190-0-1 in MRC Outfall 007 system). As shown in Table 4-2 and Figure 4-1, BaPEq concentrations exceeded the proposed sediment RAL (6.50 mg/kg) in seven sediment samples within five outfall systems: MRC Outfall systems 005, 007, and 008, and MSA Outfall systems 9OF001 and IN159.

Sediment samples with BaPEq concentrations greater than the proposed sediment RAL (i.e., BaPEq concentrations ranging from 8.06–64.0 mg/kg) were collected at the following locations (listed from highest to lowest concentration):

- The MRC Outfall 007 system, in the catch basins east of Building C (samples SD-190-0-1 and SD-191-0-1, at 19.1 and 64.0 mg/kg, respectively). These catch basins

contain only approximately one inch of sediment each, and are at the upstream end of the Outfall 007 system. Transport of this sediment to the Dark Head Cove outfall is unlikely, because of the limited quantity of sediment in the catch basins, the long travel distance to the outfall, and the absence of sediment in manholes inspected downstream (i.e., northeast and southeast) of these catch basins.

- MSA Outfall 9OF001, in an open channel along Wilson Point Road (sample SD-177-0-2 at 30.5 mg/kg). This sample was collected from an open channel along Wilson Point Road where transport of sediment is possible to downstream locations; however, the BaPEq concentration of 2.70 mg/kg in downstream sample SD-176-0-3 indicates that PAHs in sediment are not likely reaching Dark Head Cove at concentrations above the RAL (6.50 mg/kg).
- The MRC Outfalls 005 and 008 systems in MRC Block E (samples SD-181-0-1, SD-182-0-3, and SD-183-0-1, range of 14.8–25.5 mg/kg). Sediment at these three locations is unlikely to be transported to Dark Head Cove because of an elevated outflow pipe in manhole MH-9 (location of SD-181-0-1). MH-9 is downstream of the other two sampling locations that had elevated BaPEq in this system (SD-182-0-3 and SD-183-0-1). The higher outflow pipe at MH-9 is usually partially filled with water, and has an area where sediment drops out and is trapped in MH-9 upstream of the outfall. The presence of only approximately one inch of sediment at MH-9 indicates that sediment is trapped in MH-9 (i.e., the accumulated sediment level in MH-9 is below the outflow pipe), and is likely not reaching Dark Head Cove.
- The manhole at the northeastern corner of MSA Hangar 4 (sample SD-175-0-1, at 8.06 mg/kg) contains only approximately one inch of sediment and is near the upstream end of the Outfall IN159 system. Transport of this sediment to the outfall is unlikely due to the limited quantity of sediment in the manhole, the long travel distance to the outfall, and the absence of sediment in manholes inspected downstream of this location. Furthermore, the BaPEq concentration (2.87 mg/kg) in downstream sample SD-174-0-1 indicates that PAHs in sediment are not likely reaching Dark Head Cove at concentrations above the RAL (6.50 mg/kg).

4.3 POSSIBLE SOURCES DISCUSSION

Contaminant concentrations and observed volumes of sediment in the drainage systems indicate that MRC outfall systems 001–004 are not significant continuing sources of PCBs and PAHs (expressed as BaPEq) to Cow Pen Creek sediment, because PCB and BaPEq concentrations in sediment samples of these outfall systems are below the RALs. Additionally, the amount of sediment (one inch or less) noted in these outfall systems is sparse. Outfalls 001–004 primarily receive runoff from building roofs and paved portions of the MRC, where PCBs are not chemicals of concern. This storm-drain-sediment investigation suggests that MRC Outfall 005 may act as a continuing source of PCBs and PAHs (expressed as BaPEq) to Dark Head Cove sediment, because concentrations of these two constituents in sediment samples are substantially

above the RALs (i.e., PCB concentrations up to 780 mg/kg and BaPEq concentrations up to 30.5 mg/kg). Sediment is also available to be transported via the Outfall 005 system.

Several inches of sediment were encountered in two Block E catch basins sampled, and one manhole (sample SD-173 at MH-4) was filled with soil/sediment. The manhole at sampling location SD-173 (MH-4) was full of sediment at the time of the 2011 IRM. Manhole MH-4 and sampling location SD-172-0-3 (in catch basin IL-18) were not cleaned because the pipes are blocked in this part of the Outfall 005 system. Sampling location SD-182-0-3 (manhole MH-7) was cleaned and repaired during the IRM. However, transport of sediment to Dark Head Creek may be limited, since much of this system is still blocked, because discharge from the outfall is low, and because downstream manholes nearest Outfall 005 (e.g., MH-1 and MH-2) contain little to no sediment several years after completion of the IRM.

MSA Outfalls OF9001 and IN159 might possibly act as limited continuing sources of PCBs and PAHs (represented as BaPEq) to sediment of Dark Head Cove, based on upstream sample concentrations of one or both of these constituents above the RALs. However, downstream sediment sampling results (SD-174-0-1 and SD-176-0-1) suggest that concentrations of PCBs and BaPEq above the RALs may not be transported via sediment to Dark Head Cove. Accurate estimates of sediment quantities in the storm drain systems cannot reliably be made from this study.

Except for the MRC Outfall 005 system, samples collected and/or visual inspections conducted for this study indicate only small quantities of sediment in catch basins and manholes. Portions of the Outfall 005 system cleaned during the IRM and sampled for this investigation (samples SD-171-0-1, SD-181-0-1, and SD-182-0-3) contain only limited quantities of sediment (thicknesses of one to three inches), although sediment concentrations exceed the PCB and/or BaPEq RALs at these locations. The conditions of Outfall 005 manholes and catch basins not cleaned during the IRM but sampled as during this investigation (SD-172-0-3, SD-173-0-3, and SD-183-0-1) appear to be the same as those reported during the 2011 IRM. Previous camera studies at the Middle River Complex (Tetra Tech, 2012a, 2012d) demonstrate that most of the sediment in storm drainage systems accumulates at pipe joints (particularly offset joints or mineral encrustations), where it cannot be observed without the aid of a mobile camera system.

Therefore, estimates based solely on information from catch basins and manholes likely underestimate the amount of sediment in the storm drainage systems.

Table 4-1

Statistical Summary of Analytes Detected in Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport
Middle River, Maryland

Parameter	Frequency of Detection	Percent	Minimum Non-Detect Concentration	Maximum Non-Detect Concentration	Minimum Detected Concentration	Maximum Detected Concentration	Location of Maximum Concentration	Sample of Maximum Concentration	Average of All Results	Average of Positive Results	Standard Deviation
Polychlorinated biphenyls (mg/kg)											
TOTAL AROCLOR	32/32	100	--	--	0.0021	780	SD-182	SD-182-0-3	52.2	52.2	157.9
Polycyclic aromatic hydrocarbons (mg/kg)											
BaPEq-POS	32/32	100	--	--	0.096	64.0	SD-190	SD-190-0-1	7.02	7.02	13.1
Polychlorinated biphenyls (µg/kg)											
AROCLOR-1254	18/32	56	0.37 U	2500 U	5.3	410	SD-175, SD-184	SD-175-0-1, SD-184-0-2	149.3	105.3	289.3
AROCLOR-1260	32/32	100	--	--	2.1	780000	SD-182	SD-182-0-3	52160	52160	157900
TOTAL AROCLOR	32/32	100	--	--	2.1	780000	SD-182	SD-182-0-3	52220	52220	157900
Polycyclic aromatic hydrocarbons (µg/kg)											
BaPEq-POS	32/32	100	--	--	95.75	64050	SD-190	SD-190-0-1	7023	7023	13100
BENZO(A)ANTHRACENE	32/32	100	--	--	76 J	49000	SD-190	SD-190-0-1	4952	4952	9738
BENZO(A)PYRENE	32/32	100	--	--	69 J	43000	SD-190	SD-190-0-1	4685	4685	8803
BENZO(G,H,I)PERYLENE	32/32	100	--	--	81 J	33000	SD-190	SD-190-0-1	3752	3752	6755
CHRYSENE	32/32	100	--	--	120 J	55000	SD-190	SD-190-0-1	5804	5804	11110
FLUORANTHENE	32/32	100	--	--	180 J	150000	SD-190	SD-190-0-1	14120	14120	30300
PYRENE	32/32	100	--	--	160 J	74000	SD-190	SD-190-0-1	9394	9394	17450
BENZO(B)FLUORANTHENE	31/32	97	130 U	130 U	120 J	47000	SD-190	SD-190-0-1	5650	5830	10090
BENZO(K)FLUORANTHENE	31/32	97	170 U	170 U	43 J	19000	SD-190	SD-190-0-1	2161	2227	3987
INDENO(1,2,3-CD)PYRENE	31/32	97	86 U	86 U	66 J	30000	SD-190	SD-190-0-1	3346	3453	6104
PHENANTHRENE	31/32	97	130 U	130 U	47 J	61000	SD-190	SD-190-0-1	7519	7759	14600
ANTHRACENE	30/32	94	19 U	82 U	30 J	18000	SD-190	SD-190-0-1	1597	1701	3473
DIBENZ(A,H)ANTHRACENE	30/32	94	21 U	48 U	26 J	8200	SD-190	SD-190-0-1	917.6	977.6	1667
ACENAPHTHYLENE	28/32	88	22 U	96 U	14	870	SD-190	SD-190-0-1	185.4	208	198.1
FLUORENE	26/32	81	25 U	110 U	13	6600	SD-190	SD-190-0-1	720.1	880.7	1439
ACENAPHTHENE	25/32	78	20 U	80 U	9 J	5600	SD-190	SD-190-0-1	704.2	895.9	1328
NAPHTHALENE	19/32	59	6.8 U	72 U	4.7 J	640	SD-181	SD-181-0-1	112	179.7	169.5
2-METHYLNAPHTHALENE	18/32	56	7.1 U	75 U	2.5 J	530	SD-190	SD-190-0-1	90.9	151.3	136.6

Associated Samples:

BaPEq - benzo(a)pyrene equivalent

J - estimated concentration

µg/kg - micrograms per kilogram (i.e., parts per billion)

mg/kg - milligrams per kilogram (i.e., parts per million)

PCBs - polychlorinated biphenyls

POS - only detected polycyclic aromatic hydrocarbons are used for this calculation

U - not detected at the concentration shown left of the letter

-- not applicable

SD-163-0-1	SD-171-0-1	SD-179-0-1	SD-187-0-1
SD-164-0-1	SD-172-0-3	SD-180-0-1	SD-188-0-1
SD-165-0-1	SD-173-0-3	SD-181-0-1	SD-189-0-1
SD-166-0-1	SD-174-0-1	SD-182-0-3	SD-190-0-1
SD-167-0-1	SD-175-0-1	SD-183-0-1	SD-191-0-1
SD-168-0-1	SD-176-0-3	SD-184-0-2	SD-192-0-1
SD-169-0-1	SD-177-0-2	SD-185-0-1	SD-193-0-1
SD-170-0-1	SD-178-0-1	SD-186-0-1	SD-194-0-1

Table 4-2
Analytes Detected and Screening Criteria for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
Page 1 of 4

LOCATION SAMPLE ID SAMPLE DATE	Preliminary Remedial Goal ⁽¹⁾	Remedial Action Level ⁽¹⁾	SD-163 SD-163-0-1 12/18/2013	SD-164 SD-164-0-1 12/18/2013	SD-165 SD-165-0-1 12/18/2013	SD-166 SD-166-0-1 12/18/2013	SD-167 SD-167-0-1 12/18/2013	SD-168 SD-168-0-1 12/18/2013	SD-169 SD-169-0-1 12/18/2013	SD-170 SD-170-0-1 12/20/2013
Polycyclic aromatic hydrocarbons (mg/kg)										
BaPEq-POS	0.70	6.50	0.775	0.967	1.43	0.233	0.382	0.593	0.096	0.362
Polychlorinated biphenyls (mg/kg)										
TOTAL AROCLOR	0.676	0.676	0.025	0.089	0.099	0.034	0.019	0.184	0.058	0.0021
Polycyclic aromatic hydrocarbons (µg/kg)										
BaPEq-POS	700	6500	775.31	966.96	1429.4	233.18	382.14	592.83	95.75	362.06
2-METHYLNAPHTHALENE			--	30 J	25 J	--	--	--	--	--
ACENAPHTHENE			64 J	25 J	47 J	--	--	110 J	30 J	--
ACENAPHTHYLENE			69 J	150 J	36 J	--	--	--	--	58 J
ANTHRACENE			97 J	200 J	110 J	--	44 J	180 J	--	110 J
BENZO(A)ANTHRACENE			530 J	520	830	130 J	270 J	470	76 J	320
BENZO(A)PYRENE			500 J	660	920	120 J	280 J	390 J	69 J	250 J
BENZO(B)FLUORANTHENE			700 J	640	1400	--	430	250 J	120 J	320 J
BENZO(G,H,I)PERYLENE			480 J	760	890	130 J	340 J	410 J	81 J	170 J
BENZO(K)FLUORANTHENE			260 J	420	590	--	170 J	530	43 J	78 J
CHRYSENE			710 J	760	1500	180 J	440	530	120 J	280
DIBENZ(A,H)ANTHRACENE			110 J	130 J	200 J	100 J	--	88 J	--	32 J
FLUORANTHENE			1400 J	960	3500	180 J	800	1000	180 J	630
FLUORENE			52 J	52 J	55 J	--	--	86 J	--	--
INDENO(1,2,3-CD)PYRENE			390 J	560	790	--	300 J	370 J	66 J	150 J
NAPHTHALENE			--	34 J	95 J	--	--	36 J	--	--
PHENANTHRENE			990 J	370	2800	--	340 J	710	47 J	300
PYRENE			1100 J	1100	2500	210 J	590	830	160 J	480
Polychlorinated biphenyls (µg/kg)										
AROCLOR-1254	676	676	--	--	--	--	--	100	29	--
AROCLOR-1260	676	676	25	89	99 J	34	19	84	29	2.1 J
TOTAL AROCLOR	676	676	25	89	99	34	19	184	58	2.1

Table 4-2
Analytes Detected and Screening Criteria for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
Page 2 of 4

LOCATION SAMPLE ID SAMPLE DATE	Preliminary Remedial Goal ⁽¹⁾	Remedial Action Level ⁽¹⁾	SD-171 SD-171-0-1 12/19/2013	SD-172 SD-172-0-3 12/19/2013	SD-173 SD-173-0-3 12/19/2013	SD-174 SD-174-0-1 12/19/2013	SD-175 SD-175-0-1 12/19/2013	SD-176 SD-176-0-3 12/19/2013	SD-177 SD-177-0-2 12/19/2013	SD-178 SD-178-0-1 12/19/2013
Polycyclic aromatic hydrocarbons (mg/kg)										
BaPEq-POS	0.70	6.50	1.02	6.39	2.83	2.87	8.06	2.70	30.5	0.258
Polychlorinated biphenyls (mg/kg)										
TOTAL AROCLOR	0.676	0.676	150	54	220	0.5	1.71	0.124	0.101	0.0173
Polycyclic aromatic hydrocarbons (µg/kg)										
BaPEq-POS	700	6500	1020.22	6393	2828.3	2870.2	8061.1	2699.3	30526	258.05
2-METHYLNAPHTHALENE			14 J	50 J	55 J	47 J	210 J	30 J	300 J	--
ACENAPHTHENE			28 J	550	150 J	230	1500	130 J	2200 J	--
ACENAPHTHYLENE			71	160 J	430	140 J	310	200 J	510 J	48 J
ANTHRACENE			160	1100	580	610	2100	390	3300 J	30 J
BENZO(A)ANTHRACENE			620	4600	1700	2200	5700	1600	18000 J	140 J
BENZO(A)PYRENE			680 J	4200 J	1900 J	1900 J	5400 J	1800 J	21000 J	180 J
BENZO(B)FLUORANTHENE			720 J	5300 J	2100 J	2500 J	6000 J	2700 J	27000 J	200 J
BENZO(G,H,I)PERYLENE			630 J	3300 J	1800 J	1300 J	3700 J	1500 J	15000 J	140 J
BENZO(K)FLUORANTHENE			250 J	1800 J	630 J	780 J	2500 J	710 J	10000 J	86 J
CHRYSENE			720	5000	2000	2400	6100	2200	26000 J	190 J
DIBENZ(A,H)ANTHRACENE			150 J	870 J	390 J	360 J	1100 J	320 J	3500 J	32 J
FLUORANTHENE			910	9600	3000	5800	13000	4200	68000 J	260
FLUORENE			35 J	460	160 J	250	1000	160 J	2200 J	--
INDENO(1,2,3-CD)PYRENE			530 J	3100 J	1500 J	1300 J	3600 J	1400 J	14000 J	110 J
NAPHTHALENE			24 J	89 J	94 J	160 J	480	51 J	120 J	--
PHENANTHRENE			430	5000	1100	3800	9000	1700	39000 J	81 J
PYRENE			1100	7400	3400	4000	10000	3000	45000 J	210
Polychlorinated biphenyls (µg/kg)										
AROCLOR-1254	676	676	--	--	--	150	410	36	28 J	5.3
AROCLOR-1260	676	676	150000	54000	220000	350	1300	88	73 J	12
TOTAL AROCLOR	676	676	150000	54000	220000	500	1710	124	101	17.3

Table 4-2
Analytes Detected and Screening Criteria for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION SAMPLE ID SAMPLE DATE	Preliminary Remedial Goal ⁽¹⁾	Remedial Action Level ⁽¹⁾	SD-179 SD-179-0-1 12/19/2013	SD-180 SD-180-0-1 12/19/2013	SD-181 SD-181-0-1 12/20/2013	SD-182 SD-182-0-3 12/20/2013	SD-183 SD-183-0-1 12/20/2013	SD-184 SD-184-0-2 12/20/2013	SD-185 SD-185-0-1 12/20/2013	SD-186 SD-186-0-1 12/20/2013
Polycyclic aromatic hydrocarbons (mg/kg)										
BaPEq-POS	0.70	6.50	0.289	4.32	25.5	14.8	20.1	5.97	1.86	0.471
Polychlorinated biphenyls (mg/kg)										
TOTAL AROCLOR	0.676	0.676	0.0296	0.116	420	780	40	1.71	0.74	0.098
Polycyclic aromatic hydrocarbons (µg/kg)										
BaPEq-POS	700	6500	289.43	4322.7	25508	14776	20148	5971.9	1857.3	471.02
2-METHYLNAPHTHALENE			2.5 J	--	440 J	240 J	280	170	21 J	--
ACENAPHTHENE			18	70 J	3900	1600	3000	920	53 J	--
ACENAPHTHYLENE			14	76 J	350 J	230 J	320	560	94 J	50 J
ANTHRACENE			41	390 J	7100	3000	5600	2200	230	96 J
BENZO(A)ANTHRACENE			120	2600	20000	10000	15000	4500	1300 J	280 J
BENZO(A)PYRENE			200 J	2900	17000	9500	13000	3800	1200 J	290 J
BENZO(B)FLUORANTHENE			290 J	4300	21000	13000	15000	4700	1500 J	540
BENZO(G,H,I)PERYLENE			150 J	2600	14000	9200	11000	3400	1100	350 J
BENZO(K)FLUORANTHENE			120 J	1900	8800	3500	6200	1700	570	150 J
CHRYSENE			230	3700	20000	11000	16000	4900	1600	520
DIBENZ(A,H)ANTHRACENE			32 J	490	3100	2200	3100	930	270	67 J
FLUORANTHENE			410	6200	35000	18000	33000	11000	3600	1100
FLUORENE			13	110 J	4100	1200	2400	1100	87 J	--
INDENO(1,2,3-CD)PYRENE			150 J	2200	12000	7300	9700	3000	1000	300 J
NAPHTHALENE			4.7 J	--	640	450 J	480	340	43 J	--
PHENANTHRENE			150	2600	28000	12000	17000	6400	1100 J	400
PYRENE			290	5900	37000	18000	19000	6100	1900	590
Polychlorinated biphenyls (µg/kg)										
AROCLOR-1254	676	676	7.6	21	--	--	--	410	190	38
AROCLOR-1260	676	676	22	95	420000	780000	40000	1300	550	60
TOTAL AROCLOR	676	676	29.6	116	420000	780000	40000	1710	740	98

Table 4-2
Analytes Detected and Screening Criteria for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION SAMPLE ID SAMPLE DATE	Preliminary Remedial Goal ⁽¹⁾	Remedial Action Level ⁽¹⁾	SD-187 SD-187-0-1 12/20/2013	SD-188 SD-188-0-1 12/20/2013	SD-189 SD-189-0-1 12/20/2013	SD-190 SD-190-0-1 12/20/2013	SD-191 SD-191-0-1 12/20/2013	SD-192 SD-192-0-1 12/20/2013	SD-193 SD-193-0-1 12/20/2013	SD-194 SD-194-0-1 12/20/2013
Polycyclic aromatic hydrocarbons (mg/kg)										
BaPEq-POS	0.70	6.50	2.17	0.954	4.95	64.0	19.1	0.220	0.251	0.188
Polychlorinated biphenyls (mg/kg)										
TOTAL AROCLOR	0.676	0.676	0.121	0.064	0.093	0.099	0.88	0.033	0.017	0.016
Polycyclic aromatic hydrocarbons (µg/kg)										
BaPEq-POS	700	6500	2168.9	954.21	4948.7	64045	19123	219.73	251.07	188.49
2-METHYLNAPHTHALENE			48 J	--	--	530	230	--	--	--
ACENAPHTHENE			--	--	130 J	5600	2000	20 J	13 J	9 J
ACENAPHTHYLENE			190 J	120 J	160 J	870	440	89	31 J	48 J
ANTHRACENE			260 J	140 J	590	18000	4200	89	54 J	43 J
BENZO(A)ANTHRACENE			1100	470	3000	49000	13000	130	160	100
BENZO(A)PYRENE			1400	620	3300	43000	13000	150	170	130
BENZO(B)FLUORANTHENE			1800	800	3900	47000	16000	170	200	140
BENZO(G,H,I)PERYLENE			1600	690	2800	33000	9200	120	130	94
BENZO(K)FLUORANTHENE			720	250 J	1500	19000	5600	64 J	87 J	44 J
CHRYSENE			1700	710	3700	55000	17000	190	200	150
DIBENZ(A,H)ANTHRACENE			340 J	150 J	680	8200	2300	29 J	33 J	26 J
FLUORANTHENE			2900	1000	8100	150000	67000	360	440	240
FLUORENE			82 J	43 J	180 J	6600	2400	34 J	23 J	15 J
INDENO(1,2,3-CD)PYRENE			1300	540	2600	30000	8500	99	110	79 J
NAPHTHALENE			--	--	66 J	120 J	87 J	--	--	--
PHENANTHRENE			850	260 J	2700	61000	42000	170	160	81
PYRENE			1900	710	4500	74000	49000	240	230	160
Polychlorinated biphenyls (µg/kg)										
AROCLOR-1254	676	676	29	15	11	53	350	13	--	--
AROCLOR-1260	676	676	92	49	82	46	530	20	17	16
TOTAL AROCLOR	676	676	121	64	93	99	880	33	17	16

1) Point-based preliminary remediation goals and remedial action levels are from Table 5-1 of the Middle River Complex sediment feasibility study (Tetra Tech, 2013a).

Shaded cell indicates the concentration exceeds the remedial action level.

BaPEq - benzo(a)pyrene equivalent

J - estimated concentration

µg/kg - micrograms per kilogram (i.e., parts per billion)

mg/kg - milligrams per kilogram (i.e., parts per million)

PCBs - polychlorinated biphenyls

POS - only detected polycyclic aromatic hydrocarbons are used for this calculation

-- not detected

Table 4-3
PCBs in Storm Drainage System Sediment Samples Exceeding the Sediment Remedial Action Level*—2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland

Sample ID	Total PCB concentration (mg/kg)	Location
SD-182-0-3	780	MRC Outfalls 005/008 systems; along the main line east of the south-central portion of MRC Block E
SD-181-0-1	420	MRC Outfall 008 system; along the main line in the southeastern portion of MRC Block E, near the water tower
SD-173-0-3	220	MRC Outfall 005 system; at the intersection of two main lines in south-central portion of MRC Block E
SD-171-0-1	150	MRC Outfall 005 system; manhole adjacent to roadway near the north side of MRC Block F
SD-172-0-3	54.0	MRC Outfall 005 system; main line in the south-central portion of MRC Block E; sample collected near ground surface in a manhole backfilled with sediment/soil
SD-183-0-1	40	MRC Outfall 005 system; upstream catch basin in the main line in the southwestern portion of MRC Block E
SD-184-0-3	1.71	MRC Outfall 009 system; covered manhole in the main line in the northwestern portion of Lot 6 in MRC Block D; downstream of SD-185-0-1
SD-175-0-1	1.71	MSA Outfall IN159 system; northwestern corner of Hangar 4
SD-191-0-1	0.88	MRC Outfall 007 system; east of Building C in MRC Block I
SD-185-0-1	0.74	MRC Outfall 009 system; southeastern corner of Building C in MRC Block I

*Remedial action level is the point-based remedial action level of 0.676 for PCBs (Tetra Tech, 2013c).

mg/kg = milligram(s) per kilogram
MRC = Middle River Complex
MSA = Martin State Airport
PCB = polychlorinated biphenyl
SD = sediment



FIGURE 4-1
PCBs and BaPEq IN STORM DRAINAGE SYSTEM SEDIMENT SAMPLES EXCEEDING SEDIMENT REMEDIAL ACTION LEVELS -2013
MIDDLE RIVER COMPLEX AND MARTIN STATE AIRPORT, MIDDLE RIVER, MARYLAND

BASED ON TAI 2002 UTILITY PLAN, MARTIN STATE AIRPORT UTILITY COVERAGE, AERIAL PHOTOGRAPHS, TETRA TECH FIELD SURVEYS, AND TETRA TECH SITE INSPECTIONS;
ALL UTILITIES BASED ON TAI 2001 UTILITY PLAN. ALL MARTIN STATE AIRPORT COVERAGE NOT VERIFIED IN THE FIELD

KEY	
LOCATION ID	CONCENTRATION
ANALYTE	
GREEN SHADING – NO EXCEEDANCES	
CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (MG/KG)	

BaPEq – BENZO(A)PYRENE EQUIVALENT
MSA – MARTIN STATE AIRPORT
PCBs – POLYCHLORINATED BIPHENYLS
REMEDIAL ACTION LEVELS:
BaPEq 6.50 MG/KG
PCBs 0.676 MG/KG

- | | | | |
|--|------------------|--|---------------------------------|
| | STORM DRAIN PIPE | | STORM DRAIN MANHOLE |
| | OPEN CHANNEL | | CATCH BASIN (GRADED INLET) |
| | OUTFALL | | STORM WATER INFILTRATION TRENCH |

Section 5

Summary

The following summarizes Lockheed Martin Corporation's (Lockheed Martin's) 2013 storm-drainage-system sediment investigation and findings:

- December 18–20, 2013, Lockheed Martin collected 32 sediment samples from nine Middle River Complex (MRC) storm drainage systems and four Martin State Airport (MSA) storm drainage systems that discharge to Cow Pen Creek or Dark Head Cove.
- Samples were collected to support the remedial design for sediments in Cow Pen Creek and Dark Head Cove. Sediments in these two water bodies contain concentrations of polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) in excess of proposed point-based (i.e., single sample) remedial action levels (RALs) developed in the feasibility study. The samples were collected to evaluate if sediment in the storm drain systems could potentially act as continuing sources of these two contaminants to sediment in the creek and cove following remediation.
- Most catch basins and manholes inspected lacked sediment or lacked sufficient sediment for a sample aliquot. Most appurtenances sampled contained one inch or less of sediment. One manhole (sample SD-173-0–3) was backfilled with soil. The field crew could only estimate the presence of sediment by using sampling tools and probes in flooded catch basins or manholes.
- Sediment samples were chemically analyzed at an off-site laboratory for polychlorinated biphenyls, polycyclic aromatic hydrocarbons, and moisture content.
- Polychlorinated biphenyls and polycyclic aromatic hydrocarbons were detected in all 32 samples collected from the 13 storm drain systems.
- Concentrations of polychlorinated biphenyls exceed the proposed point-based remedial action level of 0.676 milligrams per kilogram (mg/kg) in 10 samples. Polychlorinated biphenyls concentrations above the proposed remedial action level range from 0.74–780 mg/kg.
- The highest concentrations of polychlorinated biphenyls (40–780 mg/kg) were detected in six sediment samples in the Middle River Complex Outfalls 005 and 008 systems in Blocks E and F.
- Concentrations of polycyclic aromatic hydrocarbons (expressed as benzo(a)pyrene equivalents [BaPEq]) in seven samples exceed the proposed point-based benzo(a)pyrene

equivalent remedial action level of 6.50 mg/kg. Concentrations of benzo(a)pyrene equivalent above the proposed remedial action level range from 8.06–64.0 mg/kg, and were detected in samples from the following locations (from highest to lowest concentrations):

- The MRC Outfall 007 system, in catch basins east of Building C (two samples)
- The MSA Outfall 9OF001 system, in an open channel along Wilson Point Road (one sample)
- The MRC Outfalls 005 and 008 systems in Block E (three samples)
- The northeastern corner of Martin State Airport Hangar 4 (one sample)
- The investigation indicates that Middle River Complex Outfall systems 001–004 are not significant continuing sources of polychlorinated biphenyls and polycyclic aromatic hydrocarbons to Cow Pen Creek. This conclusion is based on polychlorinated biphenyl and polycyclic aromatic hydrocarbon concentrations below the remedial action levels in these storm-drain-sediment samples, and the sparse amount of sediment (one inch or less) noted in these outfall systems.
- The Middle River Complex Outfall 005 system may be a continuing source of polychlorinated biphenyls and polycyclic aromatic hydrocarbons to the sediment of Dark Head Cove, because concentrations of these constituents are substantially above remedial action levels and sediment is available for transport to Dark Head Cove. However, transport of sediment to Dark Head Creek may be limited, because most of this system is still blocked. Discharge from the outfall is also low, and the downstream manholes nearest Outfall 005 (e.g., MH-1 and MH-2) contain little to no sediment several years after completion of the IRM.
- Martin State Airport Outfalls OF9001 and IN159 may act as limited continuing sources of polychlorinated biphenyls and polycyclic aromatic hydrocarbons to sediment of Dark Head Cove, because upstream-sample concentrations of one or both of these constituents are above the remedial action levels. However, sediment samples collected downstream of elevated samples but upstream of the outfalls suggest that sediment containing these constituents above the remedial action levels may not be transported to Dark Head Cove.
- Accurate estimates of sediment quantities in the storm drain systems cannot reliably be made from this study. Except for the Middle River Complex Outfall 005 system, sample collection and/or visual inspections conducted for this study indicate only small quantities of sediment in catch basins and manholes. However, previous camera studies at the Middle River Complex (Tetra Tech, Inc. [Tetra Tech], 2010, 2012a, 2012d) demonstrate that sediment typically accumulates at pipe joints (particularly offset joints or mineral encrustations), where it cannot be seen without the aid of a mobile camera system. Therefore, estimates based solely on information from catch basins and manholes likely underestimate the amount of sediment in the storm drainage systems.

Future plans for sediments include additional sediment sampling and chemical analyses of sediments near Outfalls 005 in 2014 to refine the magnitude and extent of more

impacted sediments in support of a remedial design for an Interim Remedial Action to remove elevated concentrations of polychlorinated biphenyls (Note: This future action is now described as the “Outfall 005 Sediment Removal Action”). Complete remediation of Dark Head Cove and Cow Pen Creek where polychlorinated biphenyls, polycyclic aromatic hydrocarbons, and metals exceed proposed cleanup goals is currently being designed and permitted. Future cleanup of Tax Block E soils will include removing polychlorinated biphenyls present in the storm drain system in Block E.

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Section 6

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APPENDIX A—FIELD SAMPLE SHEETS



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-163-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-163-0-1
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/18/2013	Depth Interval		Color		Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1155	0-1		Brown		Sand, moist, organic, small rocks
Method:	Bowl & Spoon					
Monitor Reading (ppm):	0.0					

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
		0"-1"	LT Brown & Black	Gravel & SAND, graded, angular
Method:				Trace fines
Monitor Readings (Range in ppm):				Gravel up to 1"
N/A				F-C SAND

SAMPLE COLLECTION INFORMATION:

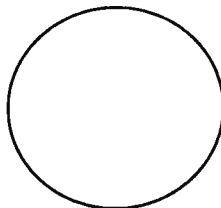
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

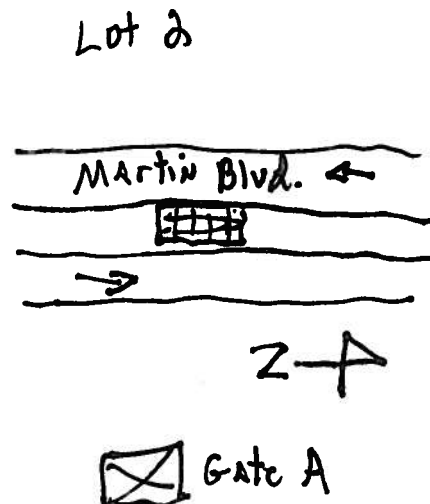
Circle one: ☒ MRC or MSA
 Outfall Number: 001
 Manhole or CB Number:
 Manhole or Catch Basin Construction:
 Material: Conc. ☒ Brick/mortar
 Dimensions: 25" x 26"
 Sediment thickness (approx): 1" inches
 Sediment area (approx): Along bottom



Flow
 24"
 concrete
 round



MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-164-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-164-0-1
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil		Type of Sample:	
<input type="checkbox"/> Subsurface Soil		<input type="checkbox"/> Low Concentration	
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> Other:			
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	12/18/2013	Depth Interval		Color		Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1210					
Method:	Thru	0-1		DARK BROWN		Silty Sand, moist
Monitor Reading (ppm):	0.0					organics

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
				SAND + silt - VF-F SAND with silt
Method:				& some clay; poorly graded
				loose, Black, organic
Monitor Readings				
(Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one MRC or MSA

Outfall Number: 001

Manhole or CB Number:

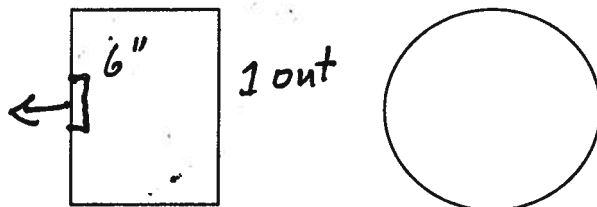
Manhole or Catch Basin Construction:

Material: Conc. Brick/mortar

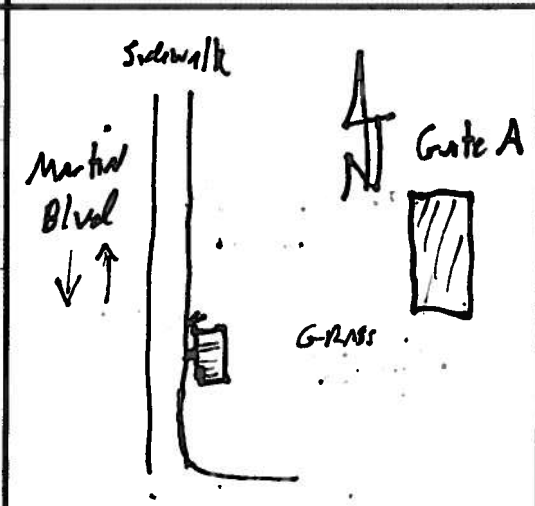
Dimensions: 12"x24" x 16" deep

Sediment thickness (approx): 2" inches

Sediment area (approx): 12"x24" x 2"



MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-165-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-165
		Sampled By:	F. Kolberg
<input type="checkbox"/> Surface Soil		C.O.C. No.:	
<input type="checkbox"/> Subsurface Soil		Type of Sample:	
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> Low Concentration	
<input type="checkbox"/> Other:		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	12/18/2013	Depth Interval	0-1"	Color	Brown	Description (Sand, Silt, Clay, Moisture, etc.)	SAND: F-M SAND w/ S&T, loose WET, poorly graded
Time:	1235						
Method:	GRAB						
Monitor Reading (ppm):	N/A						

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ HRC or MSA

Outfall Number: 001

Manhole or CB Number:

Manhole or Catch Basin Construction:

Material: Conc. ☒ Brick/mortar

Dimensions: 36" RND x 10' 8" Deep

Sediment thickness (approx): 1-2 inches

Sediment area (approx): 36" Diameter

2' of standing water

1 out →

36" Diameter RCP

P-Blk →

MAP:

MARTIN Blvd

Parking Lot

⊗ Manhole

P-Blk

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		F/K



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-166-D-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-166
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/18/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1305	0"-1"	Black	Black gravel, sand & silt graded.
Method:	Grab			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

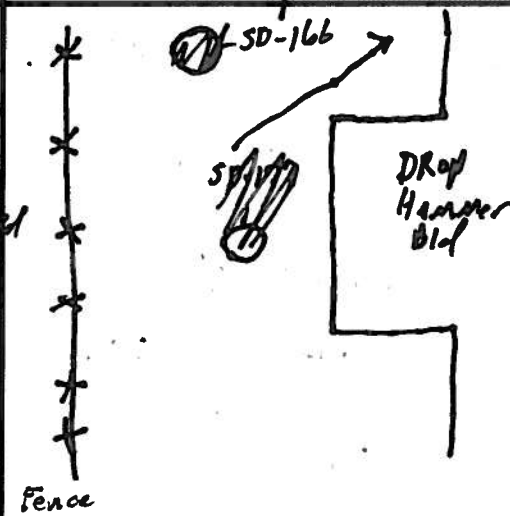
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

OBSERVATIONS / NOTES:

Circle one (MRC or MSA)
 Outfall Number: 002
 Manhole or CB Number:
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 26" Diam. Round 3.2' Deep
 Sediment thickness (approx): 0 inches
 Sediment area (approx): 0

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Middle River Complex
Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-167-0-1
Sample Location: SD-167
Sampled By: F. Kolberg
C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	12/18/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	15:10	0-1"	Brown	SAND, SILT, wet w/ organic and gravels
Method:	GRAB			
Monitor Reading (ppm):	N/A			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one (MRC or MSA)
Outfall Number: 002
Manhole or CB Number: _____
Manhole or Catch Basin Construction:
Material: Conc. Brick/mortar
Dimensions: 28" Diam x 3" Deep
Sediment thickness (approx): 1" inches
Sediment area (approx): 28" x 1" Deep

12" standing water
steel grate
19" out
concrete
8" IN
Plastic pipe

MAP:

SD-167-0-1

Circle if Applicable:

MS/MSD

Duplicate ID No.: _____

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-168-0-1
 Sample Location: SD-168
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/18/2013	1545	0"-1"	Black & Dk Brown	S-m gravel w P-B sand mixture wet
Method: <u>Grab</u>				
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

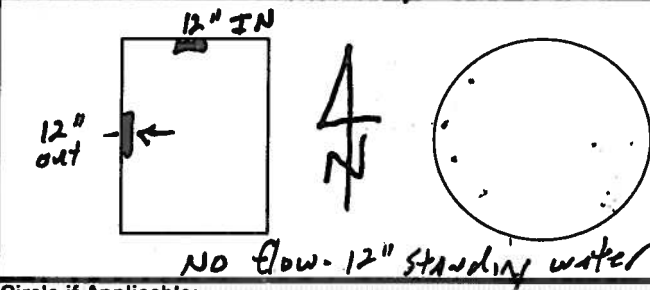
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

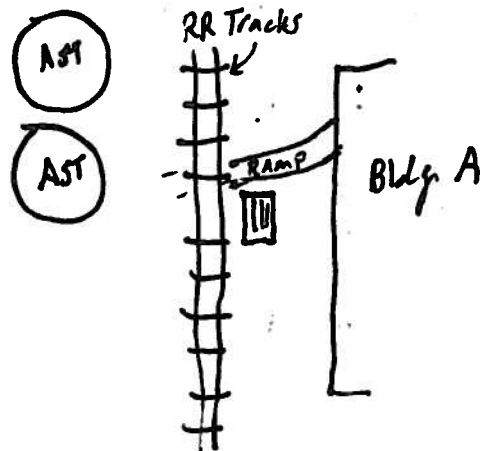
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one (MRC or MSA)
 Outfall Number: 002
 Manhole or CB Number: _____
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 22" x 30" x 4' 7" Deep
 Sediment thickness (approx): 1" inches
 Sediment area (approx): 22" x 30" x 1"



MAP:



Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-169-01
 Sample Location: SD-169
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/18/2013	1610	0'-1"	Black	Gravel, F-C sand + silt mixture WET
Method:	Grab			
Monitor Reading (ppm):	N/A			

COMPOSITE SAMPLE DATA:

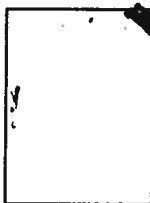
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

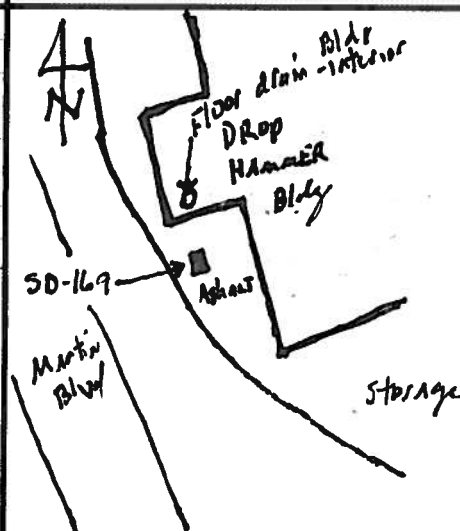
OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
 Outfall Number: 003
 Manhole or CB Number: _____
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 23" x 30" x 2' deep
 Sediment thickness (approx): 2 inches
 Sediment area (approx): 23" x 30" x 2"



8" of standing water

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: _____

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-170-D-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-170
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/06/2013	Depth Interval		Color		Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1615	0'-1"	orange brown			f-c sand, + small gravel. gradat. wet, loose
Method:	Grab					
Monitor Reading (ppm):						

COMPOSITE SAMPLE DATA:

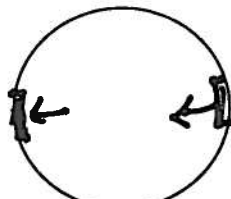
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

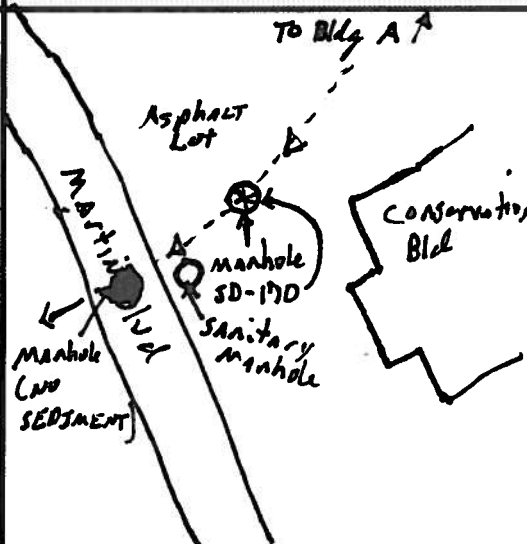
OBSERVATIONS / NOTES:

Circle one: ☒ MRC or MSA
 Outfall Number: 004
 Manhole or CB Number:
 Manhole or Catch Basin Construction:
 Material: Conc. ☒ Brick/mortar
 Dimensions: 26" diam x 12.9' Deep
 Sediment thickness (approx): 1" inches
 Sediment area (approx): 30%



Very little sediment; flow = several GPM

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-171-0-1
Sample Location: SD-171
Sampled By: F. Kolberg
C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/19/2013	1045	0"-1"	orange-brown	SILT + clay, loose, wet
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

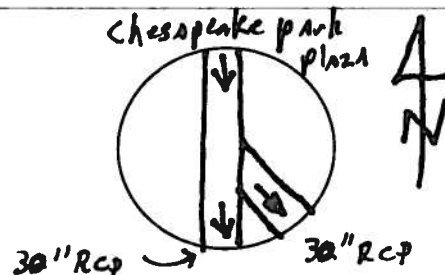
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
Outfall Number: 005
Manhole or CB Number: MH-3
Manhole or Catch Basin Construction:
Material: Conc. Brick/mortar
Dimensions: 29" DIAM x 9.5' deep
Sediment thickness (approx): 1 inches
Sediment area (approx): 10%



MAP:

Chesapeake park plaza

SD-171

Dark Head Cove

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-172-0-3Sample Location: SD-172Sampled By: F. Kolberg

C.O.C. No.: _____

☐ Surface Soil☐ Subsurface Soil☒ Sediment☐ Other: _____☐ QA Sample Type: _____

Type of Sample:

☐ Low Concentration☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/19/2013	1110	0-3"	Dk gray	F-VF SAND w/ SILT + some clay poorly graded
Method: <u>Grab</u>				
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

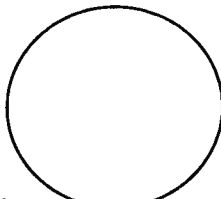
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSAOutfall Number: 005Manhole or CB Number: IL-18

Manhole or Catch Basin Construction:

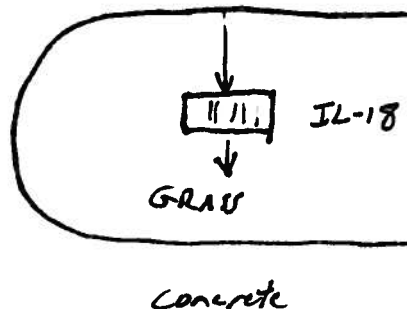
Material: Conc. ☒ Brick/mortarDimensions: 27" x 20"Sediment thickness (approx): 3" inchesSediment area (approx): 27" x 20" by 3"

In/out structures not visible; no flow 2-2' standing water

MAP:

See Block E map. (IRM map)

IL-18 concrete



concrete

Circle if Applicable:

MS/MSD

Duplicate ID No.: _____

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-173-0-3
 Sample Location: SD-173
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/19/2013	0"-3"	Brown	F-M SAND with silt/clay poorly graded
Time: 1130			
Method: GRAB			
Monitor Reading (ppm): N/A			

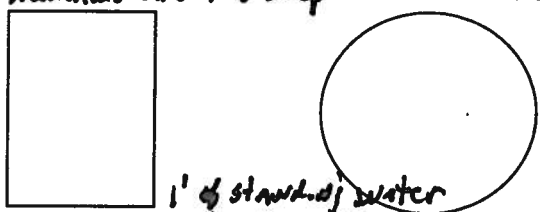
COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

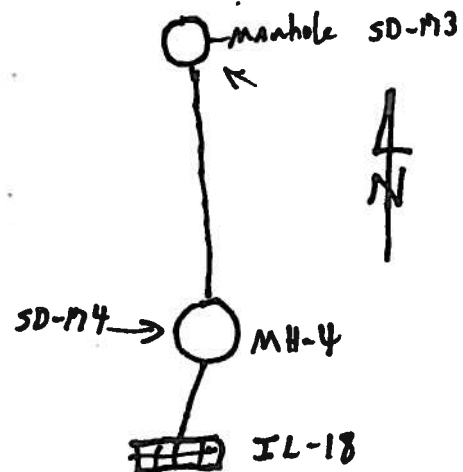
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one (MRC or MSA)
 Outfall Number: 005
 Manhole or CB Number: MH-4
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 24" diam 1.7' (Top of SEDIMENT)
 Sediment thickness (approx): _____ inches unknown - Manhole
 Sediment area (approx): 24" diameter is full of sediment
most manholes are 7'-8' deep

NO structures (IN/out) visible - full of sediment

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):





Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-174-0-1
 Sample Location: SD-174
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	12/19/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1340	0"-1"	Brown to orange-brown	F-M SAND with trace fines. Brown to orange brown
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

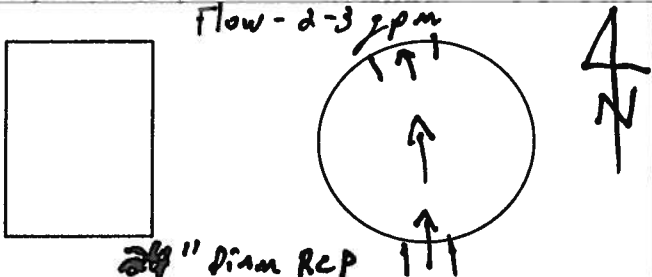
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

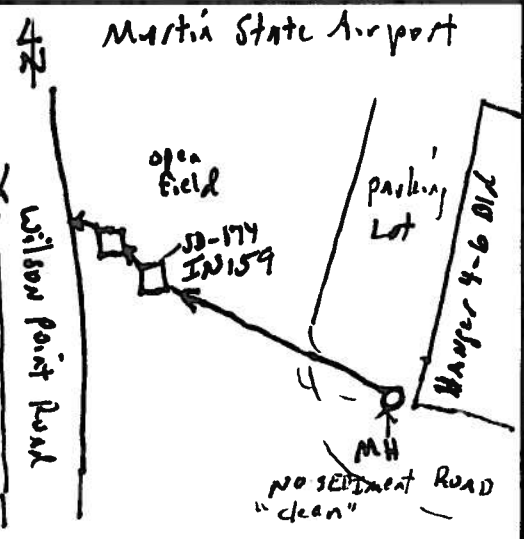
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	Yes	No

OBSERVATIONS / NOTES:

Circle one: MRC or MSA
 Outfall Number: IN-159 Downstream - at outfall
 Manhole or CB Number: outfall IN159
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 24" Diam 8' x 3' Box 3.8' depth
 Sediment thickness (approx): 1" inches
 Sediment area (approx): 1090



MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):

FZK



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-175-0-1
 Sample Location: SD-175
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/19/2013	14:30	0"-1"	Brown	M-S SAND, SILT, loose, wet poorly graded.
Method:	Grab			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

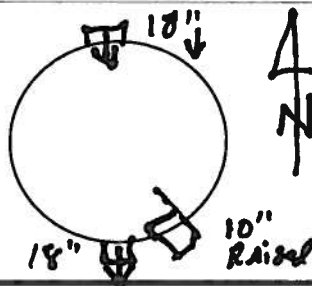
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

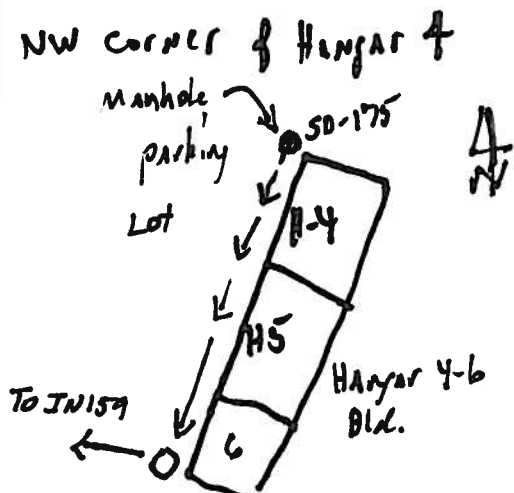
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA
 Outfall Number: IN-159
 Manhole or CB Number: _____
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 26" DIAM x 4.25' Deep
 Sediment thickness (approx): 1 inches
 Sediment area (approx): 50%



MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: _____

Signature(s):

FK



Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-176-D-3
 Sample Location: SD-176
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/19/2013	15:05	0'-3"	Dk Brown and Dk gray	VF-F SAND + SILT, poorly graded Dk Brown + Dk Grey loose wet
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

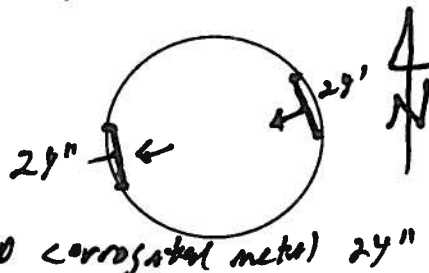
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
 Outfall Number: 90F001 (Downstream)
 Manhole or CB Number: _____
 Manhole or Catch Basin Construction:
 Material: ☒ Conc. ☐ Brick/mortar
 Dimensions: 19" x 4.2' Deep Box is 6.5' x 3.9'
 Sediment thickness (approx): 3" inches
 Sediment area (approx): 6.5' x 3.9' x 3"



MAP:

open channel Fence
 MRC Lot 6
 6.5' Long Box
 concrete box
 6.5' Long 3.9' wide
 manhole diameter 19"
 Depth 4.2'

Hwy 1
 Hangar 1
 Hangar 2

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

FJK



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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-177-b-2Sample Location: SD-177Sampled By: F. Kolberg

C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:

- ☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/19/2013	1540	0"-2"	DK gray	silt + vr sand/clay, wet loose
Method:	Grab			
Monitor Reading (ppm):	N/A			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

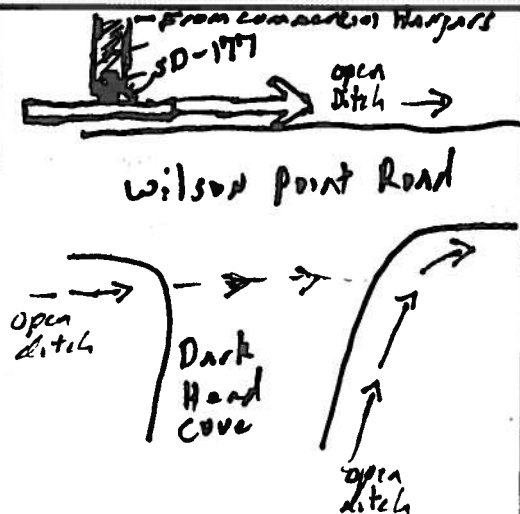
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA
 Outfall Number: 90F001
 Manhole or CB Number: _____
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 24" RCP
 Sediment thickness (approx): 2-3" inches
 Sediment area (approx): _____
 Sample collected in open channel (ditch) adjacent to culvert that discharges to ditch from MSA commercial hangar area

24" → open RCP conduit

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.: _____

Signature(s):

FK



Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-178-D-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-178
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/19/2013	Depth Interval		Color		Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1600	0"-1"	Dk gray			M-C sand w/ f/m sand and silt; little fines, lower, angular
Method:	GRAB					
Monitor Reading (ppm):						

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA

Outfall Number: downstream of 80F001

Manhole or CB Number:

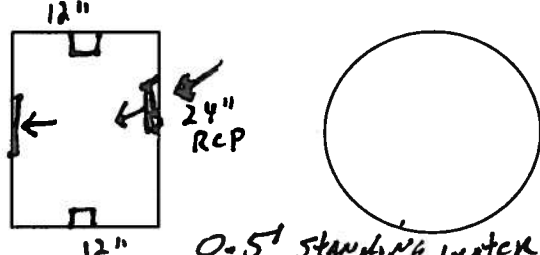
Manhole or Catch Basin Construction:

Material: Conc. Brick/mortar

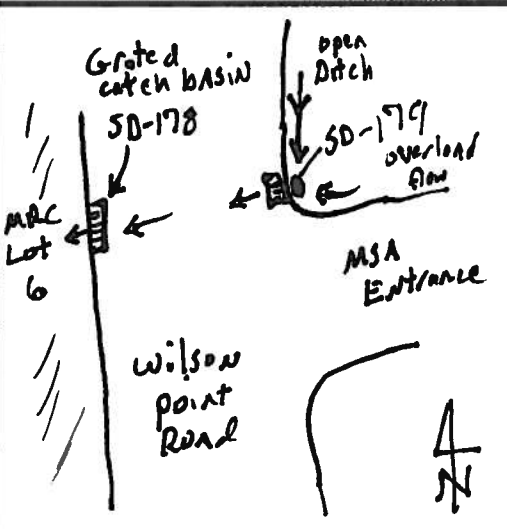
Dimensions: 5.6' x 2.7' x 4.3' deep

Sediment thickness (approx): 1" inches

Sediment area (approx): 30%



MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		<i>[Signature]</i>



Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-179-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-179
		Sampled By:	F. Kolberg
<input type="checkbox"/> Surface Soil		C.O.C. No.:	
<input type="checkbox"/> Subsurface Soil		Type of Sample:	
<input checked="" type="checkbox"/> Sediment		<input checked="" type="checkbox"/> Low Concentration	
<input type="checkbox"/> Other:		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	12/19/2013	Depth Interval		Color		Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1645					
Method:	GRAB	0"-1"		Brown to orange-brown		SAND + SILT: F-M sand w/ silt and some small gravels, loose, wet
Monitor Reading (ppm):						

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA

Outfall Number: 80F001

Manhole or CB Number:

Manhole or Catch Basin Construction:

Material: Conc. Brick/mortar

Dimensions: 24" RCP

Sediment thickness (approx): N/A inches

Sediment area (approx): N/A collected from open channel

MAP:

Grate
NO
SED.

Headwall 24" RCP
Ditch
SD-179
5.5' ~~from headwall to sample~~
From Headwall to sample

MSA
Entrance

Wilson
point
Road

sample from open channel

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		<i>F. Kolberg</i>



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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-180-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-180
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input checked="" type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/19/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1625	0"-1"	Brown to DK. Brown	M-C SAND, graded, wet, loose
Method:	Grab			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA

Outfall Number: 90F001

Manhole or CB Number:

Manhole or Catch Basin Construction:

Material: Conc. Brick/mortar

Dimensions: 21" dia. by 3.6' deep

Sediment thickness (approx): 1" inches

Sediment area (approx): 5090

MAP:

MSA
HANGAR 1

Parking lot

↓ MH
SD-180

AN

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s): <u>FHX</u>
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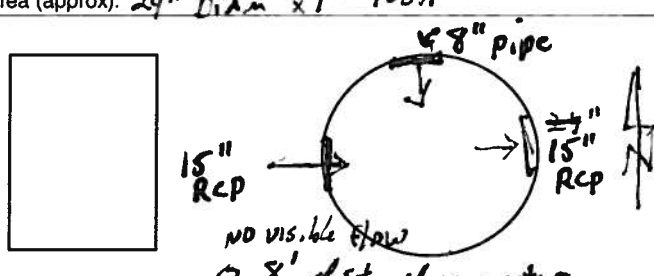
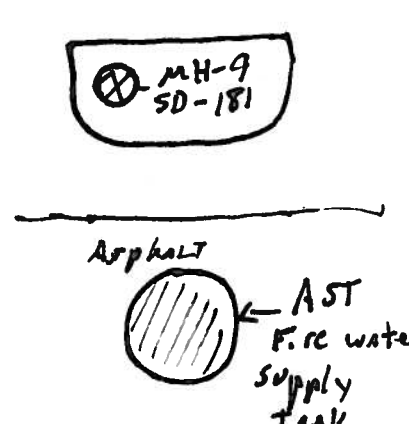
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Project Site Name: <u>Lockheed Martin Middle River Complex</u>		Sample ID No.: <u>SD-181-0-1</u>
Project No.: <u>112IC05220 Storm Sewer Sediment</u>		Sample Location: <u>SD-181</u>
		Sampled By: <u>F. Kolberg</u>
		C.O.C. No.: _____
<input type="checkbox"/> Surface Soil		Type of Sample:
<input type="checkbox"/> Subsurface Soil		<input checked="" type="checkbox"/> Low Concentration
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> High Concentration
<input type="checkbox"/> Other: _____		
<input type="checkbox"/> QA Sample Type: _____		

GRAB SAMPLE DATA:				
Date: <u>12/20/2013</u>	Depth Interval: <u>0"-1"</u>	Color: <u>Brown</u>	Description (Sand, Silt, Clay, Moisture, etc.): <u>F-C sand, poorly graded, loose, wet, little fines</u>	
Time: <u>10:00</u>				
Method: <u>GRAB</u>				
Monitor Reading (ppm): <u>N/A</u>				

COMPOSITE SAMPLE DATA:				
Date:	Time:	Depth Interval:	Color:	Description (Sand, Silt, Clay, Moisture, etc.):

SAMPLE COLLECTION INFORMATION:			
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

OBSERVATIONS / NOTES:		MAP:		
<p>Circle one: <input checked="" type="radio"/> MRC or <input type="radio"/> MSA</p> <p>Outfall Number: <u>008/005</u></p> <p>Manhole or CB Number: <u>MH-9</u></p> <p>Manhole or Catch Basin Construction:</p> <p>Material: Conc. <input checked="" type="radio"/> Brick/mortar</p> <p>Dimensions: <u>24" DIA. x 4.5' Deep</u></p> <p>Sediment thickness (approx): <u>1"</u> inches</p> <p>Sediment area (approx): <u>24" DIA x 1" 100%</u></p> <div style="text-align: center;"></div>		<div style="text-align: center;"></div>		
<p>Circle if Applicable:</p> <table border="1" style="width:100%"><tr><td>MS/MSD</td><td>Duplicate ID No.:</td></tr></table>		MS/MSD	Duplicate ID No.:	Signature(s): <u>FLK</u>
MS/MSD	Duplicate ID No.:			



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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-182-0-3
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-182
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/20/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	10:20	0"-3"	Black to dk gray	silt + clay, loose, wet
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

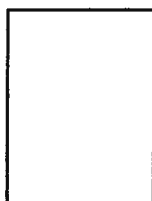
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
 Outfall Number: 005
 Manhole or CB Number: MH-7
 Manhole or Catch Basin Construction:
 Material: Conc. ☒ Brick/mortar
 Dimensions: 20" diam x 27' deep 0.8' water
 Sediment thickness (approx): 3" inches
 Sediment area (approx): sediment not visible to due flooded manhole



15" RCP

15" RCP

Flow structures not visible

MAP:

MRC-Block E
 southern Area
 see IRM AS-BUILT
 DRAWING

Circle if Applicable:

MS/MSD	Duplicate ID No.:
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Signature(s):



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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-183-D-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-183
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil		Type of Sample:	
<input type="checkbox"/> Subsurface Soil		<input type="checkbox"/> Low Concentration	
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> Other:			
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	12/20/2013	Depth Interval		Color		Description (Sand, Silt, Clay, Moisture, etc.)
Time:	10:40	0'-1'	Black			SILT AND CLAY, some sand, loose, wet
Method:	GRAB					
Monitor Reading (ppm):	N/A					

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

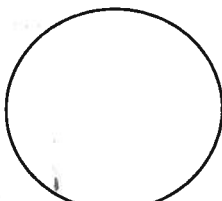
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

MAP:

Circle one: ☒ MRC or ☐ MSA
Outfall Number: 005
Manhole or CB Number: 14-17
Manhole or Catch Basin Construction:
Material: Conc. ☒ Brick/mortar
Dimensions: 24" x 20" x 4.8' deep
Sediment thickness (approx): 1" inches
Sediment area (approx): 100% 1" x

MRC Block E southern Area
See IRM AS-BUILT Drawings



no outlets visible 1' standing water: no flow

Circle if Applicable:

Signature(s):

MS/MSD	Duplicate ID No.:
--------	-------------------

FJK



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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-187-D-2
Sample Location: SD-184
Sampled By: F. Kolberg
C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/26/2013	1130	0"-2"	Black	VF-F SAND + SILT, 10% wet clayey
Method:	GRAB			
Monitor Reading (ppm):	N/A			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

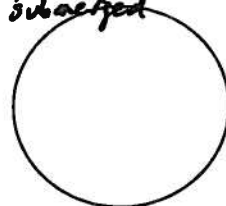
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
Outfall Number: 009
Manhole or CB Number: MH-12
Manhole or Catch Basin Construction:
Material: Conc. Brick/mortar
Dimensions: 28" diam. 9.3' deep
Sediment thickness (approx): 2 inches
Sediment area (approx): not visible

No visible inlets/outlets
submerged



3.5' standing water

MAP:

Johnson + Towers
Lot 6 at MRC
Dark Head Road
Chesapeake Park Plaza
MH-12 SD-184
Lot 6 open gravel Lot
N

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



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Project Site Name:	<u>Lockheed Martin Middle River Complex</u>	Sample ID No.:	<u>SD-185-D-1</u>
Project No.:	<u>112IC05220 Storm Sewer Sediment</u>	Sample Location:	<u>SD-185</u>
		Sampled By:	<u>F. Kolberg</u>
		C.O.C. No.:	

<input type="checkbox"/> Surface Soil		Type of Sample:	
<input type="checkbox"/> Subsurface Soil		<input type="checkbox"/> Low Concentration	
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> Other:			
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	<u>12/20/2013</u>	Depth Interval	<u>0"-1"</u>	Color	<u>Black/white</u>	Description (Sand, Silt, Clay, Moisture, etc.)	<u>M-C sand & fine gravel</u>
Time:	<u>12:00</u>						
Method:	<u>GRAB</u>						
Monitor Reading (ppm):	<u>N/A</u>						

COMPOSITE SAMPLE DATA:

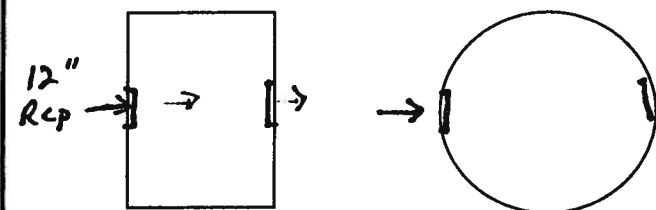
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

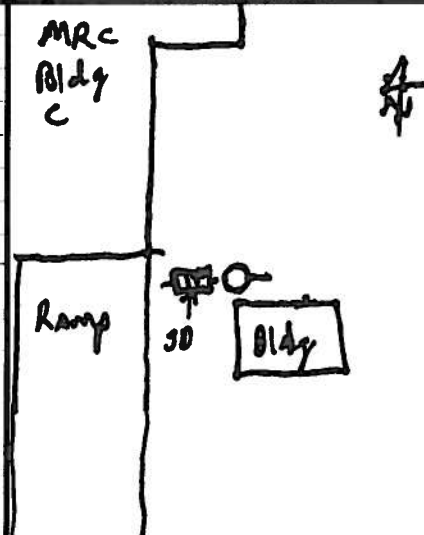
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
 Outfall Number: 009
 Manhole or CB Number: CB-88 (ucc study)
 Manhole or Catch Basin Construction:
 Material: Conc. ☒ Brick/mortar
 Dimensions: 4' x 2' x 2.4' Deep
 Sediment thickness (approx): 1" inches
 Sediment area (approx): 4' x 2' x 1" (100 sq ft)



MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



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SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-186-D-1
 Sample Location: SD-
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/20/2013			
Time: 1220			
Method: GRAB	0"-1"	Black	F-m sand w/ some fines, loose, wet
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

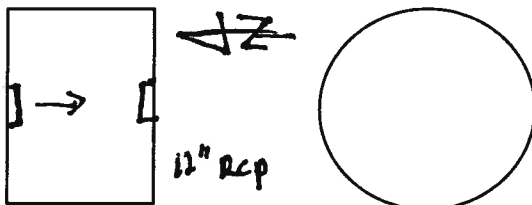
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

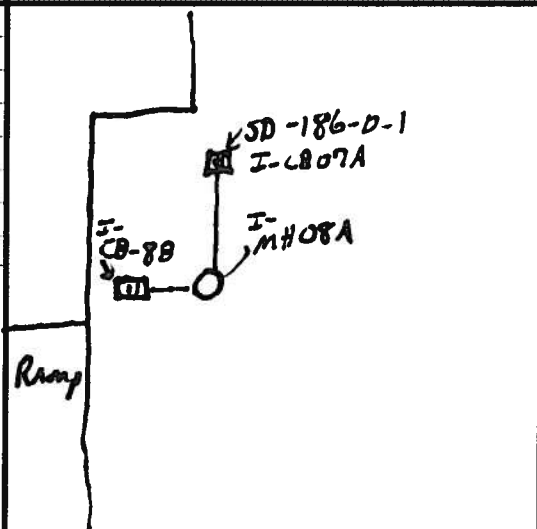
Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one (MRO) or MSA
 Outfall Number: 009
 Manhole or CB Number: I-CB07A (copper study)
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar
 Dimensions: 20" x 28" x 2.9' deep
 Sediment thickness (approx): 1 inches
 Sediment area (approx): 20" x 28" x 1"



MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

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Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-187-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-187
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil		Type of Sample:	
<input type="checkbox"/> Subsurface Soil		<input type="checkbox"/> Low Concentration	
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> Other:			
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	12/20/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1245	0"-1"	Dk gray + brown	F-m sand w/some fines, poorly loose, moist graded
Method:	G-RAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

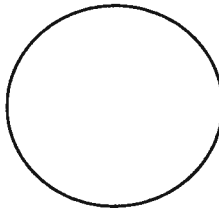
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MHC or MSA
Outfall Number: 006
Manhole or CB Number: CB-4 (outside)
Manhole or Catch Basin Construction:
Material: Conc. Brick/mortar N/A
Dimensions: N/A
Sediment thickness (approx): 2" inches
Sediment area (approx):



MAP:

5 Asphalt lot 3
concrete culvert
catch BASIN CB-4 (IRM)
→ Accumulated Sediment SD-187
→
No sediment in catch basin;
collected from sediment accumulated
in culvert upstream of CB-4

Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-188-01
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-188
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil <input type="checkbox"/> Subsurface Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Other: <input type="checkbox"/> QA Sample Type:		Type of Sample: <input type="checkbox"/> Low Concentration <input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/12/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1257	0'-1"	Dk brown and black	Fm sand, trace fines, poorly graded, loose, moist
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

OBSERVATIONS / NOTES:

Circle one: MHC or MSA

Outfall Number: 006

Manhole or CB Number: CB-8 (outside-upstream)

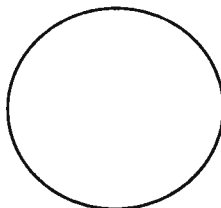
Manhole or Catch Basin Construction:

Material: Conc. Brick/mortar N/A

Dimensions: N/A

Sediment thickness (approx): inches

Sediment area (approx):



MAP:

Catch basin - no sediment collected sample upstream of CB-8

SD-188-01 Catch Basin CB-8 (IRM)

Asphalt Lot 2

concrete culvert

Accumulated sediment

Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):

FZ



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD- 189-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD- 189
<input type="checkbox"/> Surface Soil		Sampled By:	F. Kolberg
<input type="checkbox"/> Subsurface Soil		C.O.C. No.:	
<input checked="" type="checkbox"/> Sediment		Type of Sample:	
<input type="checkbox"/> Other:		<input type="checkbox"/> Low Concentration	
<input type="checkbox"/> QA Sample Type:		<input type="checkbox"/> High Concentration	

GRAB SAMPLE DATA:

Date:	12/20/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1250	0'-1"	Dk gray and Brown	F-M sand, little fines, poorly graded, loose, moist
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

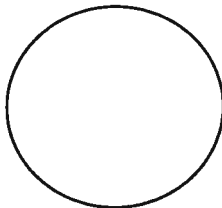
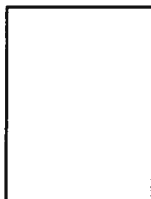
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: ☒ MRC or ☐ MSA
 Outfall Number: 006
 Manhole or CB Number: CB-6 (outside)
 Manhole or Catch Basin Construction:
 Material: Conc. Brick/mortar N/A
 Dimensions: N/A
 Sediment thickness (approx): 1 inches
 Sediment area (approx):



MAP:

Asphalt Lot
 concrete culvert
 SD-189
 Catch Basin CB-6 (IRM)
 Accumulated sediment
 no sediment in catch basin. Sample collected from accumulated sediment

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s): Outside/upstream of CB-6
--------	-------------------	--



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Middle River Complex
Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-190-0-1
Sample Location: SD-190
Sampled By: F. Kolberg
C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/20/2013	1445	0"-1"	Dark gray + brown	F-m SAND, with some fines, loose, poorly graded, wet
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

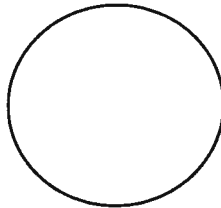
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="radio"/> Yes <input type="radio"/> No	

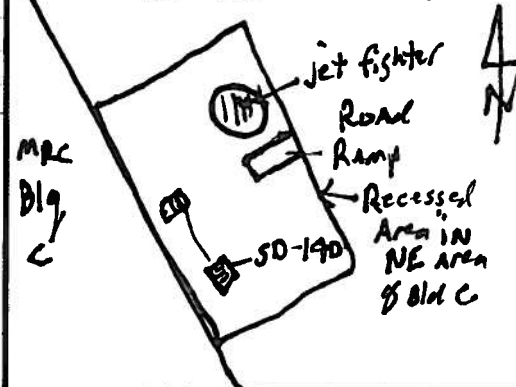
OBSERVATIONS / NOTES:

Circle one ☒ MRC or MSA
Outfall Number: 007
Manhole or CB Number: N/A
Manhole or Catch Basin Construction:
Material: Conc. ☒ Brick/mortar
Dimensions: 28" x 21" x 3.3' deep
Sediment thickness (approx): 1 inches
Sediment area (approx): 100%



MAP:

catch basin East side of Building C north of ramp Area for nano technologies



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

FLK



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Middle River Complex
Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-191-0-1
Sample Location: SD-191
Sampled By: F. Kolberg
C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/06/2013	1450	0"-1"	Black/ Brown	M-C sand w/some fines, loose, wet
Method: <u>GRAB</u>				
Monitor Reading (ppm): <u>N/A</u>				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA
Outfall Number: 007
Manhole or CB Number: N/A
Manhole or Catch Basin Construction:
Material: Conc. Brick/mortar
Dimensions: 29" x 24" x 2.9' Deep
Sediment thickness (approx): 1 inches
Sediment area (approx): 100%

NO pipe visible - CB Flooded



1' Standing water

MAP:

catch basin located between
LMC Bldg C entrance near
Deck 8 and A/C unit
- CB below A/C unit
Recessed Area
steps
Road
Jet Figher
Ramp
SD-191
A/C unit
(Elevated)

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Middle River Complex
 Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-192-0-1
 Sample Location: SD-192
 Sampled By: F. Kolberg
 C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/20/2013	1600	0"-1"	Light brown	F-c sand, w/trace fines Poorly graded, loose, wet
Method:	Grab			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

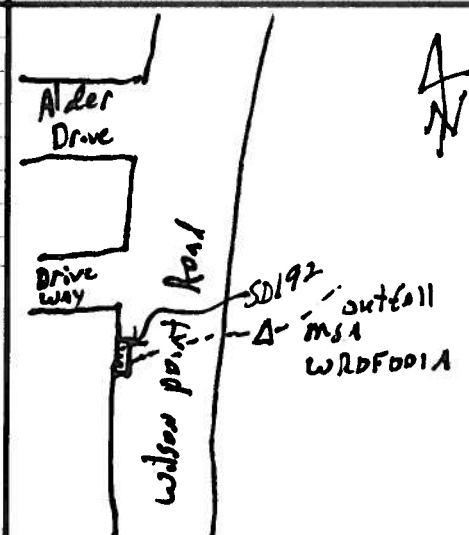
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA
 Outfall Number: downstream of MSA WRDF001A
 Manhole or CB Number: _____
 Manhole or Catch Basin Construction:
 Material: Conc Brick/morta
 Dimensions: 7' x 3' x 5.3' deep
 Sediment thickness (approx): 1 inches
 Sediment area (approx): 50% - mostly cobbles

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name:	Lockheed Martin Middle River Complex	Sample ID No.:	SD-193-0-1
Project No.:	112IC05220 Storm Sewer Sediment	Sample Location:	SD-193
		Sampled By:	F. Kolberg
		C.O.C. No.:	
<input type="checkbox"/> Surface Soil		Type of Sample:	
<input type="checkbox"/> Subsurface Soil		<input checked="" type="checkbox"/> Low Concentration	
<input checked="" type="checkbox"/> Sediment		<input type="checkbox"/> High Concentration	
<input type="checkbox"/> Other:			
<input type="checkbox"/> QA Sample Type:			

GRAB SAMPLE DATA:

Date:	12/20/2013	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time:	1610	0"-1"	Brown	F-c sand w/some f.fines, loose, wet, gradal
Method:	GRAB			
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings				
(Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	Yes No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA

Outfall Number: downstream of ditches from MSA

Manhole or CB Number: N/A

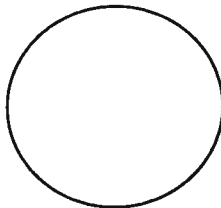
Manhole or Catch Basin Construction:

Material: Conc Brick/mortar

Dimensions:

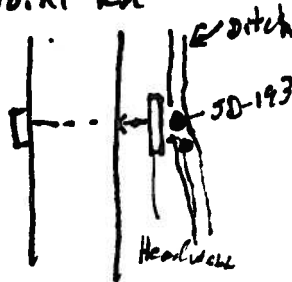
Sediment thickness (approx): _____ inches

Sediment area (approx): _____



MAP:

sample collect in open channel
(small ditch) near headwall
across from 9008 Wilson
point Rd



Circle if Applicable:

MS/MSD	Duplicate ID No.:
--------	-------------------

Signature(s):



Tetra Tech, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Middle River Complex
Project No.: 112IC05220 Storm Sewer Sediment

Sample ID No.: SD-194-0-1
Sample Location: SD-194
Sampled By: F. Kolberg
C.O.C. No.: _____

- ☐ Surface Soil
☐ Subsurface Soil
☒ Sediment
☐ Other: _____
☐ QA Sample Type: _____

Type of Sample:
☐ Low Concentration
☐ High Concentration

GRAB SAMPLE DATA:

Date:	Time:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/20/2013	1615	0'-1"	LT Brown	F-m sand w/some fines
Method: GRAB				
Monitor Reading (ppm):				

COMPOSITE SAMPLE DATA:

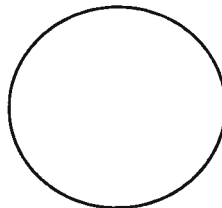
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
N/A				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs, Moisture content	1 - 8-oz wide mouth glass	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

OBSERVATIONS / NOTES:

Circle one: MRC or MSA
Outfall Number: Downstream of MSA WROFO01A
Manhole or CB Number: _____
Manhole or Catch Basin Construction: _____
Material: Conc. Brick/mortar
Dimensions: _____
Sediment thickness (approx): _____ inches
Sediment area (approx): _____



MAP:

Sample collected from storm drain catch basin in street in front of 900B Wilson Point Road.

Downstream of SD-192 & SD-193

Circle if Applicable:

MS/MSD

Duplicate ID No.: _____

Signature(s):

APPENDIX B—DATA VALIDATION REPORTS (ON CD ONLY)

TO:	T. APANAVAGE	DATE:	JANUARY 28, 2014
FROM:	MICHELLE L. ALLEN	COPIES:	DV FILE
SUBJECT:	ORGANIC DATA VALIDATION – PAH/PCB LOCKHEED MARTIN CORPORATION (LMC) – SEDIMENT INVESTIGATION SDG 180-28384-1		
SAMPLES:	32/Sediment/PAH/PCB		

SD-163-0-1	SD-164-0-1	SD-165-0-1
SD-166-0-1	SD-167-0-1	SD-168-0-1
SD-169-0-1	SD-170-0-1	SD-171-0-1
SD-172-0-3	SD-173-0-3	SD-174-0-1
SD-175-0-1	SD-176-0-3	SD-177-0-2
SD-178-0-1	SD-179-0-1	SD-180-0-1
SD-181-0-1	SD-182-0-3	SD-183-0-1
SD-184-0-2	SD-185-0-1	SD-186-0-1
SD-187-0-1	SD-188-0-1	SD-189-0-1
SD-190-0-1	SD-191-0-1	SD-192-0-1
SD-193-0-1	SD-194-0-1	

Overview

The sample set for LMC, SDG 180-28384-1 consisted of thirty-two (32) sediment environmental samples. All thirty-two (32) sediment samples were analyzed for polynuclear aromatic hydrocarbons (PAH) and polychlorinated biphenyls (PCB). No field duplicate sample pair was included in this SDG.

The samples were collected by Tetra Tech, Inc. on December 18-20, 2013 and analyzed by TestAmerica, Inc. All analyses were conducted in accordance with SW-846 Methods 8270D and 8082A analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times/sample preservation, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike results, matrix spike/matrix spike duplicate results, internal standard areas and recoveries, chromatographic resolution, compound identification, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The Percent Solids (% Solids) was less than 30% in the following samples:

<u>Sample</u>	<u>% Solids</u>
SD-177-0-2	71.8

The detected and non-detected results reported for the PAH target compounds and PCBs in these samples were qualified as estimated, (J) and (UJ), respectively.

- The internal standard areas for perylene-d12 were above the upper quality control limit in samples SD-169-0-1, SD-170-0-1, SD-171-0-1, SD-172-0-3, SD-173-0-3, SD-174-0-1, SD-175-0-1, SD-176-0-3, SD-177-0-2, SD-178-0-1, and SD-179-0-1. These samples were not re-extracted or reanalyzed. The detected and non-detected results reported for the PAH compounds associated with this internal standard were qualified as estimated, (J) and (UJ), respectively.
- The PAH Matrix Spike/Matrix Spike Duplicate analyses performed on sample SD-185-0-1 had the following noncompliances:

<u>Compound</u>	<u>MS %R</u>	<u>MSD %R</u>	<u>RPD</u>	<u>QC Limits</u>	<u>RPD Limit</u>	<u>Qualifier</u>
Anthracene	131*	59	49*	43-111	35	NA
Benzo(a)anthracene	21*	-89*	42*	45-110	31	J
Benzo(b)fluoranthene	-4*	-98*	34*	37-108	28	J
Benzo(k)fluoranthene	82	26*	31	39-115	42	NA
Benzo(g,h,i)perylene	59	-20*	29*	35-127	21	NA
Benzo(a)pyrene	29*	-74*	40*	42-114	31	J
Chrysene	47	-105*	46*	44-108	31	NA
Fluorene	131*	87	3	43-110	37	NA
Fluoranthene	-58**	-369**	52*	40-118	23	NA
Indeno(1,2,3-cd)pyrene	40	-20*	25	34-130	30	NA
Phenanthrene	181*	-46*	75*	41-107	20	J
Pyrene	24**	-170**	56	39-113	28	NA
Acenaphthene	119*	78	36*	42-104	34	NA

* - outside QC limit

** - outside QC limit, sample concentration > 4X spiked concentration

NA - No action

J - Estimated due to conflicting directional bias

No action was taken in the parent sample if at least one %R was within the quality control limits. No action was taken for noncompliant RPDs because either one or both %Rs were within the quality control limits. In addition, no action was taken for fluoranthene and pyrene because the sample concentrations of these compounds were greater than 4X the concentration spiked in the sample and the MS/MSD samples were analyzed at a 20X dilution. The remaining noncompliances were qualified as indicated in the parent sample.

- The PAH MS/MSD analyses performed on sample SD-163-0-1 (50X dilution) had %Rs for all the target compounds greater than the upper quality control limits with the exception of dibenz(a,h)anthracene and naphthalene. The MS %R for naphthalene was above the upper quality control limit (42-104) but the MSD %R and RPD were acceptable, therefore, no action was taken. In addition, no action was taken for 2-methylnaphthalene because this compound was not detected in the parent sample. The detected results reported above the Reporting Limit (RL) in the parent sample for the remaining PAH compounds were qualified as estimated, (J), due to conflicting directional bias.
- The PCB MS/MSD analyses performed on sample SD-165-0-1 had %Rs for Aroclor 1260 below the lower quality control limit. The detected result reported for this PCB in the parent sample was qualified as estimated, (J).
- Detected results reported below the RL limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

All sample PCB chromatograms were reviewed for evidence of Aroclor mixture dechlorination and/or weathering as similarly encountered in other sediment samples located within the Middle River Complex site. Upon review, some samples contained peaks that could possibly be indicative of PCB dechlorination/weathering but may also be indicative of other non-PCB contaminants. The samples that contain peaks that elute outside of the reported Aroclor mixture but are not similar to previous samples that exhibited evidence of dechlorination are as follows: SD-168-0-1, SD-172-0-3, SD-184-0-2, SD-187-0-1, and SD-189-0-1. No action was taken based on the uncertainty and limitations associated with the sample data.

One sample, SD-182-0-3, does appear to exhibit a pattern similar to previous samples where dechlorination/weathering was suspected. This sample contained the highest concentration of Aroclor 1260 in this data set and displayed three to five peaks (between approximately 6 and 8 minutes) that eluted prior to the primary Aroclor 1260 pattern. It is worth noting that the Aroclor 1260 pattern in this sample was a very good match when compared to the standard Aroclor 1260 pattern. The unidentified peaks in the sample were similar to those encountered in other sediment samples that were suspected of exhibiting dechlorination/weathering but the peak intensities were not considered significant by the data reviewer because the magnitude of the peaks were less than the overall intensity of the Aroclor 1260 pattern. No validation action was taken.

The %Rs for Aroclor 1016 in the MS/MSD analyses of sample SD-185-0-1 were above the upper quality control limit. In addition, the MSD %R was low for Aroclor 1260. No action was taken because Aroclor 1016 was not detected in the parent sample. No action was taken for Aroclor 1260 because the concentration of this PCB in the parent sample was greater than 4X the amount spiked in the MS/MSD samples.

Second column confirmation was not performed on the samples that had PCB detections. However, PCB mixtures can be identified on the basis of chromatographic patterns; therefore, there is no effect on sample identification.

All the PAH and PCB samples were initially analyzed at dilutions. Consequently, the reporting limits of the non-detected PAH and PCBs were elevated and the surrogate spike compounds were not recovered in many samples.

The following samples required further dilution due to PAH compounds exceeding the calibration range of the instrument. The results from the dilutions were used in the data validation.

<u>Sample</u>	<u>Compound</u>	<u>Dilution</u>
SD-190-0-1	Fluoranthene	50X
SD-191-0-1	Fluoranthene	100X
	Phenanthrene	100X
	Pyrene	100X

Non-detected results were reported to the MDL.

TO: T. APANAVAGE
SDG: 180-28384-1

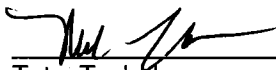
PAGE 4

Executive Summary

Laboratory Performance: The %Solids exceeded 30% in one sample. Several PAH samples had high internal standard areas for perylene-d12. Second column confirmation was not performed in the PCB fraction.

Other Factors Affecting Data Quality: All samples were diluted in the PAH and PCB fractions. The PAH and PCB MS/MSD analyses had noncompliant %Rs. Potential PCB dechlorination was present in one sample. Results below the RL were estimated.

The data for these analyses were reviewed with reference to Region III modifications to U.S. EPA National Functional Guidelines for Organic Data Validation (Sept. 1994) and SW-846 Methods 8270D and 8082A analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1							
	LAB_ID	180-28384-1	180-28384-2	180-28384-3	180-28384-4							
	SAMP_DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013							
	QC_TYPE	NM	NM	NM	NM							
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG							
	PCT_SOLIDS	76.8	78.8	76.2	80.0							
	DUP_OF											
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD			
2-METHYLNAPHTHALENE		19 U			30 J	P		25 J	P		75 U	
ACENAPHTHENE		64 J		DP	25 J	P		47 J	P		80 U	
ACENAPHTHYLENE		69 J		DP	150 J	P		36 J	P		96 U	
ANTHRACENE		97 J		DP	200 J	P		110 J	P		82 U	
BENZO(A)ANTHRACENE		530 J		D	520			830			130 J	P
BENZO(A)PYRENE		500 J		D	660			920			120 J	P
BENZO(B)FLUORANTHENE		700 J		D	640			1400			130 U	
BENZO(G,H,I)PERYLENE		480 J		D	760			890			130 J	P
BENZO(K)FLUORANTHENE		260 J		D	420			590			170 U	
CHRYSENE		710 J		D	760			1500			180 J	P
DIBENZO(A,H)ANTHRACENE		110 J		DP	130 J	P		200 J	P		100 J	P
FLUORANTHENE		1400 J		D	960			3500			180 J	P
FLUORENE		52 J		DP	52 J	P		55 J	P		110 U	
INDENO(1,2,3-CD)PYRENE		390 J		D	560			790			86 U	
NAPHTHALENE		19 U			34 J	P		95 J	P		72 U	
PHENANTHRENE		990 J		D	370			2800			130 U	
PYRENE		1100 J		D	1100			2500			210 J	P

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-167-0-1	SD-168-0-1	SD-169-0-1	SD-170-0-1				
	LAB_ID	180-28384-5	180-28384-6	180-28384-7	180-28384-8				
	SAMP_DATE	12/18/2013	12/18/2013	12/18/2013	12/20/2013				
	QC_TYPE	NM	NM	NM	NM				
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG				
	PCT_SOLIDS	77.6	78.7	87.6	78.5				
DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		39 U		38 U		17 U		19 U	
ACENAPHTHENE		41 U		110 J	P	30 J	P	20 U	
ACENAPHTHYLENE		49 U		48 U		22 U		58 J	P
ANTHRACENE		44 J	P	180 J	P	19 U		110 J	P
BENZO(A)ANTHRACENE		270 J	P	470		76 J	P	320	
BENZO(A)PYRENE		280 J	P	390 J	P	69 J	NP	250 J	N
BENZO(B)FLUORANTHENE		430		250 J	P	120 J	NP	320 J	N
BENZO(G,H,I)PERYLENE		340 J	P	410 J	P	81 J	NP	170 J	NP
BENZO(K)FLUORANTHENE		170 J	P	530		43 J	NP	78 J	NP
CHRYSENE		440		530		120 J	P	280	
DIBENZO(A,H)ANTHRACENE		48 U		88 J	P	21 UJ	N	32 J	NP
FLUORANTHENE		800		1000		180 J	P	630	
FLUORENE		57 U		86 J	P	25 U		28 U	
INDENO(1,2,3-CD)PYRENE		300 J	P	370 J	P	66 J	NP	150 J	NP
NAPHTHALENE		37 U		36 J	P	16 U		18 U	
PHENANTHRENE		340 J	P	710		47 J	P	300	
PYRENE		590		830		160 J	P	480	

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-171-0-1			SD-172-0-3			SD-173-0-3		SD-174-0-1
	LAB_ID	180-28384-9			180-28384-10			180-28384-11		180-28384-12
	SAMP_DATE	12/19/2013			12/19/2013			12/19/2013		12/19/2013
	QC_TYPE	NM			NM			NM		NM
	UNITS	UG/KG			UG/KG			UG/KG		UG/KG
	PCT_SOLIDS	33.2			53.1			62.0		83.4
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE		14 J	P		50 J	P		55 J	P	
ACENAPHTHENE		28 J	P		550			150 J	P	
ACENAPHTHYLENE		71			160 J	P		430		P
ANTHRACENE		160			1100			580		
BENZO(A)ANTHRACENE		620			4600			1700		
BENZO(A)PYRENE		680 J	N		4200 J	N		1900 J	N	N
BENZO(B)FLUORANTHENE		720 J	N		5300 J	N		2100 J	N	N
BENZO(G,H,I)PERYLENE		630 J	N		3300 J	N		1800 J	N	N
BENZO(K)FLUORANTHENE		250 J	N		1800 J	N		630 J	N	N
CHRYSENE		720			5000			2000		
DIBENZO(A,H)ANTHRACENE		150 J	N		870 J	N		390 J	N	N
FLUORANTHENE		910			9600			3000		
FLUORENE		35 J	P		460			160 J	P	
INDENO(1,2,3-CD)PYRENE		530 J	N		3100 J	N		1500 J	N	N
NAPHTHALENE		24 J	P		89 J	P		94 J	P	P
PHENANTHRENE		430			5000			1100		
PYRENE		1100			7400			3400		

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-175-0-1	SD-176-0-3	SD-177-0-2	SD-178-0-1	
	LAB_ID	180-28384-13	180-28384-14	180-28384-15	180-28384-16	
	SAMP_DATE	12/19/2013	12/19/2013	12/19/2013	12/19/2013	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG	
	PCT_SOLIDS	70.0	56.7	28.2	78.6	
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	210 J	P		300 J	PY	19 U
ACENAPHTHENE	1500		P	2200 J	Y	20 U
ACENAPHTHYLENE	310		P	510 J	PY	48 J
ANTHRACENE	2100			3300 J	Y	30 J
BENZO(A)ANTHRACENE	5700			18000 J	Y	140 J
BENZO(A)PYRENE	5400 J	N	N	21000 J	NY	180 J
BENZO(B)FLUORANTHENE	6000 J	N	N	27000 J	NY	200 J
BENZO(G,H,I)PERYLENE	3700 J	N	N	15000 J	NY	140 J
BENZO(K)FLUORANTHENE	2500 J	N	N	10000 J	NY	86 J
CHRYSENE	6100			26000 J	Y	190 J
DIBENZO(A,H)ANTHRACENE	1100 J	N	N	3500 J	NY	32 J
FLUORANTHENE	13000			68000 J	Y	260
FLUORENE	1000		P	2200 J	Y	28 U
INDENO(1,2,3-CD)PYRENE	3600 J	N	N	14000 J	NY	110 J
NAPHTHALENE	480		P	120 J	PY	18 U
PHENANTHRENE	9000			39000 J	Y	81 J
PYRENE	10000			45000 J	Y	210

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-179-0-1	SD-180-0-1	SD-181-0-1	SD-182-0-3					
	LAB_ID	180-28384-17	180-28384-18	180-28384-19	180-28384-20					
	SAMP_DATE	12/19/2013	12/19/2013	12/20/2013	12/20/2013					
	QC_TYPE	NM	NM	NM	NM					
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG					
	PCT_SOLIDS	69.7	78.7	57.5	47.9					
	DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD				
2-METHYLNAPHTHALENE		2.5 J	P		440 J	P		240 J	P	
ACENAPHTHENE		18			70 J	P		3900	1600	
ACENAPHTHYLENE		14			76 J	P		350 J	230 J	P
ANTHRACENE		41			390 J	P		7100	3000	
BENZO(A)ANTHRACENE		120			2600			20000	10000	
BENZO(A)PYRENE		200 J		N	2900			17000	9500	
BENZO(B)FLUORANTHENE		290 J		N	4300			21000	13000	
BENZO(G,H,I)PERYLENE		150 J		N	2600			14000	9200	
BENZO(K)FLUORANTHENE		120 J		N	1900			8800	3500	
CHRYSENE		230			3700			20000	11000	
DIBENZO(A,H)ANTHRACENE		32 J		N	490			3100	2200	
FLUORANTHENE		410			6200			35000	18000	
FLUORENE		13			110 J	P		4100	1200	
INDENO(1,2,3-CD)PYRENE		150 J		N	2200			12000	7300	
NAPHTHALENE		4.7 J		P	36 U			640	450 J	P
PHENANTHRENE		150			2600			28000	12000	
PYRENE		290			5900			37000	18000	

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-183-0-1	SD-184-0-2	SD-185-0-1	SD-186-0-1					
	LAB_ID	180-28384-21	180-28384-22	180-28384-23	180-28384-24					
	SAMP_DATE	12/20/2013	12/20/2013	12/20/2013	12/20/2013					
	QC_TYPE	NM	NM	NM	NM					
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG					
	PCT_SOLIDS	30.1	67.9	74.6	74.2					
	DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	280			170			21 J	P	32 U	
ACENAPHTHENE	3000			920			53 J	P	35 U	
ACENAPHTHYLENE	320			560			94 J	P	50 J	P
ANTHRACENE	5600			2200			230		96 J	P
BENZO(A)ANTHRACENE	15000			4500			1300 J	D	280 J	P
BENZO(A)PYRENE	13000			3800			1200 J	D	290 J	P
BENZO(B)FLUORANTHENE	15000			4700			1500 J	D	540	
BENZO(G,H,I)PERYLENE	11000			3400			1100		350 J	P
BENZO(K)FLUORANTHENE	6200			1700			570		150 J	P
CHRYSENE	16000			4900			1600		520	
DIBENZO(A,H)ANTHRACENE	3100			930			270		67 J	P
FLUORANTHENE	33000			11000			3600		1100	
FLUORENE	2400			1100			87 J	P	47 U	
INDENO(1,2,3-CD)PYRENE	9700			3000			1000		300 J	P
NAPHTHALENE	480			340			43 J	P	31 U	
PHENANTHRENE	17000			6400			1100 J	D	400	
PYRENE	19000			6100			1900		590	

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-187-0-1		SD-188-0-1		SD-189-0-1		SD-190-0-1	
	LAB_ID	180-28384-25		180-28384-26		180-28384-27		180-28384-28	
	SAMP_DATE	12/20/2013		12/20/2013		12/20/2013		12/20/2013	
	QC_TYPE	NM		NM		NM		NM	
	UNITS	UG/KG		UG/KG		UG/KG		UG/KG	
	PCT_SOLIDS	79.7		88.3		90.6		69.8	
DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	48 J	P		27 U			26 U		530
ACENAPHTHENE	48 U			29 U			130 J	P	5600
ACENAPHTHYLENE	190 J	P	P	120 J	J	P	160 J	P	870
ANTHRACENE	260 J	J	P	140 J	J	P	590		18000
BENZO(A)ANTHRACENE	1100			470			3000		49000
BENZO(A)PYRENE	1400			620			3300		43000
BENZO(B)FLUORANTHENE	1800			800			3900		47000
BENZO(G,H,I)PERYLENE	1600			690			2800		33000
BENZO(K)FLUORANTHENE	720			250 J	J	P	1500		19000
CHRYSENE	1700			710			3700		55000
DIBENZO(A,H)ANTHRACENE	340 J	J	P	150 J	J	P	680		8200
FLUORANTHENE	2900			1000			8100		
FLUORENE	82 J	J	P	43 J	J	P	180 J	P	6600
INDENO(1,2,3-CD)PYRENE	1300			540			2600		30000
NAPHTHALENE	43 U	U		26 U	U		66 J	P	120 J
PHENANTHRENE	850			260 J	J	P	2700		61000
PYRENE	1900			710			4500		74000

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-190-0-1DL	SD-191-0-1	SD-191-0-1DL	SD-192-0-1	
	LAB_ID	180-28384-28	180-28384-29	180-28384-29	180-28384-30	
	SAMP_DATE	12/20/2013	12/20/2013	12/20/2013	12/20/2013	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG	
	PCT_SOLIDS	69.8	69.9	69.9	76.2	
DUP_OF						
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE					7.8 U	
ACENAPHTHENE					20 J	P
ACENAPHTHYLENE					89	
ANTHRACENE					89	
BENZO(A)ANTHRACENE					130	
BENZO(A)PYRENE					150	
BENZO(B)FLUORANTHENE					170	
BENZO(G,H,I)PERYLENE					120	
BENZO(K)FLUORANTHENE					64 J	P
CHRYSENE					190	
DIBENZO(A,H)ANTHRACENE					29 J	P
FLUORANTHENE	150000			67000	360	
FLUORENE					34 J	P
INDENO(1,2,3-CD)PYRENE					99	
NAPHTHALENE					7.5 U	
PHENANTHRENE				42000	170	
PYRENE				49000	240	

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PAH MEDIA: SOIL	NSAMPLE	SD-193-0-1	SD-194-0-1
	LAB_ID	180-28384-31	180-28384-32
	SAMP_DATE	12/20/2013	12/20/2013
	QC_TYPE	NM	NM
	UNITS	UG/KG	UG/KG
	PCT_SOLIDS	70.8	84.3
	DUP_OF		
PARAMETER	RESULT	VQL	QLCD
2-METHYLNAPHTHALENE	8.4 U		7.1 U
ACENAPHTHENE	13 J	P	9 J
ACENAPHTHYLENE	31 J	P	48 J
ANTHRACENE	54 J	P	43 J
BENZO(A)ANTHRACENE	160		100
BENZO(A)PYRENE	170		130
BENZO(B)FLUORANTHENE	200		140
BENZO(G,H,I)PERYLENE	130		94
BENZO(K)FLUORANTHENE	87 J	P	44 J
CHRYSENE	200		150
DIBENZO(A,H)ANTHRACENE	33 J	P	26 J
FLUORANTHENE	440		240
FLUORENE	23 J	P	15 J
INDENO(1,2,3-CD)PYRENE	110		79 J
NAPHTHALENE	8.1 U		6.8 U
PHENANTHRENE	160		81
PYRENE	230		160

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1				
	LAB_ID	180-28384-1	180-28384-2	180-28384-3	180-28384-4				
	SAMP_DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013				
	QC_TYPE	NM	NM	NM	NM				
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG				
	PCT_SOLIDS	76.8	78.8	76.2	80.0				
	DUP_OF								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCOR-1016		0.4 U		0.39 U	0.41 U		0.39 U		
AROCOR-1221		0.52 U		0.5 U	0.52 U		0.5 U		
AROCOR-1232		0.46 U		0.45 U	0.47 U		0.45 U		
AROCOR-1242		0.44 U		0.43 U	0.44 U		0.42 U		
AROCOR-1248		0.26 U		0.25 U	0.26 U		0.25 U		
AROCOR-1254		0.38 U		0.38 U	0.39 U		0.37 U		
AROCOR-1260		25		89	99 J	D	34		

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-167-0-1	SD-168-0-1	SD-169-0-1	SD-170-0-1	
	LAB_ID	180-28384-5	180-28384-6	180-28384-7	180-28384-8	
	SAMP_DATE	12/18/2013	12/18/2013	12/18/2013	12/20/2013	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG	
	PCT_SOLIDS	77.6	78.7	87.6	78.5	
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCOR-1016		0.4 U		0.39 U	0.35 U	0.39 U
AROCOR-1221		0.51 U		0.5 U	0.45 U	0.51 U
AROCOR-1232		0.46 U		0.45 U	0.41 U	0.45 U
AROCOR-1242		0.44 U		0.43 U	0.39 U	0.43 U
AROCOR-1248		0.25 U		0.25 U	0.22 U	0.25 U
AROCOR-1254		0.38 U		100	29	0.38 U
AROCOR-1260		19		84	29	2.1 J P

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-171-0-1	SD-172-0-3	SD-173-0-3	SD-174-0-1	
	LAB_ID	180-28384-9	180-28384-10	180-28384-11	180-28384-12	
	SAMP_DATE	12/19/2013	12/19/2013	12/19/2013	12/19/2013	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG	
	PCT_SOLIDS	33.2	53.1	62.0	83.4	
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCOR-1016		190 U	120 U	500 U	0.37 U	
AROCOR-1221		240 U	150 U	640 U	0.48 U	
AROCOR-1232		210 U	130 U	580 U	0.43 U	
AROCOR-1242		200 U	130 U	550 U	0.41 U	
AROCOR-1248		120 U	74 U	320 U	0.24 U	
AROCOR-1254		180 U	110 U	480 U	150	
AROCOR-1260		150000	54000	220000	350	

PROJ_NO: 05483	NSAMPLE	SD-175-0-1	SD-176-0-3	SD-177-0-2	SD-178-0-1
SDG: 180-28384-1	LAB_ID	180-28384-13	180-28384-14	180-28384-15	180-28384-16
FRACTION: PCB	SAMP_DATE	12/19/2013	12/19/2013	12/19/2013	12/19/2013
MEDIA: SOIL	QC_TYPE	NM	NM	NM	NM
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG
	PCT_SOLIDS	70.0	56.7	28.2	78.6
	DUP_OF				
PARAMETER	RESULT	VQL	QLCD	RESULT	QLCD
AROCLOR-1016	4.4 U			1.1 UJ	0.39 U
AROCLOR-1221	5.7 U			1.4 UJ	0.5 U
AROCLOR-1232	5.1 U			1.3 UJ	0.45 U
AROCLOR-1242	4.8 U			1.2 UJ	0.43 U
AROCLOR-1248	2.8 U			0.69 UJ	0.25 U
AROCLOR-1254	410			28 J	5.3
AROCLOR-1260	1300			73 J	12

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-179-0-1	SD-180-0-1	SD-181-0-1	SD-182-0-3
	LAB_ID	180-28384-17	180-28384-18	180-28384-19	180-28384-20
	SAMP_DATE	12/19/2013	12/19/2013	12/20/2013	12/20/2013
	QC_TYPE	NM	NM	NM	NM
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG
	PCT_SOLIDS	69.7	78.7	57.5	47.9
	DUP_OF				
	PARAMETER	RESULT	RESULT	RESULT	RESULT
AROCLOR-1016		0.44 U	0.79 U	2100 U	2600 U
AROCLOR-1221		0.57 U	1 U	2800 U	3300 U
AROCLOR-1232		0.51 U	0.91 U	2500 U	3000 U
AROCLOR-1242		0.49 U	0.86 U	2400 U	2800 U
AROCLOR-1248		0.28 U	0.5 U	1400 U	1600 U
AROCLOR-1254		7.6	21	2100 U	2500 U
AROCLOR-1260		22	95	420000	780000

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-183-0-1	SD-184-0-2	SD-185-0-1	SD-186-0-1	
	LAB_ID	180-28384-21	180-28384-22	180-28384-23	180-28384-24	
	SAMP_DATE	12/20/2013	12/20/2013	12/20/2013	12/20/2013	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG	
	PCT_SOLIDS	30.1	67.9	74.6	74.2	
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		410 U		0.91 U	0.83 U	0.84 U
AROCLOR-1221		530 U		1.2 U	1.1 U	1.1 U
AROCLOR-1232		470 U		1 U	0.96 U	0.96 U
AROCLOR-1242		450 U		0.99 U	0.91 U	0.91 U
AROCLOR-1248		260 U		0.58 U	0.53 U	0.53 U
AROCLOR-1254		390 U		410	190	38
AROCLOR-1260		40000		1300	550	60

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-187-0-1	SD-188-0-1	SD-189-0-1	SD-190-0-1			
	LAB_ID	180-28384-25	180-28384-26	180-28384-27	180-28384-28			
	SAMP_DATE	12/20/2013	12/20/2013	12/20/2013	12/20/2013			
	QC_TYPE	NM	NM	NM	NM			
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG			
	PCT_SOLIDS	79.7	88.3	90.6	69.8			
	DUP_OF							
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD		
AROCOR-1016		0.78 U			0.68 U		0.88 U	
AROCOR-1221		0.99 U			0.87 U		1.1 U	
AROCOR-1232		0.89 U			0.78 U		1 U	
AROCOR-1242		0.85 U			0.75 U		0.97 U	
AROCOR-1248		0.49 U			0.43 U		0.56 U	
AROCOR-1254		29			11		53	
AROCOR-1260		92			82		46	

PROJ_NO: 05483 SDG: 180-28384-1 FRACTION: PCB MEDIA: SOIL	NSAMPLE	SD-191-0-1	SD-192-0-1	SD-193-0-1	SD-194-0-1	
	LAB_ID	180-28384-29	180-28384-30	180-28384-31	180-28384-32	
	SAMP_DATE	12/20/2013	12/20/2013	12/20/2013	12/20/2013	
	QC_TYPE	NM	NM	NM	NM	
	UNITS	UG/KG	UG/KG	UG/KG	UG/KG	
	PCT_SOLIDS	69.9	76.2	70.8	84.3	
	DUP_OF					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		0.89 U		0.81 U	0.88 U	0.73 U
AROCLOR-1221		1.1 U		1 U	1.1 U	0.94 U
AROCLOR-1232		1 U		0.94 U	1 U	0.84 U
AROCLOR-1242		0.97 U		0.89 U	0.96 U	0.8 U
AROCLOR-1248		0.56 U		0.52 U	0.56 U	0.47 U
AROCLOR-1254		350		13	0.84 U	0.7 U
AROCLOR-1260		530		20	17	16

Appendix B

Results as Reported by the Laboratory

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-163-0-1

Lab Sample ID: 180-28384-1

Date Sampled: 12/18/2013 1155

Client Matrix: Sediment

% Moisture: 23.2

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231007.D
Dilution:	50			Initial Weight/Volume:	30.1 g
Analysis Date:	12/31/2013 1456			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		97	J	21	220
Benzo[a]anthracene		530		27	220
Benzo[b]fluoranthene		700		34	220
Benzo[k]fluoranthene		260		44	220
Benzo[g,h,i]perylene		480		22	220
Benzo[a]pyrene		500		22	220
Chrysene		710		26	220
Dibenz(a,h)anthracene		110	J	24	220
Fluoranthene		1400		23	220
Fluorene		52	J	29	220
Indeno[1,2,3-cd]pyrene		390		22	220
Phenanthrene		990		34	220
Pyrene		1100		22	220
Acenaphthene		64	J	21	220
Acenaphthylene		69	J	25	220
Naphthalene		ND		19	220
2-Methylnaphthalene		ND		19	220

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	64	D	27 - 110
2-Fluorobiphenyl	70	D	28 - 108
Terphenyl-d14 (Surr)	72	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-164-0-1

Lab Sample ID: 180-28384-2

Date Sampled: 12/18/2013 1210

Client Matrix: Sediment

% Moisture: 21.2

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231008.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1522			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		200	J	21	210
Benzo[a]anthracene		520		27	210
Benzo[b]fluoranthene		640		33	210
Benzo[k]fluoranthene		420		43	210
Benzo[g,h,i]perylene		760		21	210
Benzo[a]pyrene		660		21	210
Chrysene		760		25	210
Dibenz(a,h)anthracene		130	J	24	210
Fluoranthene		960		23	210
Fluorene		52	J	28	210
Indeno[1,2,3-cd]pyrene		560		22	210
Phenanthrene		370		34	210
Pyrene		1100		21	210
Acenaphthene		25	J	20	210
Acenaphthylene		150	J	24	210
Naphthalene		34	J	18	210
2-Methylnaphthalene		30	J	19	210

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	74	D	27 - 110
2-Fluorobiphenyl	83	D	28 - 108
Terphenyl-d14 (Surr)	63	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-165-0-1

Lab Sample ID: 180-28384-3

Date Sampled: 12/18/2013 1235

Client Matrix: Sediment

% Moisture: 23.8

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231009.D
Dilution:	50			Initial Weight/Volume:	30.1 g
Analysis Date:	12/31/2013 1549			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		110	J	21	220
Benzo[a]anthracene		830		27	220
Benzo[b]fluoranthene		1400		34	220
Benzo[k]fluoranthene		590		44	220
Benzo[g,h,i]perylene		890		22	220
Benzo[a]pyrene		920		22	220
Chrysene		1500		26	220
Dibenz(a,h)anthracene		200	J	24	220
Fluoranthene		3500		23	220
Fluorene		55	J	29	220
Indeno[1,2,3-cd]pyrene		790		22	220
Phenanthrene		2800		35	220
Pyrene		2500		22	220
Acenaphthene		47	J	21	220
Acenaphthylene		36	J	25	220
Naphthalene		95	J	19	220
2-Methylnaphthalene		25	J	20	220

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	81	D	27 - 110
2-Fluorobiphenyl	80	D	28 - 108
Terphenyl-d14 (Surr)	67	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-166-0-1

Lab Sample ID: 180-28384-4

Date Sampled: 12/18/2013 1305

Client Matrix: Sediment

% Moisture: 20.0

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231010.D
Dilution:	100			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1615			Final Weight/Volume:	1.0 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		ND		82	840
Benzo[a]anthracene		130	J	100	840
Benzo[b]fluoranthene		ND		130	840
Benzo[k]fluoranthene		ND		170	840
Benzo[g,h,i]perylene		130	J	83	840
Benzo[a]pyrene		120	J	83	840
Chrysene		180	J	99	840
Dibenz(a,h)anthracene		100	J	93	840
Fluoranthene		180	J	89	840
Fluorene		ND		110	840
Indeno[1,2,3-cd]pyrene		ND		86	840
Phenanthrene		ND		130	840
Pyrene		210	J	84	840
Acenaphthene		ND		80	840
Acenaphthylene		ND		96	840
Naphthalene		ND		72	840
2-Methylnaphthalene		ND		75	840

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-167-0-1

Lab Sample ID: 180-28384-5

Date Sampled: 12/18/2013 1510

Client Matrix: Sediment

% Moisture: 22.4

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231011.D
Dilution:	100			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1641			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		44	J	42	430
Benzo[a]anthracene		270	J	54	430
Benzo[b]fluoranthene		430		68	430
Benzo[k]fluoranthene		170	J	87	430
Benzo[g,h,i]perylene		340	J	43	430
Benzo[a]pyrene		280	J	43	430
Chrysene		440		51	430
Dibenz(a,h)anthracene		ND		48	430
Fluoranthene		800		46	430
Fluorene		ND		57	430
Indeno[1,2,3-cd]pyrene		300	J	44	430
Phenanthrene		340	J	68	430
Pyrene		590		43	430
Acenaphthene		ND		41	430
Acenaphthylene		ND		49	430
Naphthalene		ND		37	430
2-Methylnaphthalene		ND		39	430

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-168-0-1

Lab Sample ID: 180-28384-6

Date Sampled: 12/18/2013 1545

Client Matrix: Sediment

% Moisture: 21.3

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231012.D
Dilution:	100			Initial Weight/Volume:	30.1 g
Analysis Date:	12/31/2013 1708			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		180	J	41	420
Benzo[a]anthracene		470		53	420
Benzo[b]fluoranthene		250	J	66	420
Benzo[k]fluoranthene		530		85	420
Benzo[g,h,i]perylene		410	J	42	420
Benzo[a]pyrene		390	J	42	420
Chrysene		530		50	420
Dibenz(a,h)anthracene		88	J	47	420
Fluoranthene		1000		45	420
Fluorene		86	J	56	420
Indeno[1,2,3-cd]pyrene		370	J	44	420
Phenanthrene		710		67	420
Pyrene		830		43	420
Acenaphthene		110	J	41	420
Acenaphthylene		ND		48	420
Naphthalene		36	J	36	420
2-Methylnaphthalene		ND		38	420

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-169-0-1

Lab Sample ID: 180-28384-7

Date Sampled: 12/18/2013 1610

Client Matrix: Sediment

% Moisture: 12.4

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231013.D
Dilution:	50			Initial Weight/Volume:	30.1 g
Analysis Date:	12/31/2013 1734			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		ND		19	190
Benzo[a]anthracene		76	J	24	190
Benzo[b]fluoranthene		120	J *	30	190
Benzo[k]fluoranthene		43	J *	38	190
Benzo[g,h,i]perylene		81	J *	19	190
Benzo[a]pyrene		69	J *	19	190
Chrysene		120	J	23	190
Dibenz(a,h)anthracene		ND	*	21	190
Fluoranthene		180	J	20	190
Fluorene		ND		25	190
Indeno[1,2,3-cd]pyrene		66	J *	20	190
Phenanthrene		47	J	30	190
Pyrene		160	J	19	190
Acenaphthene		30	J	18	190
Acenaphthylene		ND		22	190
Naphthalene		ND		16	190
2-Methylnaphthalene		ND		17	190

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	68	D	27 - 110
2-Fluorobiphenyl	51	D	28 - 108
Terphenyl-d14 (Surr)	55	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-170-0-1

Lab Sample ID: 180-28384-8

Client Matrix: Sediment

% Moisture: 21.5

Date Sampled: 12/20/2013 1515

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231014.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1800			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		110	J	21	210
Benzo[a]anthracene		320		27	210
Benzo[b]fluoranthene		320	*	33	210
Benzo[k]fluoranthene		78	J *	43	210
Benzo[g,h,i]perylene		170	J *	21	210
Benzo[a]pyrene		250	*	21	210
Chrysene		280		25	210
Dibenz(a,h)anthracene		32	J *	24	210
Fluoranthene		630		23	210
Fluorene		ND		28	210
Indeno[1,2,3-cd]pyrene		150	J *	22	210
Phenanthrene		300		34	210
Pyrene		480		21	210
Acenaphthene		ND		20	210
Acenaphthylene		58	J	24	210
Naphthalene		ND		18	210
2-Methylnaphthalene		ND		19	210

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	65	D	27 - 110
2-Fluorobiphenyl	67	D	28 - 108
Terphenyl-d14 (Surr)	57	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-171-0-1

Lab Sample ID: 180-28384-9

Date Sampled: 12/19/2013 1045

Client Matrix: Sediment

% Moisture: 66.8

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231015.D
Dilution:	5.0			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1826			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		160		4.9	50
Benzo[a]anthracene		620		6.3	50
Benzo[b]fluoranthene		720	*	7.9	50
Benzo[k]fluoranthene		250	*	10	50
Benzo[g,h,i]perylene		630	*	5.0	50
Benzo[a]pyrene		680	*	5.0	50
Chrysene		720		6.0	50
Dibenz(a,h)anthracene		150	*	5.6	50
Fluoranthene		910		5.4	50
Fluorene		35	J	6.6	50
Indeno[1,2,3-cd]pyrene		530	*	5.2	50
Phenanthrene		430		8.0	50
Pyrene		1100		5.1	50
Acenaphthene		28	J	4.8	50
Acenaphthylene		71		5.8	50
Naphthalene		24	J	4.3	50
2-Methylnaphthalene		14	J	4.5	50

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	54		27 - 110
2-Fluorobiphenyl	58		28 - 108
Terphenyl-d14 (Surr)	53		21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-172-0-3

Lab Sample ID: 180-28384-10

Date Sampled: 12/19/2013 1110

Client Matrix: Sediment

% Moisture: 46.9

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231016.D
Dilution:	50			Initial Weight/Volume:	30.1 g
Analysis Date:	12/31/2013 1853			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		1100		31	310
Benzo[a]anthracene		4600		39	310
Benzo[b]fluoranthene		5300	*	49	310
Benzo[k]fluoranthene		1800	*	63	310
Benzo[g,h,i]perylene		3300	*	31	310
Benzo[a]pyrene		4200	*	31	310
Chrysene		5000		37	310
Dibenz(a,h)anthracene		870	*	35	310
Fluoranthene		9600		33	310
Fluorene		460		41	310
Indeno[1,2,3-cd]pyrene		3100	*	32	310
Phenanthrene		5000		50	310
Pyrene		7400		32	310
Acenaphthene		550		30	310
Acenaphthylene		160	J	36	310
Naphthalene		89	J	27	310
2-Methylnaphthalene		50	J	28	310

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	54	D	27 - 110
2-Fluorobiphenyl	53	D	28 - 108
Terphenyl-d14 (Surr)	47	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-173-0-3

Lab Sample ID: 180-28384-11

Date Sampled: 12/19/2013 1130

Client Matrix: Sediment

% Moisture: 38.0

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231017.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1919			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		580		26	270
Benzo[a]anthracene		1700		34	270
Benzo[b]fluoranthene		2100	*	42	270
Benzo[k]fluoranthene		630	*	54	270
Benzo[g,h,i]perylene		1800	*	27	270
Benzo[a]pyrene		1900	*	27	270
Chrysene		2000		32	270
Dibenz(a,h)anthracene		390	*	30	270
Fluoranthene		3000		29	270
Fluorene		160	J	35	270
Indeno[1,2,3-cd]pyrene		1500	*	28	270
Phenanthrene		1100		43	270
Pyrene		3400		27	270
Acenaphthene		150	J	26	270
Acenaphthylene		430		31	270
Naphthalene		94	J	23	270
2-Methylnaphthalene		55	J	24	270

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	65	D	27 - 110
2-Fluorobiphenyl	67	D	28 - 108
Terphenyl-d14 (Surr)	59	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-174-0-1

Lab Sample ID: 180-28384-12

Client Matrix: Sediment

% Moisture: 16.6

Date Sampled: 12/19/2013 1340

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231018.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 1946			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		610		20	200
Benzo[a]anthracene		2200		25	200
Benzo[b]fluoranthene		2500	*	31	200
Benzo[k]fluoranthene		780	*	40	200
Benzo[g,h,i]perylene		1300	*	20	200
Benzo[a]pyrene		1900	*	20	200
Chrysene		2400		24	200
Dibenz(a,h)anthracene		360	*	22	200
Fluoranthene		5800		21	200
Fluorene		250		26	200
Indeno[1,2,3-cd]pyrene		1300	*	21	200
Phenanthrene		3800		32	200
Pyrene		4000		20	200
Acenaphthene		230		19	200
Acenaphthylene		140	J	23	200
Naphthalene		160	J	17	200
2-Methylnaphthalene		47	J	18	200

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	65	D	27 - 110
2-Fluorobiphenyl	69	D	28 - 108
Terphenyl-d14 (Surr)	58	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-175-0-1

Lab Sample ID: 180-28384-13

Client Matrix: Sediment

% Moisture: 30.0

Date Sampled: 12/19/2013 1430

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231019.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 2012			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		2100		23	240
Benzo[a]anthracene		5700		30	240
Benzo[b]fluoranthene		6000	*	37	240
Benzo[k]fluoranthene		2500	*	48	240
Benzo[g,h,i]perylene		3700	*	24	240
Benzo[a]pyrene		5400	*	24	240
Chrysene		6100		28	240
Dibenz(a,h)anthracene		1100	*	26	240
Fluoranthene		13000		25	240
Fluorene		1000		31	240
Indeno[1,2,3-cd]pyrene		3600	*	25	240
Phenanthrene		9000		38	240
Pyrene		10000		24	240
Acenaphthene		1500		23	240
Acenaphthylene		310		27	240
Naphthalene		480		21	240
2-Methylnaphthalene		210	J	21	240

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	63	D	27 - 110
2-Fluorobiphenyl	62	D	28 - 108
Terphenyl-d14 (Surr)	64	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-176-0-3

Lab Sample ID: 180-28384-14

Client Matrix: Sediment

% Moisture: 43.3

Date Sampled: 12/19/2013 1505

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231020.D
Dilution:	50			Initial Weight/Volume:	30.1 g
Analysis Date:	12/31/2013 2038			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		390		29	290
Benzo[a]anthracene		1600		37	290
Benzo[b]fluoranthene		2700	*	46	290
Benzo[k]fluoranthene		710	*	59	290
Benzo[g,h,i]perylene		1500	*	29	290
Benzo[a]pyrene		1800	*	29	290
Chrysene		2200		35	290
Dibenz(a,h)anthracene		320	*	33	290
Fluoranthene		4200		31	290
Fluorene		160	J	39	290
Indeno[1,2,3-cd]pyrene		1400	*	30	290
Phenanthrene		1700		47	290
Pyrene		3000		30	290
Acenaphthene		130	J	28	290
Acenaphthylene		200	J	34	290
Naphthalene		51	J	25	290
2-Methylnaphthalene		30	J	26	290

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	57	D	27 - 110
2-Fluorobiphenyl	57	D	28 - 108
Terphenyl-d14 (Surr)	45	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-177-0-2

Lab Sample ID: 180-28384-15

Client Matrix: Sediment

% Moisture: 71.8

Date Sampled: 12/19/2013 1540

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231021.D
Dilution:	50			Initial Weight/Volume:	30.2 g
Analysis Date:	12/31/2013 2104			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		3300		57	590
Benzo[a]anthracene		18000		74	590
Benzo[b]fluoranthene		27000	*	92	590
Benzo[k]fluoranthene		10000	*	120	590
Benzo[g,h,i]perylene		15000	*	58	590
Benzo[a]pyrene		21000	*	59	590
Chrysene		26000		70	590
Dibenz(a,h)anthracene		3500	*	65	590
Fluoranthene		68000		63	590
Fluorene		2200		77	590
Indeno[1,2,3-cd]pyrene		14000	*	60	590
Phenanthrene		39000		93	590
Pyrene		45000		59	590
Acenaphthene		2200		56	590
Acenaphthylene		510	J	67	590
Naphthalene		120	J	51	590
2-Methylnaphthalene		300	J	53	590
Surrogate		%Rec	Qualifier	Acceptance Limits	
Nitrobenzene-d5 (Surr)		40	D	27 - 110	
2-Fluorobiphenyl		42	D	28 - 108	
Terphenyl-d14 (Surr)		39	D	21 - 130	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-178-0-1

Lab Sample ID: 180-28384-16

Client Matrix: Sediment

% Moisture: 21.4

Date Sampled: 12/19/2013 1600

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231022.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 2131			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0315			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		30	J	21	210
Benzo[a]anthracene		140	J	27	210
Benzo[b]fluoranthene		200	J *	33	210
Benzo[k]fluoranthene		86	J *	43	210
Benzo[g,h,i]perylene		140	J *	21	210
Benzo[a]pyrene		180	J *	21	210
Chrysene		190	J	25	210
Dibenz(a,h)anthracene		32	J *	24	210
Fluoranthene		260		23	210
Fluorene		ND		28	210
Indeno[1,2,3-cd]pyrene		110	J *	22	210
Phenanthrene		81	J	34	210
Pyrene		210		21	210
Acenaphthene		ND		20	210
Acenaphthylene		48	J	24	210
Naphthalene		ND		18	210
2-Methylnaphthalene		ND		19	210
Surrogate	%Rec		Qualifier	Acceptance Limits	
Nitrobenzene-d5 (Surr)	53		D	27 - 110	
2-Fluorobiphenyl	56		D	28 - 108	
Terphenyl-d14 (Surr)	52		D	21 - 130	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-179-0-1

Lab Sample ID: 180-28384-17

Client Matrix: Sediment

% Moisture: 30.3

Date Sampled: 12/19/2013 1645

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93613	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D1231023.D
Dilution:	2.0			Initial Weight/Volume:	30.0 g
Analysis Date:	12/31/2013 2157			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0353			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		41		0.94	9.6
Benzo[a]anthracene		120		1.2	9.6
Benzo[b]fluoranthene		290	*	1.5	9.6
Benzo[k]fluoranthene		120	*	1.9	9.6
Benzo[g,h,i]perylene		150	*	0.95	9.6
Benzo[a]pyrene		200	*	0.96	9.6
Chrysene		230		1.1	9.6
Dibenz(a,h)anthracene		32	*	1.1	9.6
Fluoranthene		410		1.0	9.6
Fluorene		13		1.3	9.6
Indeno[1,2,3-cd]pyrene		150	*	0.99	9.6
Phenanthrene		150		1.5	9.6
Pyrene		290		0.97	9.6
Acenaphthene		18		0.92	9.6
Acenaphthylene		14		1.1	9.6
Naphthalene		4.7	J	0.82	9.6
2-Methylnaphthalene		2.5	J	0.86	9.6

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	63		27 - 110
2-Fluorobiphenyl	61		28 - 108
Terphenyl-d14 (Surr)	46		21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-180-0-1

Lab Sample ID: 180-28384-18

Client Matrix: Sediment

% Moisture: 21.3

Date Sampled: 12/19/2013 1625

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93710	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D0102001.D
Dilution:	100			Initial Weight/Volume:	30.1 g
Analysis Date:	01/02/2014 1905			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0353			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		390	J	41	420
Benzo[a]anthracene		2600		53	420
Benzo[b]fluoranthene		4300		66	420
Benzo[k]fluoranthene		1900		85	420
Benzo[g,h,i]perylene		2600		42	420
Benzo[a]pyrene		2900		42	420
Chrysene		3700		50	420
Dibenz(a,h)anthracene		490		47	420
Fluoranthene		6200		45	420
Fluorene		110	J	56	420
Indeno[1,2,3-cd]pyrene		2200		44	420
Phenanthrene		2600		67	420
Pyrene		5900		43	420
Acenaphthene		70	J	41	420
Acenaphthylene		76	J	48	420
Naphthalene		ND		36	420
2-Methylnaphthalene		ND		38	420

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-181-0-1

Lab Sample ID: 180-28384-19

Client Matrix: Sediment

% Moisture: 42.5

Date Sampled: 12/20/2013 1000

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93710	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D0102002.D
Dilution:	100			Initial Weight/Volume:	30.0 g
Analysis Date:	01/02/2014 1932			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0353			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		7100		57	580
Benzo[a]anthracene		20000		73	580
Benzo[b]fluoranthene		21000		91	580
Benzo[k]fluoranthene		8800		120	580
Benzo[g,h,i]perylene		14000		58	580
Benzo[a]pyrene		17000		58	580
Chrysene		20000		69	580
Dibenz(a,h)anthracene		3100		64	580
Fluoranthene		35000		62	580
Fluorene		4100		76	580
Indeno[1,2,3-cd]pyrene		12000		60	580
Phenanthrene		28000		92	580
Pyrene		37000		59	580
Acenaphthene		3900		56	580
Acenaphthylene		350	J	66	580
Naphthalene		640		50	580
2-Methylnaphthalene		440	J	52	580

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-182-0-3

Lab Sample ID: 180-28384-20

Client Matrix: Sediment

% Moisture: 52.1

Date Sampled: 12/20/2013 1020

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93710	Instrument ID:	732
Prep Method:	3541	Prep Batch:	180-93179	Lab File ID:	D0102003.D
Dilution:	100			Initial Weight/Volume:	30.1 g
Analysis Date:	01/02/2014 1958			Final Weight/Volume:	0.5 mL
Prep Date:	12/24/2013 0353			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		3000		68	700
Benzo[a]anthracene		10000		87	700
Benzo[b]fluoranthene		13000		110	700
Benzo[k]fluoranthene		3500		140	700
Benzo[g,h,i]perylene		9200		69	700
Benzo[a]pyrene		9500		69	700
Chrysene		11000		83	700
Dibenz(a,h)anthracene		2200		77	700
Fluoranthene		18000		74	700
Fluorene		1200		91	700
Indeno[1,2,3-cd]pyrene		7300		72	700
Phenanthrene		12000		110	700
Pyrene		18000		70	700
Acenaphthene		1600		67	700
Acenaphthylene		230	J	80	700
Naphthalene		450	J	60	700
2-Methylnaphthalene		240	J	62	700

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-183-0-1

Lab Sample ID: 180-28384-21

Client Matrix: Sediment

% Moisture: 69.9

Date Sampled: 12/20/2013 1040

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101005.D
Dilution:	20			Initial Weight/Volume:	30.1 g
Analysis Date:	01/01/2014 0915			Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		5600		22	220
Benzo[a]anthracene		15000		28	220
Benzo[b]fluoranthene		15000		35	220
Benzo[k]fluoranthene		6200		45	220
Benzo[g,h,i]perylene		11000		22	220
Benzo[a]pyrene		13000		22	220
Chrysene		16000		26	220
Dibenz(a,h)anthracene		3100		25	220
Fluoranthene		33000		24	220
Fluorene		2400		29	220
Indeno[1,2,3-cd]pyrene		9700		23	220
Phenanthrene		17000		35	220
Pyrene		19000		22	220
Acenaphthene		3000		21	220
Acenaphthylene		320		25	220
Naphthalene		480		19	220
2-Methylnaphthalene		280		20	220

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	51	D	27 - 110
2-Fluorobiphenyl	61	D	28 - 108
Terphenyl-d14 (Surr)	54	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-184-0-2

Lab Sample ID: 180-28384-22

Client Matrix: Sediment

% Moisture: 32.1

Date Sampled: 12/20/2013 1130

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101006.D
Dilution:	20			Initial Weight/Volume:	30.1 g
Analysis Date:	01/01/2014 0942			Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		2200		9.6	98
Benzo[a]anthracene		4500		12	98
Benzo[b]fluoranthene		4700		15	98
Benzo[k]fluoranthene		1700		20	98
Benzo[g,h,i]perylene		3400		9.7	98
Benzo[a]pyrene		3800		9.8	98
Chrysene		4900		12	98
Dibenz(a,h)anthracene		930		11	98
Fluoranthene		11000		10	98
Fluorene		1100		13	98
Indeno[1,2,3-cd]pyrene		3000		10	98
Phenanthrene		6400		16	98
Pyrene		6100		9.9	98
Acenaphthene		920		9.4	98
Acenaphthylene		560		11	98
Naphthalene		340		8.4	98
2-Methylnaphthalene		170		8.8	98

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	62	D	27 - 110
2-Fluorobiphenyl	70	D	28 - 108
Terphenyl-d14 (Surr)	61	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-185-0-1

Lab Sample ID: 180-28384-23

Client Matrix: Sediment

% Moisture: 25.4

Date Sampled: 12/20/2013 1200

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101007.D
Dilution:	20			Initial Weight/Volume:	30.0 g
Analysis Date:	01/01/2014 1008			Final Weight/Volume:	1.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		230		18	180
Benzo[a]anthracene		1300		22	180
Benzo[b]fluoranthene		1500		28	180
Benzo[k]fluoranthene		570		36	180
Benzo[g,h,i]perylene		1100		18	180
Benzo[a]pyrene		1200		18	180
Chrysene		1600		21	180
Dibenz(a,h)anthracene		270		20	180
Fluoranthene		3600		19	180
Fluorene		87	J	24	180
Indeno[1,2,3-cd]pyrene		1000		18	180
Phenanthrene		1100		28	180
Pyrene		1900		18	180
Acenaphthene		53	J	17	180
Acenaphthylene		94	J	20	180
Naphthalene		43	J	15	180
2-Methylnaphthalene		21	J	16	180

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	62	D	27 - 110
2-Fluorobiphenyl	74	D	28 - 108
Terphenyl-d14 (Surr)	61	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-186-0-1

Lab Sample ID: 180-28384-24

Client Matrix: Sediment

% Moisture: 25.8

Date Sampled: 12/20/2013 1220

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101008.D
Dilution:	20			Initial Weight/Volume:	30.0 g
Analysis Date:	01/01/2014 1035			Final Weight/Volume:	2.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		96	J	35	360
Benzo[a]anthracene		280	J	45	360
Benzo[b]fluoranthene		540		57	360
Benzo[k]fluoranthene		150	J	73	360
Benzo[g,h,i]perylene		350	J	36	360
Benzo[a]pyrene		290	J	36	360
Chrysene		520		43	360
Dibenz(a,h)anthracene		67	J	40	360
Fluoranthene		1100		38	360
Fluorene		ND		47	360
Indeno[1,2,3-cd]pyrene		300	J	37	360
Phenanthrene		400		57	360
Pyrene		590		36	360
Acenaphthene		ND		35	360
Acenaphthylene		50	J	41	360
Naphthalene		ND		31	360
2-Methylnaphthalene		ND		32	360

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	76	D	27 - 110
2-Fluorobiphenyl	90	D	28 - 108
Terphenyl-d14 (Surr)	76	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-187-0-1

Lab Sample ID: 180-28384-25

Client Matrix: Sediment

% Moisture: 20.3

Date Sampled: 12/20/2013 1245

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101009.D
Dilution:	20			Initial Weight/Volume:	30.1 g
Analysis Date:	01/01/2014 1101			Final Weight/Volume:	3.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		260	J	49	500
Benzo[a]anthracene		1100		63	500
Benzo[b]fluoranthene		1800		79	500
Benzo[k]fluoranthene		720		100	500
Benzo[g,h,i]perylene		1600		50	500
Benzo[a]pyrene		1400		50	500
Chrysene		1700		60	500
Dibenz(a,h)anthracene		340	J	56	500
Fluoranthene		2900		54	500
Fluorene		82	J	66	500
Indeno[1,2,3-cd]pyrene		1300		52	500
Phenanthrene		850		80	500
Pyrene		1900		51	500
Acenaphthene		ND		48	500
Acenaphthylene		190	J	57	500
Naphthalene		ND		43	500
2-Methylnaphthalene		48	J	45	500
Surrogate	%Rec	Qualifier	Acceptance Limits		
Nitrobenzene-d5 (Surr)	77	D	27 - 110		
2-Fluorobiphenyl	92	D	28 - 108		
Terphenyl-d14 (Surr)	83	D	21 - 130		

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-188-0-1

Lab Sample ID: 180-28384-26

Client Matrix: Sediment

% Moisture: 11.7

Date Sampled: 12/20/2013 1257

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101010.D
Dilution:	20			Initial Weight/Volume:	30.0 g
Analysis Date:	01/01/2014 1128			Final Weight/Volume:	2.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		140	J	30	300
Benzo[a]anthracene		470		38	300
Benzo[b]fluoranthene		800		47	300
Benzo[k]fluoranthene		250	J	61	300
Benzo[g,h,i]perylene		690		30	300
Benzo[a]pyrene		620		30	300
Chrysene		710		36	300
Dibenz(a,h)anthracene		150	J	34	300
Fluoranthene		1000		32	300
Fluorene		43	J	40	300
Indeno[1,2,3-cd]pyrene		540		31	300
Phenanthrene		260	J	48	300
Pyrene		710		31	300
Acenaphthene		ND		29	300
Acenaphthylene		120	J	35	300
Naphthalene		ND		26	300
2-Methylnaphthalene		ND		27	300

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	84	D	27 - 110
2-Fluorobiphenyl	98	D	28 - 108
Terphenyl-d14 (Surr)	84	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-189-0-1

Lab Sample ID: 180-28384-27

Date Sampled: 12/20/2013 1250

Client Matrix: Sediment

% Moisture: 9.4

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101011.D
Dilution:	20			Initial Weight/Volume:	30.0 g
Analysis Date:	01/01/2014 1155			Final Weight/Volume:	2.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		590		29	300
Benzo[a]anthracene		3000		37	300
Benzo[b]fluoranthene		3900		46	300
Benzo[k]fluoranthene		1500		60	300
Benzo[g,h,i]perylene		2800		29	300
Benzo[a]pyrene		3300		29	300
Chrysene		3700		35	300
Dibenz(a,h)anthracene		680		33	300
Fluoranthene		8100		32	300
Fluorene		180	J	39	300
Indeno[1,2,3-cd]pyrene		2600		30	300
Phenanthrene		2700		47	300
Pyrene		4500		30	300
Acenaphthene		130	J	28	300
Acenaphthylene		160	J	34	300
Naphthalene		66	J	25	300
2-Methylnaphthalene		ND		26	300

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	74	D	27 - 110
2-Fluorobiphenyl	94	D	28 - 108
Terphenyl-d14 (Surr)	79	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-190-0-1

Lab Sample ID: 180-28384-28

Date Sampled: 12/20/2013 1445

Client Matrix: Sediment

% Moisture: 30.2

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101012.D
Dilution:	20			Initial Weight/Volume:	30.0 g
Analysis Date:	01/01/2014 1222			Final Weight/Volume:	2.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		18000		37	380
Benzo[a]anthracene		49000		48	380
Benzo[b]fluoranthene		47000		60	380
Benzo[k]fluoranthene		19000		77	380
Benzo[g,h,i]perylene		33000		38	380
Benzo[a]pyrene		43000		38	380
Chrysene		55000		45	380
Dibenz(a,h)anthracene		8200		42	380
Fluoranthene		130000	E	41	380
Fluorene		6600		50	380
Indeno[1,2,3-cd]pyrene		30000		39	380
Phenanthrene		61000		61	380
Pyrene		74000		39	380
Acenaphthene		5600		37	380
Acenaphthylene		870		44	380
Naphthalene		120	J	33	380
2-Methylnaphthalene		530		34	380

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	70	D	27 - 110
2-Fluorobiphenyl	84	D	28 - 108
Terphenyl-d14 (Surr)	89	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-190-0-1

Lab Sample ID: 180-28384-28

Date Sampled: 12/20/2013 1445

Client Matrix: Sediment

% Moisture: 30.2

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93785	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0104012.D
Dilution:	50			Initial Weight/Volume:	30.0 g
Analysis Date:	01/04/2014 1338	Run Type:	DL	Final Weight/Volume:	2.0 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		18000		93	960
Benzo[a]anthracene		51000		120	960
Benzo[b]fluoranthene		57000		150	960
Benzo[k]fluoranthene		22000		190	960
Benzo[g,h,i]perylene		40000		95	960
Benzo[a]pyrene		48000		96	960
Chrysene		55000		110	960
Dibenz(a,h)anthracene		9100		110	960
Fluoranthene		150000		100	960
Fluorene		6200		130	960
Indeno[1,2,3-cd]pyrene		33000		98	960
Phenanthrene		71000		150	960
Pyrene		84000		97	960
Acenaphthene		5400		92	960
Acenaphthylene		760	J	110	960
Naphthalene		200	J	82	960
2-Methylnaphthalene		540	J	86	960

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	62	D	27 - 110
2-Fluorobiphenyl	83	D	28 - 108
Terphenyl-d14 (Surr)	87	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-191-0-1

Lab Sample ID: 180-28384-29

Client Matrix: Sediment

% Moisture: 30.1

Date Sampled: 12/20/2013 1450

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101013.D
Dilution:	20			Initial Weight/Volume:	30.1 g
Analysis Date:	01/01/2014 1248			Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		4200		9.3	95
Benzo[a]anthracene		13000		12	95
Benzo[b]fluoranthene		16000		15	95
Benzo[k]fluoranthene		5600		19	95
Benzo[g,h,i]perylene		9200		9.5	95
Benzo[a]pyrene		13000		9.5	95
Chrysene		17000		11	95
Dibenz(a,h)anthracene		2300		11	95
Fluoranthene		40000	E	10	95
Fluorene		2400		13	95
Indeno[1,2,3-cd]pyrene		8500		9.8	95
Phenanthrene		22000	E	15	95
Pyrene		23000	E	9.6	95
Acenaphthene		2000		9.1	95
Acenaphthylene		440		11	95
Naphthalene		87	J	8.2	95
2-Methylnaphthalene		230		8.5	95

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	60	D	27 - 110
2-Fluorobiphenyl	73	D	28 - 108
Terphenyl-d14 (Surr)	66	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-191-0-1

Lab Sample ID: 180-28384-29

Client Matrix: Sediment

% Moisture: 30.1

Date Sampled: 12/20/2013 1450

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93945	Instrument ID:	722
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	F0108001.D
Dilution:	100			Initial Weight/Volume:	30.1 g
Analysis Date:	01/08/2014 0223	Run Type:	DL	Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		5300		47	480
Benzo[a]anthracene		20000		60	480
Benzo[b]fluoranthene		27000		75	480
Benzo[k]fluoranthene		11000		96	480
Benzo[g,h,i]perylene		16000		47	480
Benzo[a]pyrene		21000		48	480
Chrysene		25000		57	480
Dibenz(a,h)anthracene		3200		53	480
Fluoranthene		67000		51	480
Fluorene		3100		63	480
Indeno[1,2,3-cd]pyrene		14000		49	480
Phenanthrene		42000		76	480
Pyrene		49000		48	480
Acenaphthene		2800		46	480
Acenaphthylene		230	J	54	480
Naphthalene		130	J	41	480
2-Methylnaphthalene		290	J	43	480

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	0	X D	27 - 110
2-Fluorobiphenyl	0	X D	28 - 108
Terphenyl-d14 (Surr)	0	X D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-192-0-1

Lab Sample ID: 180-28384-30

Client Matrix: Sediment

% Moisture: 23.8

Date Sampled: 12/20/2013 1600

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101014.D
Dilution:	20			Initial Weight/Volume:	30.2 g
Analysis Date:	01/01/2014 1315			Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		89		8.5	87
Benzo[a]anthracene		130		11	87
Benzo[b]fluoranthene		170		14	87
Benzo[k]fluoranthene		64	J	18	87
Benzo[g,h,i]perylene		120		8.7	87
Benzo[a]pyrene		150		8.7	87
Chrysene		190		10	87
Dibenz(a,h)anthracene		29	J	9.7	87
Fluoranthene		360		9.3	87
Fluorene		34	J	11	87
Indeno[1,2,3-cd]pyrene		99		9.0	87
Phenanthrene		170		14	87
Pyrene		240		8.8	87
Acenaphthene		20	J	8.4	87
Acenaphthylene		89		10	87
Naphthalene		ND		7.5	87
2-Methylnaphthalene		ND		7.8	87

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	52	D	27 - 110
2-Fluorobiphenyl	67	D	28 - 108
Terphenyl-d14 (Surr)	56	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-193-0-1

Lab Sample ID: 180-28384-31

Date Sampled: 12/20/2013 1610

Client Matrix: Sediment

% Moisture: 29.2

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101015.D
Dilution:	20			Initial Weight/Volume:	30.1 g
Analysis Date:	01/01/2014 1342			Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		54	J	9.2	94
Benzo[a]anthracene		160		12	94
Benzo[b]fluoranthene		200		15	94
Benzo[k]fluoranthene		87	J	19	94
Benzo[g,h,i]perylene		130		9.3	94
Benzo[a]pyrene		170		9.4	94
Chrysene		200		11	94
Dibenz(a,h)anthracene		33	J	10	94
Fluoranthene		440		10	94
Fluorene		23	J	12	94
Indeno[1,2,3-cd]pyrene		110		9.7	94
Phenanthrene		160		15	94
Pyrene		230		9.5	94
Acenaphthene		13	J	9.0	94
Acenaphthylene		31	J	11	94
Naphthalene		ND		8.1	94
2-Methylnaphthalene		ND		8.4	94

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	58	D	27 - 110
2-Fluorobiphenyl	72	D	28 - 108
Terphenyl-d14 (Surr)	89	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-194-0-1

Lab Sample ID: 180-28384-32

Client Matrix: Sediment

% Moisture: 15.7

Date Sampled: 12/20/2013 1615

Date Received: 12/23/2013 0900

8270D LL Semivolatile Organic Compounds by GC/MS - Low Level

Analysis Method:	8270D LL	Analysis Batch:	180-93752	Instrument ID:	71
Prep Method:	3541	Prep Batch:	180-93531	Lab File ID:	S0101016.D
Dilution:	20			Initial Weight/Volume:	30.0 g
Analysis Date:	01/01/2014 1409			Final Weight/Volume:	0.5 mL
Prep Date:	12/31/2013 0340			Injection Volume:	2 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Anthracene		43	J	7.7	80
Benzo[a]anthracene		100		9.9	80
Benzo[b]fluoranthene		140		12	80
Benzo[k]fluoranthene		44	J	16	80
Benzo[g,h,i]perylene		94		7.9	80
Benzo[a]pyrene		130		7.9	80
Chrysene		150		9.4	80
Dibenz(a,h)anthracene		26	J	8.8	80
Fluoranthene		240		8.5	80
Fluorene		15	J	10	80
Indeno[1,2,3-cd]pyrene		79	J	8.2	80
Phenanthrene		81		13	80
Pyrene		160		8.0	80
Acenaphthene		9.0	J	7.6	80
Acenaphthylene		48	J	9.1	80
Naphthalene		ND		6.8	80
2-Methylnaphthalene		ND		7.1	80

Surrogate	%Rec	Qualifier	Acceptance Limits
Nitrobenzene-d5 (Surr)	65	D	27 - 110
2-Fluorobiphenyl	80	D	28 - 108
Terphenyl-d14 (Surr)	66	D	21 - 130

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-163-0-1

Lab Sample ID: 180-28384-1

Date Sampled: 12/18/2013 1155

Client Matrix: Sediment

% Moisture: 23.2

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0427			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.40	2.7
PCB-1221		ND		0.52	2.7
PCB-1232		ND		0.46	2.7
PCB-1242		ND		0.44	2.7
PCB-1248		ND		0.26	2.7
PCB-1254		ND		0.38	2.7
PCB-1260		25		0.38	2.7
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		103		20 - 150	
Tetrachloro-m-xylene		102		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-164-0-1

Lab Sample ID: 180-28384-2

Client Matrix: Sediment

% Moisture: 21.2

Date Sampled: 12/18/2013 1210

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0458			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.39	2.6
PCB-1221		ND		0.50	2.6
PCB-1232		ND		0.45	2.6
PCB-1242		ND		0.43	2.6
PCB-1248		ND		0.25	2.6
PCB-1254		ND		0.38	2.6
PCB-1260		89		0.38	2.6
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		180	X	20 - 150	
Tetrachloro-m-xylene		104		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-165-0-1

Lab Sample ID: 180-28384-3

Client Matrix: Sediment

% Moisture: 23.8

Date Sampled: 12/18/2013 1235

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0530			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.41	2.7
PCB-1221		ND		0.52	2.7
PCB-1232		ND		0.47	2.7
PCB-1242		ND		0.44	2.7
PCB-1248		ND		0.26	2.7
PCB-1254		ND		0.39	2.7
PCB-1260		99		0.39	2.7
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		105		20 - 150	
Tetrachloro-m-xylene		99		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-166-0-1

Lab Sample ID: 180-28384-4

Client Matrix: Sediment

% Moisture: 20.0

Date Sampled: 12/18/2013 1305

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0704			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.39	2.6
PCB-1221		ND		0.50	2.6
PCB-1232		ND		0.45	2.6
PCB-1242		ND		0.42	2.6
PCB-1248		ND		0.25	2.6
PCB-1254		ND		0.37	2.6
PCB-1260		34		0.37	2.6
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		73		20 - 150	
Tetrachloro-m-xylene		88		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-167-0-1

Lab Sample ID: 180-28384-5

Date Sampled: 12/18/2013 1510

Client Matrix: Sediment

% Moisture: 22.4

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0736			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.40	2.7
PCB-1221		ND		0.51	2.7
PCB-1232		ND		0.46	2.7
PCB-1242		ND		0.44	2.7
PCB-1248		ND		0.25	2.7
PCB-1254		ND		0.38	2.7
PCB-1260		19		0.38	2.7
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		69		20 - 150	
Tetrachloro-m-xylene		69		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-168-0-1

Lab Sample ID: 180-28384-6

Date Sampled: 12/18/2013 1545

Client Matrix: Sediment

% Moisture: 21.3

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method: 8082A

Analysis Batch: 180-93552

Instrument ID: GC10

Prep Method: 3541

Prep Batch: 180-93257

Initial Weight/Volume: 30.0 g

Dilution: 5.0

Final Weight/Volume: 1.0 mL

Analysis Date: 12/27/2013 0807

Injection Volume: 1 uL

Prep Date: 12/26/2013 0340

Result Type: PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.39	2.6
PCB-1221		ND		0.50	2.6
PCB-1232		ND		0.45	2.6
PCB-1242		ND		0.43	2.6
PCB-1248		ND		0.25	2.6
PCB-1254		100		0.38	2.6
PCB-1260		84		0.38	2.6
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		131		20 - 150	
Tetrachloro-m-xylene		102		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-169-0-1

Lab Sample ID: 180-28384-7

Date Sampled: 12/18/2013 1610

Client Matrix: Sediment

% Moisture: 12.4

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0839			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.35	2.4
PCB-1221		ND		0.45	2.4
PCB-1232		ND		0.41	2.4
PCB-1242		ND		0.39	2.4
PCB-1248		ND		0.22	2.4
PCB-1254		29		0.34	2.4
PCB-1260		29		0.34	2.4
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		74		20 - 150	
Tetrachloro-m-xylene		76		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-170-0-1

Lab Sample ID: 180-28384-8

Date Sampled: 12/20/2013 1515

Client Matrix: Sediment

% Moisture: 21.5

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 0910			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.39	2.6
PCB-1221		ND		0.51	2.6
PCB-1232		ND		0.45	2.6
PCB-1242		ND		0.43	2.6
PCB-1248		ND		0.25	2.6
PCB-1254		ND		0.38	2.6
PCB-1260		2.1	J	0.38	2.6
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		64		20 - 150	
Tetrachloro-m-xylene		71		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-171-0-1

Lab Sample ID: 180-28384-9

Date Sampled: 12/19/2013 1045

Client Matrix: Sediment

% Moisture: 66.8

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	1000			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1909			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		190	1300
PCB-1221		ND		240	1300
PCB-1232		ND		210	1300
PCB-1242		ND		200	1300
PCB-1248		ND		120	1300
PCB-1254		ND		180	1300
PCB-1260		150000		180	1300

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	0	X D	20 - 150
Tetrachloro-m-xylene	0	X D	30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-172-0-3

Lab Sample ID: 180-28384-10

Client Matrix: Sediment

% Moisture: 46.9

Date Sampled: 12/19/2013 1110

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	1000			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1940			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		120	780
PCB-1221		ND		150	780
PCB-1232		ND		130	780
PCB-1242		ND		130	780
PCB-1248		ND		74	780
PCB-1254		ND		110	780
PCB-1260		54000		110	780

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	0	X D	20 - 150
Tetrachloro-m-xylene	0	X D	30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-173-0-3

Lab Sample ID: 180-28384-11

Date Sampled: 12/19/2013 1130

Client Matrix: Sediment

% Moisture: 38.0

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	5000			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 2012			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		500	3400
PCB-1221		ND		640	3400
PCB-1232		ND		580	3400
PCB-1242		ND		550	3400
PCB-1248		ND		320	3400
PCB-1254		ND		480	3400
PCB-1260		220000		480	3400
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		0	X D	20 - 150	
Tetrachloro-m-xylene		0	X D	30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-174-0-1

Lab Sample ID: 180-28384-12

Date Sampled: 12/19/2013 1340

Client Matrix: Sediment

% Moisture: 16.6

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1426			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.37	2.5
PCB-1221		ND		0.48	2.5
PCB-1232		ND		0.43	2.5
PCB-1242		ND		0.41	2.5
PCB-1248		ND		0.24	2.5
PCB-1254		150		0.35	2.5
PCB-1260		350		0.35	2.5
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		131		20 - 150	
Tetrachloro-m-xylene		96		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-175-0-1

Lab Sample ID: 180-28384-13

Date Sampled: 12/19/2013 1430

Client Matrix: Sediment

% Moisture: 30.0

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	50			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0816			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		4.4	30
PCB-1221		ND		5.7	30
PCB-1232		ND		5.1	30
PCB-1242		ND		4.8	30
PCB-1248		ND		2.8	30
PCB-1254		410		4.2	30
PCB-1260		1300		4.2	30
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		180	D X	20 - 150	
Tetrachloro-m-xylene		120	D	30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-176-0-3

Lab Sample ID: 180-28384-14

Date Sampled: 12/19/2013 1505

Client Matrix: Sediment

% Moisture: 43.3

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1528			Injection Volume:	1 µL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.55	3.7
PCB-1221		ND		0.70	3.7
PCB-1232		ND		0.63	3.7
PCB-1242		ND		0.60	3.7
PCB-1248		ND		0.35	3.7
PCB-1254		36		0.52	3.7
PCB-1260		88		0.52	3.7

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	88		20 - 150
Tetrachloro-m-xylene	89		30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-177-0-2

Lab Sample ID: 180-28384-15

Date Sampled: 12/19/2013 1540

Client Matrix: Sediment

% Moisture: 71.8

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.2 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1600			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		1.1	7.3
PCB-1221		ND		1.4	7.3
PCB-1232		ND		1.3	7.3
PCB-1242		ND		1.2	7.3
PCB-1248		ND		0.69	7.3
PCB-1254		28		1.0	7.3
PCB-1260		73		1.0	7.3

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	84		20 - 150
Tetrachloro-m-xylene	93		30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-178-0-1

Lab Sample ID: 180-28384-16

Date Sampled: 12/19/2013 1600

Client Matrix: Sediment

% Moisture: 21.4

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1631			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.39	2.6
PCB-1221		ND		0.50	2.6
PCB-1232		ND		0.45	2.6
PCB-1242		ND		0.43	2.6
PCB-1248		ND		0.25	2.6
PCB-1254		5.3		0.38	2.6
PCB-1260		12		0.38	2.6

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	62		20 - 150
Tetrachloro-m-xylene	75		30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-179-0-1

Lab Sample ID: 180-28384-17

Date Sampled: 12/19/2013 1645

Client Matrix: Sediment

% Moisture: 30.3

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	5.0			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 1703			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.44	3.0
PCB-1221		ND		0.57	3.0
PCB-1232		ND		0.51	3.0
PCB-1242		ND		0.49	3.0
PCB-1248		ND		0.28	3.0
PCB-1254		7.6		0.42	3.0
PCB-1260		22		0.42	3.0
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		81		20 - 150	
Tetrachloro-m-xylene		94		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-180-0-1

Lab Sample ID: 180-28384-18

Date Sampled: 12/19/2013 1625

Client Matrix: Sediment

% Moisture: 21.3

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0848			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.79	5.3
PCB-1221		ND		1.0	5.3
PCB-1232		ND		0.91	5.3
PCB-1242		ND		0.86	5.3
PCB-1248		ND		0.50	5.3
PCB-1254		21		0.75	5.3
PCB-1260		95		0.75	5.3
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		61		20 - 150	
Tetrachloro-m-xylene		115		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-181-0-1

Lab Sample ID: 180-28384-19

Date Sampled: 12/20/2013 1000

Client Matrix: Sediment

% Moisture: 42.5

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.1 g
Dilution:	20000			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 1158			Injection Volume:	1 uL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		2100	14000
PCB-1221		ND		2800	14000
PCB-1232		ND		2500	14000
PCB-1242		ND		2400	14000
PCB-1248		ND		1400	14000
PCB-1254		ND		2100	14000
PCB-1260		420000		2100	14000
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		0	X D	20 - 150	
Tetrachloro-m-xylene		0	X D	30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-182-0-3

Lab Sample ID: 180-28384-20

Client Matrix: Sediment

% Moisture: 52.1

Date Sampled: 12/20/2013 1020

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93257	Initial Weight/Volume:	30.0 g
Dilution:	20000			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 1229			Injection Volume:	1 µL
Prep Date:	12/26/2013 0340			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		2600	17000
PCB-1221		ND		3300	17000
PCB-1232		ND		3000	17000
PCB-1242		ND		2800	17000
PCB-1248		ND		1600	17000
PCB-1254		ND		2500	17000
PCB-1260		780000		2500	17000
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		0	X D	20 - 150	
Tetrachloro-m-xylene		0	X D	30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-183-0-1

Lab Sample ID: 180-28384-21

Date Sampled: 12/20/2013 1040

Client Matrix: Sediment

% Moisture: 69.9

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	2000			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 1023			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		410	2800
PCB-1221		ND		530	2800
PCB-1232		ND		470	2800
PCB-1242		ND		450	2800
PCB-1248		ND		260	2800
PCB-1254		ND		390	2800
PCB-1260		40000		390	2800

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	0	X D	20 - 150
Tetrachloro-m-xylene	0	X D	30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-184-0-2

Lab Sample ID: 180-28384-22

Date Sampled: 12/20/2013 1130

Client Matrix: Sediment

% Moisture: 32.1

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.2 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 2321			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.91	6.1
PCB-1221		ND		1.2	6.1
PCB-1232		ND		1.0	6.1
PCB-1242		ND		0.99	6.1
PCB-1248		ND		0.58	6.1
PCB-1254		410		0.87	6.1
PCB-1260		1300		0.87	6.1
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		105		20 - 150	
Tetrachloro-m-xylene		89		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-185-0-1

Lab Sample ID: 180-28384-23

Date Sampled: 12/20/2013 1200

Client Matrix: Sediment

% Moisture: 25.4

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/27/2013 2352			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.83	5.6
PCB-1221		ND		1.1	5.6
PCB-1232		ND		0.96	5.6
PCB-1242		ND		0.91	5.6
PCB-1248		ND		0.53	5.6
PCB-1254		190		0.79	5.6
PCB-1260		550		0.79	5.6

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	103		20 - 150
Tetrachloro-m-xylene	123		30 - 150

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-186-0-1

Lab Sample ID: 180-28384-24

Date Sampled: 12/20/2013 1220

Client Matrix: Sediment

% Moisture: 25.8

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0127			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.84	5.6
PCB-1221		ND		1.1	5.6
PCB-1232		ND		0.96	5.6
PCB-1242		ND		0.91	5.6
PCB-1248		ND		0.53	5.6
PCB-1254		38		0.80	5.6
PCB-1260		60		0.80	5.6
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		64		20 - 150	
Tetrachloro-m-xylene		87		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-187-0-1

Lab Sample ID: 180-28384-25

Date Sampled: 12/20/2013 1245

Client Matrix: Sediment

% Moisture: 20.3

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.1 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0158			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.78	5.2
PCB-1221		ND		0.99	5.2
PCB-1232		ND		0.89	5.2
PCB-1242		ND		0.85	5.2
PCB-1248		ND		0.49	5.2
PCB-1254		29		0.74	5.2
PCB-1260		92		0.74	5.2
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		65		20 - 150	
Tetrachloro-m-xylene		86		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-188-0-1

Lab Sample ID: 180-28384-26

Date Sampled: 12/20/2013 1257

Client Matrix: Sediment

% Moisture: 11.7

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0230			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.70	4.7
PCB-1221		ND		0.90	4.7
PCB-1232		ND		0.81	4.7
PCB-1242		ND		0.77	4.7
PCB-1248		ND		0.45	4.7
PCB-1254		15		0.67	4.7
PCB-1260		49		0.67	4.7
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		64		20 - 150	
Tetrachloro-m-xylene		77		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-189-0-1

Lab Sample ID: 180-28384-27

Client Matrix: Sediment

% Moisture: 9.4

Date Sampled: 12/20/2013 1250

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.1 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0301			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.68	4.6
PCB-1221		ND		0.87	4.6
PCB-1232		ND		0.78	4.6
PCB-1242		ND		0.75	4.6
PCB-1248		ND		0.43	4.6
PCB-1254		11		0.65	4.6
PCB-1260		82		0.65	4.6
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Sum)		70		20 - 150	
Tetrachloro-m-xylene		82		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-190-0-1

Lab Sample ID: 180-28384-28

Date Sampled: 12/20/2013 1445

Client Matrix: Sediment

% Moisture: 30.2

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.1 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0333			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.88	5.9
PCB-1221		ND		1.1	5.9
PCB-1232		ND		1.0	5.9
PCB-1242		ND		0.97	5.9
PCB-1248		ND		0.56	5.9
PCB-1254		53		0.85	5.9
PCB-1260		46		0.85	5.9
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		53		20 - 150	
Tetrachloro-m-xylene		81		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-191-0-1

Lab Sample ID: 180-28384-29

Date Sampled: 12/20/2013 1450

Client Matrix: Sediment

% Moisture: 30.1

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0404			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.89	6.0
PCB-1221		ND		1.1	6.0
PCB-1232		ND		1.0	6.0
PCB-1242		ND		0.97	6.0
PCB-1248		ND		0.56	6.0
PCB-1254		350		0.85	6.0
PCB-1260		530		0.85	6.0
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		89		20 - 150	
Tetrachloro-m-xylene		82		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-192-0-1

Lab Sample ID: 180-28384-30

Date Sampled: 12/20/2013 1600

Client Matrix: Sediment

% Moisture: 23.8

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0436			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.81	5.5
PCB-1221		ND		1.0	5.5
PCB-1232		ND		0.94	5.5
PCB-1242		ND		0.89	5.5
PCB-1248		ND		0.52	5.5
PCB-1254		13		0.78	5.5
PCB-1260		20		0.78	5.5
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		54		20 - 150	
Tetrachloro-m-xylene		65		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-193-0-1

Lab Sample ID: 180-28384-31

Date Sampled: 12/20/2013 1610

Client Matrix: Sediment

% Moisture: 29.2

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.0 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0507			Injection Volume:	1 µL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.88	5.9
PCB-1221		ND		1.1	5.9
PCB-1232		ND		1.0	5.9
PCB-1242		ND		0.96	5.9
PCB-1248		ND		0.56	5.9
PCB-1254		ND		0.84	5.9
PCB-1260		17		0.84	5.9
Surrogate		%Rec	Qualifier	Acceptance Limits	
DCB Decachlorobiphenyl (Surr)		68		20 - 150	
Tetrachloro-m-xylene		78		30 - 150	

Analytical Data

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Client Sample ID: SD-194-0-1

Lab Sample ID: 180-28384-32

Date Sampled: 12/20/2013 1615

Client Matrix: Sediment

% Moisture: 15.7

Date Received: 12/23/2013 0900

8082A Polychlorinated Biphenyls (PCBs) (GC)

Analysis Method:	8082A	Analysis Batch:	180-93552	Instrument ID:	GC10
Prep Method:	3541	Prep Batch:	180-93333	Initial Weight/Volume:	30.1 g
Dilution:	10			Final Weight/Volume:	1.0 mL
Analysis Date:	12/28/2013 0539			Injection Volume:	1 uL
Prep Date:	12/27/2013 0240			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
PCB-1016		ND		0.73	4.9
PCB-1221		ND		0.94	4.9
PCB-1232		ND		0.84	4.9
PCB-1242		ND		0.80	4.9
PCB-1248		ND		0.47	4.9
PCB-1254		ND		0.70	4.9
PCB-1260		16		0.70	4.9

Surrogate	%Rec	Qualifier	Acceptance Limits
DCB Decachlorobiphenyl (Surr)	72		20 - 150
Tetrachloro-m-xylene	91		30 - 150

Appendix C

Support Documentation

Client Information Client Contact: Eric Samuels Company: Tetra Tech, Inc. Address: 2171 West Park Court Suite E City: Stone Mountain State: GA Zip: 30087 Phone: _____ Email: Eric.Samuels@tetratech.com Project Name: Middle River Complex, Middle River MD Site: Storm Drain Sediment Investig.		Lab Pmt: Bowen, Debra E-Mail: debra.bowen@tetratech.com Carrier Tracking No(s): 8007 7903 9390 Page: 1 of 3 Job #: 112 EC 05483																																																													
Due Date Requested: TAT Requested (days): 21 days PO #: 1097251 WO #: _____ Project #: 18012067 SSOW#: _____		Analysis Requested <div style="border: 1px solid black; padding: 5px; margin: 5px;"> PAHs, PCBs, Moisture Content </div>																																																													
Sample Identification <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample ID</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Matrix (W=water, S=solid, O=ore, etc.)</th> </tr> </thead> <tbody> <tr><td>SD-163-0-1</td><td>12/18/13</td><td>1155</td><td>G</td><td>S</td></tr> <tr><td>SD-164-0-1</td><td></td><td>1210</td><td></td><td></td></tr> <tr><td>SD-165-0-1</td><td></td><td>1235</td><td></td><td></td></tr> <tr><td>SD-166-0-1</td><td></td><td>1305</td><td></td><td></td></tr> <tr><td>SD-167-0-1</td><td></td><td>1510</td><td></td><td></td></tr> <tr><td>SD-168-0-1</td><td></td><td>1545</td><td></td><td></td></tr> <tr><td>SD-169-0-1</td><td></td><td>1610</td><td></td><td></td></tr> <tr><td>SD-170-0-1</td><td>12/20/13</td><td>1515</td><td></td><td></td></tr> <tr><td>SD-171-0-1</td><td>12/19/13</td><td>1045</td><td></td><td></td></tr> <tr><td>SD-172-0-3</td><td></td><td>1110</td><td></td><td></td></tr> <tr><td>SD-173-0-3</td><td></td><td>1130</td><td></td><td></td></tr> </tbody> </table>		Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=ore, etc.)	SD-163-0-1	12/18/13	1155	G	S	SD-164-0-1		1210			SD-165-0-1		1235			SD-166-0-1		1305			SD-167-0-1		1510			SD-168-0-1		1545			SD-169-0-1		1610			SD-170-0-1	12/20/13	1515			SD-171-0-1	12/19/13	1045			SD-172-0-3		1110			SD-173-0-3		1130			Special Instructions/Note: <div style="border: 1px solid black; padding: 5px; margin: 5px;"> 180-28384 Chain of Custody </div>	
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=ore, etc.)																																																											
SD-163-0-1	12/18/13	1155	G	S																																																											
SD-164-0-1		1210																																																													
SD-165-0-1		1235																																																													
SD-166-0-1		1305																																																													
SD-167-0-1		1510																																																													
SD-168-0-1		1545																																																													
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SD-170-0-1	12/20/13	1515																																																													
SD-171-0-1	12/19/13	1045																																																													
SD-172-0-3		1110																																																													
SD-173-0-3		1130																																																													
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab																																																													
Deliverable Requested: I, II, III, IV, Other (specify) _____		Special Instructions/QC Requirements: _____																																																													
Empty Kit Relinquished by: <i>FLH</i> Relinquished by: _____ Relinquished by: _____ Relinquished by: _____		Method of Shipment: _____ Date: 12/20/13 1730 Date/Time: 12/20/13 1730 Date/Time: 12/23/13 0900 Date/Time: 1/14/14																																																													
Custody Seal No.: _____ Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Company: Tetra Tech Company: FedEx Company: 1 APB																																																													

Chain of Custody Record

Client Information		Lab PM: Frank Kozlowski		Carter Tracking No(s): 8007 7903 9390		COC No: 180-15270-4013.2	
Client Contact: Eric Samuels		Phone: 301.529.3029		E-Mail: debra.bowen@restamericainc.com		Page 2 of 3	
Company: Tetra Tech, Inc.		Address: 2171 West Park Court Suite E		City: Stone Mountain		State: GA	
Zip: 30087		Phone: 1097251		PO #: 1097251		WO #: 18012067	
Email: Eric.Samuels@tetratech.com		Project Name: Middle River Complex, Middle River MD		Project #: 18012067		SSOW#: 18012067	
Site: Storm Drain Sediment Invest.		Due Date Requested: 21 day		TAT Requested (days): 21 day		Analysis Requested: PAHs, PCBs, Moisture Content	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
SD-174-0-1		12/19/13		1340		G	
SD-175-0-1		12/19/13		1430		S	
SD-176-0-3		12/19/13		1505		S	
SD-177-0-2		12/19/13		1540		S	
SD-178-0-1		12/19/13		1600		S	
SD-179-0-1		12/19/13		1645		S	
SD-180-0-1		12/19/13		1625		S	
SD-181-0-1		12/20/13		1000		S	
SD-182-0-3		12/20/13		1020		S	
SD-183-0-1		12/20/13		1040		S	
SD-184-0-2		12/20/13		1130		S	
Possible Hazard Identification		Flammable		Non-Hazard		Toxic	
Deliverable Requested: I, II, III, IV, Other (specify)		Polson B		Unknown		Radiological	
Empty Kit Relinquished by: [Signature]		Date: 12/20/13		Time: 19:30		Company: Tetra Tech	
Relinquished by: [Signature]		Date: 12/20/13		Time: 19:30		Company: Tetra Tech	
Relinquished by: [Signature]		Date: 12/20/13		Time: 19:30		Company: Tetra Tech	
Custody Seals Intact: Yes		Custody Seal No.: 18012067		Cooler Temperature(s) °C and Other Remarks: 12/20/13 19:30		Company: Tetra Tech	

Chain of Custody Record

Client Information Client Contact: Eric Samuels Company: Tetra Tech, Inc. Address: 2171 West Park Court Suite E City: Stone Mountain State, Zip: GA, 30087 Phone: 404.528.3089 Email: Eric.Samuels@tetratech.com Project Name: Middle River Complex, Middle River MD Project #: 18012067 SOW#:		Sampler: Fred Kowalsky Lab P/N: Bowen, Debra Phone: 800.774.0373 E-Mail: debra.bowen@testamericainc.com Page: 3 of 3 Job #: 112-EC-05483	
Due Date Requested: TAT Requested (days): PO #: 1097251 WO #:		Analysis Requested Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecaldehyde U - Acetone V - MCAA W - pH 4.5 Z - other (specify)	
Sample Identification SD-185-0-1 SD-186-0-1 SD-187-0-1 SD-188-0-1 SD-189-0-1 SD-190-0-1 SD-191-0-1 SD-192-0-1 SD-193-0-1 SD-194-0-1		Sample Date 12/20/13 1220 1245 1257 1250 1445 1450 1600 1610 1615	
Sample Type (C=Comp, G=grab) G G G G G G G G G G		Matrix (W=Water, S=Solid, O=Organic, ST=Stress, A=Air) S S S S S S S S S S	
Field Number PAHs, PCBs, Moisture Content		Field Number PAHs, PCBs, Moisture Content	
Special Instructions/Note:		Special Instructions/Note:	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements:	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I, II, III, IV, Other (specify)	
Empty Kit Relinquished by:		Date:	
Relinquished by:		Date:	
Relinquished by:		Date:	
Relinquished by:		Date:	
Custody Seal No.: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:	

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Login Number: 28384

List Source: TestAmerica Pittsburgh

List Number: 1

Creator: Kovitch, Christina M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4"$).	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DATA REPORTING QUALIFIERS

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	*	ISTD response or retention time outside acceptable limits
	F1	MS and/or MSD Recovery exceeds the control limits
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	F2	MS/MSD RPD exceeds control limits
	E	Result exceeded calibration range.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	X	Surrogate is outside control limits
	D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
GC Semi VOA		
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	F	MS/MSD Recovery and/or RPD exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	X	Surrogate is outside control limits
	D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Middle River Complex, Middle River MD

Report Number: 180-28384-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/23/2013; the samples arrived in good condition and on ice. The temperature of the cooler at receipt was 1.8° C.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS)

The samples and associated MS/MSD were analyzed at a dilution due to the abundance of target analytes and/or matrix interference. The reporting limits have been adjusted accordingly.

The surrogates of several samples are considered diluted out.

Several analytes failed the recovery criteria for the MS and MSD of sample SD-163-0-1 (180-28384-1).

Several analytes failed the recovery criteria for the MS and/or MSD of sample SD-185-0-1 (180-28384-23). The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Several analytes also exceeded the relative percent difference (RPD) limits.

Internal standard responses were outside of acceptance limits for several samples.

POLYCHLORINATED BIPHENYLS (PCBs)

The samples and associated MS/MSD were analyzed at a dilution due to the abundance of target analytes and/or matrix interference. The reporting limits have been adjusted accordingly.

DCB Decachlorobiphenyl (Surr) failed the surrogate recovery criteria high for sample SD-164-0-1 (180-28384-2). Tetrachloro-m-xylene recovered within acceptable QC limits. The data are reported.

The surrogates of several samples are considered diluted out.

PCB-1260 failed the recovery criteria for the MS/MSD of sample SD-165-0-1 (180-28384-3).

PCB-1016 failed the recovery criteria for the MS/MSD of sample SD-185-0-1 (180-28384-23). The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

GENERAL CHEMISTRY

No difficulties were encountered during the analysis.

SAMPLE SUMMARY

Client: Tetra Tech, Inc.

Job Number: 180-28384-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
180-28384-1	SD-163-0-1	Sediment	12/18/2013 1155	12/23/2013 0900
180-28384-2	SD-164-0-1	Sediment	12/18/2013 1210	12/23/2013 0900
180-28384-3	SD-165-0-1	Sediment	12/18/2013 1235	12/23/2013 0900
180-28384-4	SD-166-0-1	Sediment	12/18/2013 1305	12/23/2013 0900
180-28384-5	SD-167-0-1	Sediment	12/18/2013 1510	12/23/2013 0900
180-28384-6	SD-168-0-1	Sediment	12/18/2013 1545	12/23/2013 0900
180-28384-7	SD-169-0-1	Sediment	12/18/2013 1610	12/23/2013 0900
180-28384-8	SD-170-0-1	Sediment	12/20/2013 1515	12/23/2013 0900
180-28384-9	SD-171-0-1	Sediment	12/19/2013 1045	12/23/2013 0900
180-28384-10	SD-172-0-3	Sediment	12/19/2013 1110	12/23/2013 0900
180-28384-11	SD-173-0-3	Sediment	12/19/2013 1130	12/23/2013 0900
180-28384-12	SD-174-0-1	Sediment	12/19/2013 1340	12/23/2013 0900
180-28384-13	SD-175-0-1	Sediment	12/19/2013 1430	12/23/2013 0900
180-28384-14	SD-176-0-3	Sediment	12/19/2013 1505	12/23/2013 0900
180-28384-15	SD-177-0-2	Sediment	12/19/2013 1540	12/23/2013 0900
180-28384-16	SD-178-0-1	Sediment	12/19/2013 1600	12/23/2013 0900
180-28384-17	SD-179-0-1	Sediment	12/19/2013 1645	12/23/2013 0900
180-28384-18	SD-180-0-1	Sediment	12/19/2013 1625	12/23/2013 0900
180-28384-19	SD-181-0-1	Sediment	12/20/2013 1000	12/23/2013 0900
180-28384-20	SD-182-0-3	Sediment	12/20/2013 1020	12/23/2013 0900
180-28384-21	SD-183-0-1	Sediment	12/20/2013 1040	12/23/2013 0900
180-28384-22	SD-184-0-2	Sediment	12/20/2013 1130	12/23/2013 0900
180-28384-23	SD-185-0-1	Sediment	12/20/2013 1200	12/23/2013 0900
180-28384-24	SD-186-0-1	Sediment	12/20/2013 1220	12/23/2013 0900
180-28384-25	SD-187-0-1	Sediment	12/20/2013 1245	12/23/2013 0900
180-28384-26	SD-188-0-1	Sediment	12/20/2013 1257	12/23/2013 0900
180-28384-27	SD-189-0-1	Sediment	12/20/2013 1250	12/23/2013 0900
180-28384-28	SD-190-0-1	Sediment	12/20/2013 1445	12/23/2013 0900
180-28384-29	SD-191-0-1	Sediment	12/20/2013 1450	12/23/2013 0900
180-28384-30	SD-192-0-1	Sediment	12/20/2013 1600	12/23/2013 0900
180-28384-31	SD-193-0-1	Sediment	12/20/2013 1610	12/23/2013 0900
180-28384-32	SD-194-0-1	Sediment	12/20/2013 1615	12/23/2013 0900

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

GC Column (1): Rxi-5SilMS ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	NBZ	#	FBP	#	TPH	#
SD-163-0-1	180-28384-1	64	D	70	D	72	D
SD-164-0-1	180-28384-2	74	D	83	D	63	D
SD-165-0-1	180-28384-3	81	D	80	D	67	D
SD-166-0-1	180-28384-4	0 X	D	0 X	D	0 X	D
SD-167-0-1	180-28384-5	0 X	D	0 X	D	0 X	D
SD-168-0-1	180-28384-6	0 X	D	0 X	D	0 X	D
SD-169-0-1	180-28384-7	68	D	51	D	55	D
SD-170-0-1	180-28384-8	65	D	67	D	57	D
SD-171-0-1	180-28384-9	54		58		53	
SD-172-0-3	180-28384-10	54	D	53	D	47	D
SD-173-0-3	180-28384-11	65	D	67	D	59	D
SD-174-0-1	180-28384-12	65	D	69	D	58	D
SD-175-0-1	180-28384-13	63	D	62	D	64	D
SD-176-0-3	180-28384-14	57	D	57	D	45	D
SD-177-0-2	180-28384-15	40	D	42	D	39	D
SD-178-0-1	180-28384-16	53	D	56	D	52	D
SD-179-0-1	180-28384-17	63		61		46	
SD-180-0-1	180-28384-18	0 X	D	0 X	D	0 X	D
SD-181-0-1	180-28384-19	0 X	D	0 X	D	0 X	D
SD-182-0-3	180-28384-20	0 X	D	0 X	D	0 X	D
SD-183-0-1	180-28384-21	51	D	61	D	54	D
SD-184-0-2	180-28384-22	62	D	70	D	61	D
SD-185-0-1	180-28384-23	62	D	74	D	61	D
SD-186-0-1	180-28384-24	76	D	90	D	76	D
SD-187-0-1	180-28384-25	77	D	92	D	83	D
SD-188-0-1	180-28384-26	84	D	98	D	84	D
SD-189-0-1	180-28384-27	74	D	94	D	79	D
SD-190-0-1	180-28384-28	70	D	84	D	89	D
SD-190-0-1 DL	180-28384-28 DL	62	D	83	D	87	D
SD-191-0-1	180-28384-29	60	D	73	D	66	D
SD-191-0-1 DL	180-28384-29 DL	0 X	D	0 X	D	0 X	D
SD-192-0-1	180-28384-30	52	D	67	D	56	D
SD-193-0-1	180-28384-31	58	D	72	D	89	D
SD-194-0-1	180-28384-32	65	D	80	D	66	D
	MB 180-93179/1-A	75		68		74	

QC LIMITS

NBZ = Nitrobenzene-d5 (Surr)

27-110

FBP = 2-Fluorobiphenyl

28-108

TPH = Terphenyl-d14 (Surr)

21-130

Column to be used to flag recovery values

FORM II 8270D LL

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

GC Column (1): Rxi-5SilMS ID: 0.32 (mm)

Client Sample ID	Lab Sample ID	NBZ	#	FBP	#	TPH	#
	MB 180-93531/1-A	57		59		55	
	LCS 180-93179/2-A	68		66		125	
	LCS 180-93531/2-A	57		60		58	
SD-163-0-1 MS	180-28384-1 MS	69	D	79	D	67	D
SD-185-0-1 MS	180-28384-23 MS	83	D	103	D	91	D
SD-163-0-1 MSD	180-28384-1 MSD	67	D	72	D	60	D
SD-185-0-1 MSD	180-28384-23 MSD	73	D	84	D	72	D

NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl
TPH = Terphenyl-d14 (Surr)

QC LIMITS

27-110
28-108
21-130

Column to be used to flag recovery values

FORM II 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Sample No.: CCVIS 180-93752/22

Date Analyzed: 01/01/2014 04:44

Instrument ID: 71

GC Column: Rxi-5SilMS

ID: 0.32(mm)

Lab File ID (Standard): S01010C2.D

Heated Purge: (Y/N) N

Calibration ID: 12755

		DCB		NPT		ANT	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		81807	6.23	381641	7.44	265775	9.07
UPPER LIMIT		163614	6.73	763282	7.94	531550	9.57
LOWER LIMIT		40904	5.73	190821	6.94	132888	8.57
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 180-93531/1-A		100562	6.22	459676	7.44	337997	9.06
LCS 180-93531/2-A		94791	6.23	432186	7.45	321735	9.06
180-28384-23 MS	SD-185-0-1 MS	102496	6.23	469936	7.45	334261	9.07
180-28384-23 MSD	SD-185-0-1 MSD	102718	6.23	467749	7.45	340218	9.07
180-28384-21	SD-183-0-1	84459	6.24	380362	7.45	269480	9.07
180-28384-22	SD-184-0-2	98329	6.23	448717	7.45	320106	9.06
180-28384-23	SD-185-0-1	92875	6.23	425521	7.45	308145	9.06
180-28384-24	SD-186-0-1	94962	6.23	436232	7.45	313779	9.06
180-28384-25	SD-187-0-1	99893	6.24	458246	7.44	330863	9.07
180-28384-26	SD-188-0-1	96925	6.24	440934	7.44	314348	9.06
180-28384-27	SD-189-0-1	98560	6.23	449313	7.44	318063	9.06
180-28384-28	SD-190-0-1	98108	6.24	448537	7.44	319559	9.06
180-28384-29	SD-191-0-1	97820	6.23	448311	7.45	317588	9.07
180-28384-30	SD-192-0-1	96741	6.24	445073	7.44	322461	9.07
180-28384-31	SD-193-0-1	103212	6.23	475585	7.44	339053	9.06
180-28384-32	SD-194-0-1	99925	6.24	451759	7.45	323303	9.07

DCB = 1,4-Dichlorobenzene-d4

NPT = Naphthalene-d8

ANT = Acenaphthene-d10

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93752/22 Date Analyzed: 01/01/2014 04:44
 Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32(mm)
 Lab File ID (Standard): S01010C2.D Heated Purge: (Y/N) N
 Calibration ID: 12755

		PHN		CRY		PRY	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		529007	10.43	650022	13.90	663127	16.79
UPPER LIMIT		1058014	10.93	1300044	14.40	1326254	17.29
LOWER LIMIT		264504	9.93	325011	13.40	331564	16.29
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 180-93531/1-A		691656	10.43	841357	13.88	873602	16.78
LCS 180-93531/2-A		648601	10.43	784936	13.89	800504	16.78
180-28384-23 MS	SD-185-0-1 MS	693615	10.43	875273	13.89	969963	16.78
180-28384-23 MSD	SD-185-0-1 MSD	688931	10.43	896059	13.89	1021525	16.79
180-28384-21	SD-183-0-1	548984	10.43	682770	13.90	823897	16.80
180-28384-22	SD-184-0-2	630350	10.43	793827	13.90	953905	16.80
180-28384-23	SD-185-0-1	627324	10.43	824538	13.89	1001044	16.79
180-28384-24	SD-186-0-1	640443	10.43	848478	13.89	1037304	16.78
180-28384-25	SD-187-0-1	673158	10.43	895709	13.89	1109145	16.79
180-28384-26	SD-188-0-1	642180	10.43	864756	13.89	1098047	16.79
180-28384-27	SD-189-0-1	655592	10.43	879684	13.89	1136630	16.79
180-28384-28	SD-190-0-1	644328	10.43	817781	13.90	1173363	16.80
180-28384-29	SD-191-0-1	634911	10.43	821271	13.91	1195692	16.82
180-28384-30	SD-192-0-1	655710	10.43	883014	13.89	1175551	16.80
180-28384-31	SD-193-0-1	704065	10.43	940080	13.89	1246020	16.79
180-28384-32	SD-194-0-1	668717	10.43	913984	13.90	1216412	16.80

PHN = Phenanthrene-d10

CRY = Chrysene-d12

PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93785/3 Date Analyzed: 01/04/2014 07:53
 Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm)
 Lab File ID (Standard): S01040C1.D Heated Purge: (Y/N) N
 Calibration ID: 12755

		DCB		NPT		ANT	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		77376	6.17	311581	7.39	194573	9.01
UPPER LIMIT		154752	6.67	623162	7.89	389146	9.51
LOWER LIMIT		38688	5.67	155791	6.89	97287	8.51
LAB SAMPLE ID	CLIENT SAMPLE ID						
180-28384-28 DL	SD-190-0-1 DL	67214	6.18	272161	7.39	182839	9.01

DCB = 1,4-Dichlorobenzene-d4

NPT = Naphthalene-d8

ANT = Acenaphthene-d10

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93785/3 Date Analyzed: 01/04/2014 07:53
 Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm)
 Lab File ID (Standard): S01040C1.D Heated Purge: (Y/N) N
 Calibration ID: 12755

	PHN		CRY		PRY	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	377760	10.38	426352	13.82	379629	16.69
UPPER LIMIT	755520	10.88	852704	14.32	759258	17.19
LOWER LIMIT	188880	9.88	213176	13.32	189815	16.19
LAB SAMPLE ID	CLIENT SAMPLE ID					
180-28384-28 DL	SD-190-0-1 DL	364362	10.38	455661	13.81	497985 16.68

PHN = Phenanthrene-d10

CRY = Chrysene-d12

PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93945/2 Date Analyzed: 01/08/2014 01:27
 Instrument ID: 722 GC Column: Rxi-5SilMS ID: 0.32 (mm)
 Lab File ID (Standard): F01080C1.D Heated Purge: (Y/N) N
 Calibration ID: 13164

	DCB		NPT		ANT	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	54457	6.15	234208	7.41	139630	9.11
UPPER LIMIT	108914	6.65	468416	7.91	279260	9.61
LOWER LIMIT	27229	5.65	117104	6.91	69815	8.61
LAB SAMPLE ID	CLIENT SAMPLE ID					
180-28384-29 DL	SD-191-0-1 DL	53786	6.15	232986	7.42	149598 9.11

DCB = 1,4-Dichlorobenzene-d4

NPT = Naphthalene-d8

ANT = Acenaphthene-d10

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93945/2 Date Analyzed: 01/08/2014 01:27
 Instrument ID: 722 GC Column: Rxi-5SilMS ID: 0.32 (mm)
 Lab File ID (Standard): F01080C1.D Heated Purge: (Y/N) N
 Calibration ID: 13164

	PHN		CRY		PRY	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	256701	10.55	276001	14.39	237474	17.55
UPPER LIMIT	513402	11.05	552002	14.89	474948	18.05
LOWER LIMIT	128351	10.05	138001	13.89	118737	17.05
LAB SAMPLE ID	CLIENT SAMPLE ID					
180-28384-29 DL	SD-191-0-1 DL		263447	10.55	292098	14.36
					285280	17.50

PHN = Phenanthrene-d10

CRY = Chrysene-d12

PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Sample No.: CCVIS 180-93613/22 Date Analyzed: 12/31/2013 10:31
Instrument ID: 732 GC Column: Rxi-5SilMS ID: 0.32 (mm)
Lab File ID (Standard): D12310CC.D Heated Purge: (Y/N) N
Calibration ID: 12823

		DCB		NPT		ANT	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		146077	6.15	593830	7.44	373677	9.15
UPPER LIMIT		292154	6.65	1187660	7.94	747354	9.65
LOWER LIMIT		73039	5.65	296915	6.94	186839	8.65
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 180-93179/1-A		154463	6.13	625757	7.42	395469	9.13
LCS 180-93179/2-A		152717	6.12	613059	7.41	399109	9.13
180-28384-1 MS	SD-163-0-1 MS	157285	6.12	629331	7.42	408727	9.13
180-28384-1 MSD	SD-163-0-1 MSD	160765	6.13	635904	7.42	410679	9.13
180-28384-1	SD-163-0-1	172869	6.13	707409	7.42	439215	9.13
180-28384-2	SD-164-0-1	167636	6.12	692592	7.42	431961	9.13
180-28384-3	SD-165-0-1	159091	6.13	635444	7.42	419498	9.13
180-28384-4	SD-166-0-1	162911	6.13	665898	7.42	446513	9.14
180-28384-5	SD-167-0-1	162581	6.12	669832	7.42	436395	9.13
180-28384-6	SD-168-0-1	150752	6.12	617067	7.41	405845	9.13
180-28384-7	SD-169-0-1	197833	6.12	831934	7.42	540243	9.13
180-28384-8	SD-170-0-1	198383	6.12	799184	7.41	521027	9.13
180-28384-9	SD-171-0-1	204156	6.13	831963	7.42	528125	9.13
180-28384-10	SD-172-0-3	194005	6.12	813387	7.42	518524	9.13
180-28384-11	SD-173-0-3	197048	6.12	823834	7.42	543624	9.13
180-28384-12	SD-174-0-1	189846	6.12	783286	7.42	519442	9.13
180-28384-13	SD-175-0-1	188798	6.12	762865	7.41	503822	9.13
180-28384-14	SD-176-0-3	190445	6.12	786927	7.41	501396	9.13
180-28384-15	SD-177-0-2	207954	6.13	832407	7.42	545365	9.13
180-28384-16	SD-178-0-1	208866	6.12	833391	7.42	544653	9.13
180-28384-17	SD-179-0-1	190625	6.12	787227	7.42	506133	9.13

DCB = 1,4-Dichlorobenzene-d4

NPT = Naphthalene-d8

ANT = Acenaphthene-d10

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Sample No.: CCVIS 180-93613/22 Date Analyzed: 12/31/2013 10:31
Instrument ID: 732 GC Column: Rxi-5SilMS ID: 0.32(mm)
Lab File ID (Standard): D12310CC.D Heated Purge: (Y/N) N
Calibration ID: 12823

		PHN		CRY		PRY	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		677230	10.58	792212	14.32	663428	17.21
UPPER LIMIT		1354460	11.08	1584424	14.82	1326856	17.71
LOWER LIMIT		338615	10.08	396106	13.82	331714	16.71
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 180-93179/1-A		727395	10.57	855339	14.29	763573	17.18
LCS 180-93179/2-A		757536	10.56	892890	14.29	751960	17.17
180-28384-1 MS	SD-163-0-1 MS	771814	10.57	928598	14.30	876378	17.18
180-28384-1 MSD	SD-163-0-1 MSD	777453	10.57	1010165	14.30	974595	17.18
180-28384-1	SD-163-0-1	815893	10.57	1028757	14.31	1039007	17.19
180-28384-2	SD-164-0-1	782158	10.57	1010873	14.29	1035145	17.17
180-28384-3	SD-165-0-1	806201	10.57	971798	14.30	967067	17.19
180-28384-4	SD-166-0-1	821512	10.57	1016240	14.31	1048144	17.18
180-28384-5	SD-167-0-1	801581	10.57	1053680	14.30	1089120	17.18
180-28384-6	SD-168-0-1	757668	10.56	983735	14.29	1040244	17.17
180-28384-7	SD-169-0-1	990004	10.57	1330221	14.29	1486964*	17.18
180-28384-8	SD-170-0-1	974947	10.56	1241347	14.28	1434416*	17.16
180-28384-9	SD-171-0-1	1007574	10.57	1305918	14.31	1545689*	17.19
180-28384-10	SD-172-0-3	993257	10.57	1234921	14.29	1496516*	17.18
180-28384-11	SD-173-0-3	1011966	10.57	1311268	14.30	1588006*	17.19
180-28384-12	SD-174-0-1	989576	10.57	1273244	14.31	1587998*	17.19
180-28384-13	SD-175-0-1	927398	10.57	1245091	14.30	1532160*	17.18
180-28384-14	SD-176-0-3	969462	10.56	1342030	14.29	1635796*	17.17
180-28384-15	SD-177-0-2	1033002	10.57	1409372	14.31	1750837*	17.20
180-28384-16	SD-178-0-1	1058398	10.57	1439958	14.30	1750128*	17.18
180-28384-17	SD-179-0-1	977214	10.57	1402126	14.30	1688397*	17.19

PHN = Phenanthrene-d10
CRY = Chrysene-d12
PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area
RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93710/10 Date Analyzed: 01/02/2014 12:15
 Instrument ID: 732 GC Column: Rxi-5SilMS ID: 0.32 (mm)
 Lab File ID (Standard): D01020CC.D Heated Purge: (Y/N) N
 Calibration ID: 12823

	DCB		NFT		ANT		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12/24 HOUR STD	187827	6.13	691397	7.43	396729	9.16	
UPPER LIMIT	375654	6.63	1382794	7.93	793458	9.66	
LOWER LIMIT	93914	5.63	345699	6.93	198365	8.66	
LAB SAMPLE ID	CLIENT SAMPLE ID						
180-28384-18	SD-180-0-1	213650	6.12	789029	7.42	437781	9.16
180-28384-19	SD-181-0-1	229336	6.12	886719	7.43	501642	9.16
180-28384-20	SD-182-0-3	226825	6.12	845333	7.43	470738	9.16

DCB = 1,4-Dichlorobenzene-d4

NPT = Naphthalene-d8

ANT = Acenaphthene-d10

Area Limit = 50%-200% of internal standard area

RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: CCVIS 180-93710/10 Date Analyzed: 01/02/2014 12:15
 Instrument ID: 732 GC Column: Rxi-5SilMS ID: 0.32 (mm)
 Lab File ID (Standard): D01020CC.D Heated Purge: (Y/N) N
 Calibration ID: 12823

	PHN		CRY		PRY	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	659904	10.61	664044	14.39	534460	17.29
UPPER LIMIT	1319808	11.11	1328088	14.89	1068920	17.79
LOWER LIMIT	329952	10.11	332022	13.89	267230	16.79
LAB SAMPLE ID	CLIENT SAMPLE ID					
180-28384-18	SD-180-0-1	667938	10.61	626406	14.41	576992 17.32
180-28384-19	SD-181-0-1	758727	10.61	661054	14.41	645429 17.32
180-28384-20	SD-182-0-3	709972	10.61	667487	14.41	679232 17.32

PHN = Phenanthrene-d10
 CRY = Chrysene-d12
 PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area
 RT Limit = \pm 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D LL

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab File ID: D1231003.D

Lab Sample ID: MB 180-93179/1-A

Matrix: Sediment

Date Extracted: 12/24/2013 03:15

Instrument ID: 732

Date Analyzed: 12/31/2013 10:59

Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 180-93179/2-A	D1231004.D	12/31/2013 11:51
SD-163-0-1 MS	180-28384-1 MS	D1231005.D	12/31/2013 14:03
SD-163-0-1 MSD	180-28384-1 MSD	D1231006.D	12/31/2013 14:29
SD-163-0-1	180-28384-1	D1231007.D	12/31/2013 14:56
SD-164-0-1	180-28384-2	D1231008.D	12/31/2013 15:22
SD-165-0-1	180-28384-3	D1231009.D	12/31/2013 15:49
SD-166-0-1	180-28384-4	D1231010.D	12/31/2013 16:15
SD-167-0-1	180-28384-5	D1231011.D	12/31/2013 16:41
SD-168-0-1	180-28384-6	D1231012.D	12/31/2013 17:08
SD-169-0-1	180-28384-7	D1231013.D	12/31/2013 17:34
SD-170-0-1	180-28384-8	D1231014.D	12/31/2013 18:00
SD-171-0-1	180-28384-9	D1231015.D	12/31/2013 18:26
SD-172-0-3	180-28384-10	D1231016.D	12/31/2013 18:53
SD-173-0-3	180-28384-11	D1231017.D	12/31/2013 19:19
SD-174-0-1	180-28384-12	D1231018.D	12/31/2013 19:46
SD-175-0-1	180-28384-13	D1231019.D	12/31/2013 20:12
SD-176-0-3	180-28384-14	D1231020.D	12/31/2013 20:38
SD-177-0-2	180-28384-15	D1231021.D	12/31/2013 21:04
SD-178-0-1	180-28384-16	D1231022.D	12/31/2013 21:31
SD-179-0-1	180-28384-17	D1231023.D	12/31/2013 21:57
SD-180-0-1	180-28384-18	D0102001.D	01/02/2014 19:05
SD-181-0-1	180-28384-19	D0102002.D	01/02/2014 19:32
SD-182-0-3	180-28384-20	D0102003.D	01/02/2014 19:58

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1

SDG No.:

Batch Number: 93179

Batch Start Date: 12/24/13 03:15 Batch Analyst: Geehring, Kevin

Batch Method: 3541

Batch End Date: 12/24/13 07:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	InitialAmount	OPLVISPXMIXli 00021	OPQL8270SURI 00012
MB 180-93179-1		3541, 8270D LL		0.5 mL	30.0 g		50 uL
LCS 180-93179/2		3541, 8270D LL		0.5 mL	30.0 g	50 uL	50 uL
180-28384-A-1 MS	SD-163-0-1	3541, 8270D LL	T	0.5 mL	30.0 g	50 uL	50 uL
180-28384-A-1 MSD	SD-163-0-1	3541, 8270D LL	T	0.5 mL	30.1 g	50 uL	50 uL
180-28384-A-1	SD-163-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-2	SD-164-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-3	SD-165-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-4	SD-166-0-1	3541, 8270D LL	T	1.0 mL	30.0 g		50 uL
180-28384-A-5	SD-167-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-6	SD-168-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-7	SD-169-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-8	SD-170-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-9	SD-171-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-10	SD-172-0-3	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-11	SD-173-0-3	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-12	SD-174-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-13	SD-175-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-14	SD-176-0-3	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-15	SD-177-0-2	3541, 8270D LL	T	0.5 mL	30.2 g		50 uL
180-28384-A-16	SD-178-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-17	SD-179-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8270D LL

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93179

Batch Start Date: 12/24/13 03:15

Batch Analyst: Geehring, Kevin

Batch Method: 3541

Batch End Date: 12/24/13 07:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	InitialAmount	OPLVISPXMIXII 00021	OFQL8270SURI 00012
180-28384-A-18	SD-180-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-19	SD-181-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL
180-28384-A-20	SD-182-0-3	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL

Batch Notes

Balance ID	1120122641
Batch Comment	sox # 1 - 2 - 3 - 4
Person's name who did the concentration	kg
Exchange Solvent Lot #	1053215
Exchange Solvent Name	Methylene chloride
Magnesium Sulfate Lot #	1055012
N-evap #	2
Na2SO4 Lot Number	1047333
Person's name who did the prep	kg jm
Solvent	Mec12 / Acetone
Solvent Lot #	769170
Uncorrected N-evap Temperature	32 Degrees C

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8270D LL

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 180-93179/1-A
 Matrix: Sediment Lab File ID: D1231003.D
 Analysis Method: 8270D LL Date Collected: _____
 Extract. Method: 3541 Date Extracted: 12/24/2013 03:15
 Sample wt/vol: 30.0(g) Date Analyzed: 12/31/2013 10:59
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 1
 Injection Volume: 2(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 93613 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
120-12-7	Anthracene	ND		3.4	0.33
56-55-3	Benzo[a]anthracene	ND		3.4	0.42
205-99-2	Benzo[b]fluoranthene	ND		3.4	0.52
207-08-9	Benzo[k]fluoranthene	ND		3.4	0.67
191-24-2	Benzo[g,h,i]perylene	ND		3.4	0.33
50-32-8	Benzo[a]pyrene	ND		3.4	0.33
218-01-9	Chrysene	ND		3.4	0.40
53-70-3	Dibenz(a,h)anthracene	ND		3.4	0.37
206-44-0	Fluoranthene	ND		3.4	0.36
86-73-7	Fluorene	ND		3.4	0.44
193-39-5	Indeno[1,2,3-cd]pyrene	ND		3.4	0.34
85-01-8	Phenanthrene	ND		3.4	0.53
129-00-0	Pyrene	ND		3.4	0.34
83-32-9	Acenaphthene	ND		3.4	0.32
208-96-8	Acenaphthylene	ND		3.4	0.38
91-20-3	Naphthalene	ND		3.4	0.29
91-57-6	2-Methylnaphthalene	ND		3.4	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5 (Surr)	75		27-110
321-60-8	2-Fluorobiphenyl	68		28-108
1718-51-0	Terphenyl-d14 (Surr)	74		21-130

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Matrix: Sediment Level: Low Lab File ID: D1231004.D
 Lab ID: LCS 180-93179/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Anthracene	333	221	66	43-111	
Benzo[a]anthracene	333	235	70	45-110	
Benzo[b]fluoranthene	333	233	70	37-108	
Benzo[k]fluoranthene	333	227	68	39-115	
Benzo[g,h,i]perylene	333	249	75	35-127	
Benzo[a]pyrene	333	247	74	42-114	
Chrysene	333	239	72	44-108	
Dibenz(a,h)anthracene	333	249	75	34-131	
Fluoranthene	333	228	69	40-118	
Fluorene	333	221	66	43-110	
Indeno[1,2,3-cd]pyrene	333	241	72	34-130	
Phenanthrene	333	216	65	41-107	
Pyrene	333	235	71	39-113	
Acenaphthene	333	216	65	42-104	
Acenaphthylene	333	226	68	43-117	
Naphthalene	333	200	60	42-104	
2-Methylnaphthalene	333	201	60	43-105	

Column to be used to flag recovery and RPD values

FORM III 8270D LL

FORM III
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

Lab File ID: S0101003.D

Lab ID: 180-28384-23 MS

Client ID: SD-185-0-1 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Anthracene	445	230	818	131	43-111	F1
Benzo[a]anthracene	445	1300	1400	21	45-110	F1
Benzo[b]fluoranthene	445	1500	1510	-0.4	37-108	F1
Benzo[k]fluoranthene	445	570	939	82	39-115	
Benzo[g,h,i]perylene	445	1100	1400	59	35-127	
Benzo[a]pyrene	445	1200	1360	29	42-114	F1
Chrysene	445	1600	1810	47	44-108	
Dibenz(a,h)anthracene	445	270	706	98	34-131	
Fluoranthene	445	3600	3350	-58	40-118	4
Fluorene	445	87 J	671	131	43-110	F1
Indeno[1,2,3-cd]pyrene	445	1000	1190	40	34-130	
Phenanthrene	445	1100	1860	181	41-107	F1
Pyrene	445	1900	2000	24	39-113	4
Acenaphthene	445	53 J	582	119	42-104	F1
Acenaphthylene	445	94 J	536	99	43-117	
Naphthalene	445	43 J	464	94	42-104	
2-Methylnaphthalene	445	21 J	517	111	43-105	F1

Column to be used to flag recovery and RPD values

FORM III 8270D LL

FORM III
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

Lab File ID: S0101004.D

Lab ID: 180-28384-23 MSD

Client ID: SD-185-0-1 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD %		QC LIMITS		#
			REC	RPD	RPD	REC	
Anthracene	447	497	59	49	35	43-111	F2
Benzo[a]anthracene	447	916	-89	42	31	45-110	F1 F2
Benzo[b]fluoranthene	447	1070	-98	34	28	37-108	F1 F2
Benzo[k]fluoranthene	447	689	26	31	42	39-115	F1
Benzo[g,h,i]perylene	447	1050	-20	29	21	35-127	F1 F2
Benzo[a]pyrene	447	903	-74	40	31	42-114	F1 F2
Chrysene	447	1130	-105	46	31	44-108	F1 F2
Dibenz(a,h)anthracene	447	563	65	23	32	34-131	
Fluoranthene	447	1960	-369	52	23	40-118	4 F2
Fluorene	447	474	87	34	37	43-110	
Indeno[1,2,3-cd]pyrene	447	923	-20	25	30	34-130	F1
Phenanthrene	447	848	-46	75	20	41-107	F1 F2
Pyrene	447	1130	-170	56	28	39-113	4 F2
Acenaphthene	447	403	78	36	34	42-104	F2
Acenaphthylene	447	431	75	22	36	43-117	
Naphthalene	447	371	73	22	25	42-104	
2-Methylnaphthalene	447	412	87	23	34	43-105	

Column to be used to flag recovery and RPD values

FORM III 8270D LL

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab File ID: S0101001.D Lab Sample ID: MB 180-93531/1-A
 Matrix: Sediment Date Extracted: 12/31/2013 03:40
 Instrument ID: 71 Date Analyzed: 01/01/2014 05:41
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 180-93531/2-A	S0101002.D	01/01/2014 06:35
SD-185-0-1 MS	180-28384-23 MS	S0101003.D	01/01/2014 08:22
SD-185-0-1 MSD	180-28384-23 MSD	S0101004.D	01/01/2014 08:48
SD-183-0-1	180-28384-21	S0101005.D	01/01/2014 09:15
SD-184-0-2	180-28384-22	S0101006.D	01/01/2014 09:42
SD-185-0-1	180-28384-23	S0101007.D	01/01/2014 10:08
SD-186-0-1	180-28384-24	S0101008.D	01/01/2014 10:35
SD-187-0-1	180-28384-25	S0101009.D	01/01/2014 11:01
SD-188-0-1	180-28384-26	S0101010.D	01/01/2014 11:28
SD-189-0-1	180-28384-27	S0101011.D	01/01/2014 11:55
SD-190-0-1	180-28384-28	S0101012.D	01/01/2014 12:22
SD-191-0-1	180-28384-29	S0101013.D	01/01/2014 12:48
SD-192-0-1	180-28384-30	S0101014.D	01/01/2014 13:15
SD-193-0-1	180-28384-31	S0101015.D	01/01/2014 13:42
SD-194-0-1	180-28384-32	S0101016.D	01/01/2014 14:09
SD-190-0-1 DL	180-28384-28 DL	S0104012.D	01/04/2014 13:38
SD-191-0-1 DL	180-28384-29 DL	F0108001.D	01/08/2014 02:23

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Batch Start Date: 12/31/13 03:40 Batch Analyst: Geehring, Kevin
 SDG No.: Batch Number: 93531 Batch End Date: 12/31/13 07:38
 Batch Method: 3541

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	InitialAmount	OPLVISPKMIXli 00021	OPQL8270SURI 00012
MB 180-93531/1		3541, 8270D LL		0.5 mL	30.0 g		50 uL
LCS 180-93531/2		3541, 8270D LL		0.5 mL	30.0 g	50 uL	50 uL
180-28384-A-23 MS	SD-185-0-1	3541, 8270D LL	T	1.0 mL	30.1 g	50 uL	50 uL
180-28384-A-23 MSD	SD-185-0-1	3541, 8270D LL	T	1.0 mL	30.0 g	50 uL	50 uL
180-28384-A-21	SD-183-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-22	SD-184-0-2	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-23	SD-185-0-1	3541, 8270D LL	T	1.0 mL	30.0 g		50 uL
180-28384-A-24	SD-186-0-1	3541, 8270D LL	T	2.0 mL	30.0 g		50 uL
180-28384-A-25	SD-187-0-1	3541, 8270D LL	T	3.0 mL	30.1 g		50 uL
180-28384-A-26	SD-188-0-1	3541, 8270D LL	T	2.0 mL	30.0 g		50 uL
180-28384-A-27	SD-189-0-1	3541, 8270D LL	T	2.0 mL	30.0 g		50 uL
180-28384-A-28	SD-190-0-1	3541, 8270D LL	T	2.0 mL	30.0 g		50 uL
180-28384-A-29	SD-191-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-30	SD-192-0-1	3541, 8270D LL	T	0.5 mL	30.2 g		50 uL
180-28384-A-31	SD-193-0-1	3541, 8270D LL	T	0.5 mL	30.1 g		50 uL
180-28384-A-32	SD-194-0-1	3541, 8270D LL	T	0.5 mL	30.0 g		50 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8270D LL

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 180-93531/1-A
 Matrix: Sediment Lab File ID: S0101001.D
 Analysis Method: 8270D LL Date Collected: _____
 Extract. Method: 3541 Date Extracted: 12/31/2013 03:40
 Sample wt/vol: 30.0(g) Date Analyzed: 01/01/2014 05:41
 Con. Extract Vol.: 0.5(mL) Dilution Factor: 1
 Injection Volume: 2(uL) Level: (low/med) Low
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 93752 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
120-12-7	Anthracene	ND		3.4	0.33
56-55-3	Benzo[a]anthracene	ND		3.4	0.42
205-99-2	Benzo[b]fluoranthene	ND		3.4	0.52
207-08-9	Benzo[k]fluoranthene	ND		3.4	0.67
191-24-2	Benzo[g,h,i]perylene	ND		3.4	0.33
50-32-8	Benzo[a]pyrene	ND		3.4	0.33
218-01-9	Chrysene	ND		3.4	0.40
53-70-3	Dibenz(a,h)anthracene	ND		3.4	0.37
206-44-0	Fluoranthene	ND		3.4	0.36
86-73-7	Fluorene	ND		3.4	0.44
193-39-5	Indeno[1,2,3-cd]pyrene	ND		3.4	0.34
85-01-8	Phenanthrene	ND		3.4	0.53
129-00-0	Pyrene	ND		3.4	0.34
83-32-9	Acenaphthene	ND		3.4	0.32
208-96-8	Acenaphthylene	ND		3.4	0.38
91-20-3	Naphthalene	ND		3.4	0.29
91-57-6	2-Methylnaphthalene	ND		3.4	0.30

CAS NO.	SURROGATE	%REC	Q	LIMITS
4165-60-0	Nitrobenzene-d5 (Surr)	57		27-110
321-60-8	2-Fluorobiphenyl	59		28-108
1718-51-0	Terphenyl-d14 (Surr)	55		21-130

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Matrix: Sediment Level: Low Lab File ID: S0101002.D
 Lab ID: LCS 180-93531/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Anthracene	333	232	70	43-111	
Benzo[a]anthracene	333	239	72	45-110	
Benzo[b]fluoranthene	333	217	65	37-108	
Benzo[k]fluoranthene	333	221	66	39-115	
Benzo[g,h,i]perylene	333	250	75	35-127	
Benzo[a]pyrene	333	234	70	42-114	
Chrysene	333	250	75	44-108	
Dibenz(a,h)anthracene	333	250	75	34-131	
Fluoranthene	333	271	81	40-118	
Fluorene	333	230	69	43-110	
Indeno[1,2,3-cd]pyrene	333	245	74	34-130	
Phenanthrene	333	219	66	41-107	
Pyrene	333	189	57	39-113	
Acenaphthene	333	208	62	42-104	
Acenaphthylene	333	218	65	43-117	
Naphthalene	333	209	63	42-104	
2-Methylnaphthalene	333	225	68	43-105	

Column to be used to flag recovery and RPD values

FORM III
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

Lab File ID: D1231005.D

Lab ID: 180-28384-1 MS

Client ID: SD-163-0-1 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Anthracene	434	97 J	1120	235	43-111	F1
Benzo[a]anthracene	434	530	2490	452	45-110	F1
Benzo[b]fluoranthene	434	700	2160	338	37-108	F1
Benzo[k]fluoranthene	434	260	1050	182	39-115	F1
Benzo[g,h,i]perylene	434	480	1930	335	35-127	F1
Benzo[a]pyrene	434	500	2110	370	42-114	F1
Chrysene	434	710	2850	494	44-108	F1
Dibenz(a,h)anthracene	434	110 J	617	118	34-131	
Fluoranthene	434	1400	5070	847	40-118	F1
Fluorene	434	52 J	894	194	43-110	F1
Indeno[1,2,3-cd]pyrene	434	390	1430	240	34-130	F1
Phenanthrene	434	990	6190	1197	41-107	F1
Pyrene	434	1100	6650	1268	39-113	F1
Acenaphthene	434	64 J	592	122	42-104	F1
Acenaphthylene	434	69 J	734	153	43-117	F1
Naphthalene	434	ND	468	108	42-104	F1
2-Methylnaphthalene	434	ND	592	136	43-105	F1

Column to be used to flag recovery and RPD values

FORM III 8270D LL

FORM III
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

Lab File ID: D1231006.D

Lab ID: 180-28384-1 MSD

Client ID: SD-163-0-1 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Anthracene	433	1080	227	4	35	43-111	F1
Benzo[a]anthracene	433	2290	407	8	31	45-110	F1
Benzo[b]fluoranthene	433	2190	345	1	28	37-108	F1
Benzo[k]fluoranthene	433	805	126	26	42	39-115	F1
Benzo[g,h,i]perylene	433	1920	332	1	21	35-127	F1
Benzo[a]pyrene	433	2020	351	4	31	42-114	F1
Chrysene	433	2660	451	7	31	44-108	F1
Dibenz(a,h)anthracene	433	589	112	5	32	34-131	
Fluoranthene	433	4860	801	4	23	40-118	F1
Fluorene	433	894	194	0	37	43-110	F1
Indeno[1,2,3-cd]pyrene	433	1500	255	4	30	34-130	F1
Phenanthrene	433	5820	1117	6	20	41-107	F1
Pyrene	433	5910	1102	12	28	39-113	F1
Acenaphthene	433	593	122	0	34	42-104	F1
Acenaphthylene	433	744	156	1	36	43-117	F1
Naphthalene	433	431	99	8	25	42-104	
2-Methylnaphthalene	433	563	130	5	34	43-105	F1

Column to be used to flag recovery and RPD values

FORM III 8270D LL

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab File ID: F1225DF1.D

DFTPP Injection Date: 12/25/2013

Instrument ID: 722

DFTPP Injection Time: 19:08

Analysis Batch No.: 93544

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	32.7
68	Less than 2.0 % of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.8
70	Less than 2.0 % of mass 69	0.0 (0.0)1
127	40.0 - 60.0 % of mass 198	58.4
197	Less than 1.0 % of mass 198	0.2
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	6.8
275	10.0 - 30.0 % of mass 198	26.3
365	Greater than 1.0 % of mass 198	2.9
441	Present but less than mass 443	11.6 (77.0)3
442	Greater than 40.0 % of mass 198	76.2
443	17.0 - 23.0 % of mass 442	15.1 (19.8)2

1-Value is % mass 69

2-Value is % mass 442

3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	ICIS 180-93544/1	F12250C1.D	12/25/2013	19:23
	IC 180-93544/2	F12250C4.D	12/25/2013	20:50
	IC 180-93544/3	F12250C5.D	12/25/2013	21:18
	IC 180-93544/4	F12250C6.D	12/25/2013	21:46
	IC 180-93544/5	F12250C7.D	12/25/2013	22:15
	IC 180-93544/6	F12250C8.D	12/25/2013	22:43
	IC 180-93544/7	F12250C9.D	12/25/2013	23:11
	IC 180-93544/10	F1225C10.D	12/25/2013	23:41

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh

Analy Batch No.: 93544

SDG No.:

Instrument ID: 722

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 12/25/2013 19:23

Calibration End Date: 12/25/2013 23:41

Calibration ID: 13164

ANALYTE	RRF				CURVE TYPE	COEFFICIENT			#	MIN RRF	RSD #	MAX RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2							
2-Methylphenol	LVL 6	LVL 7	LVL 8	LVL 5	Ave										
	1.0452	1.0220	1.0631	1.1428	1.0977		1.0744			0.7000	3.6	20.0			
Indene	1.1042	1.0749	1.0454	2.2382	2.1715		2.2129			0.0100	5.3	20.0			
	2.4690	2.2248	2.2203	0.8076	0.7755		0.7732			0.0100	7.1	20.0			
2,2'-oxybis[1-chloropropane]	2.1836	2.1259	2.0702	0.5898	0.5678		0.5709			0.0100	5.5	20.0			
	0.8815	0.7561	0.7799	1.8075	1.7310		1.7146			0.0100	3.9	20.0			
N-Nitrosopyrrolidine	0.7605	0.7252	0.6994	0.7603	0.7309		0.7069			0.5000	5.4	20.0			
Acetophenone	0.5880	0.5029	0.5509	1.2110	1.1424		1.1285			0.6000	5.3	20.0			
	0.5989	0.5871	0.5817	0.5645	0.5609		0.5515			0.3000	2.4	20.0			
	++++	1.7081	1.7674	0.2654	0.2748		0.2645			0.2000	2.8	20.0			
N-Nitrosodi-n-propylamine	1.7229	1.6589	1.6062	0.4916	0.4925		0.4713			0.4000	5.2	20.0			
	0.7291	0.6664	0.7289	0.1653	0.1771		0.1868			0.1000		20.0	0.9999		0.9900
Methylphenol, 3 & 4	0.7126	0.6775	0.6493	0.1839	0.1839		0.1839			0.2000	7.9	20.0			
Hexachloroethane	1.1865	1.0292	1.0817	0.2924	0.3062		0.2879			0.0100		20.0	0.9972		0.9900
	1.1634	1.1208	1.0928	0.3045	0.2947		0.2120			0.0100		20.0			
Hexachlorobenzene	0.5310	0.5303	0.5548	0.1336	0.1479		1.1268			0.3000	4.2	20.0			
	0.5605	0.5585	0.5514	0.3294	0.3417		0.3309			0.2000	10.9	20.0			
Nitrobenzene	0.2647	0.2605	0.2532	0.2624	0.2804		0.2542			0.0100	5.0	20.0			
Isophorone	0.4584	0.4187	0.4671	0.3201	0.3329		0.3287			0.7000	6.3	20.0			
	0.4865	0.4830	0.4723	0.4431	0.4572		0.4320			0.0100	4.6	20.0			
2-Nitrophenol	++++	0.1198	0.1369	0.2716	0.2828		0.2691			0.0100	3.0	20.0			
	0.1808	0.1854	0.1839	0.1719	0.1747		0.1741			0.0100	9.4	20.0			
2,4-Dimethylphenol	0.2490	0.2551	0.2924	0.1642	0.1642										
	0.3045	0.3045	0.2947	0.1668	0.1624										
Benzoic acid	++++	++++	0.0703	0.1774	0.1943										
	0.1774	0.1943	0.2038	0.3462	0.3225										
Bis(2-chloroethoxy)methane	0.3250	0.3214	0.3103	0.3250	0.3214										
	0.2080	0.2213	0.2400	0.2624	0.2804										
2,4-Dichlorophenol	0.2738	0.2757	0.2722	0.2738	0.2757										
	0.3659	0.3309	0.3229	0.3201	0.3329										
1,2,4-Trichlorobenzene	0.3238	0.3211	0.3124	0.3201	0.3329										
	1.2131	1.0532	1.0758	1.0412	1.0649										
Naphthalene	1.0211	1.0259	0.9901	0.4370	0.3949										
	0.4439	0.4406	0.4261	0.4431	0.4572										
4-Chloroaniline	0.2664	0.2539	0.2704	0.2716	0.2828										
2,6-Dichlorophenol	0.2715	0.2703	0.2655	0.2716	0.2828										
	0.2128	0.1750	0.1747	0.1642	0.1719										
Hexachlorobutadiene	0.1648	0.1668	0.1624	0.1642	0.1719										

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93544
 Instrument ID: 722 GC Column: Rxi-5SilMS ID: 0.32(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 12/25/2013 19:23 Calibration End Date: 12/25/2013 23:41 Calibration ID: 13164

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
Caprolactam	++++ 0.1123	++++ 0.1133	0.0854 0.1124	0.1016	0.1086	Ave		0.1056			0.0100	10.2		20.0			
4-Chloro-3-methylphenol	++++ 0.3003	0.2160 0.2912	0.2541 0.2917	0.2842	0.2960	Ave		0.2762			0.2000	11.1		20.0			
2-Methylnaphthalene	0.7970 0.7685	0.7400 0.7654	0.7538 0.7451	0.7636	0.7841	Ave		0.7647			0.4000	2.5		20.0			
1-Methylnaphthalene	0.7959 0.7135	0.6914 0.7089	0.7270 0.6862	0.7106	0.7371	Ave		0.7213			0.0100	4.8		20.0			
Hexachlorocyclopentadiene	++++ 0.3096	0.2032 0.3196	0.2440 0.3221	0.2715	0.2933	Qua	0.1233	3.2272	-0.052		0.0500			20.0	0.9999		0.9900
1,2,4,5-Tetrachlorobenzene	0.5990 0.4977	0.5301 0.4996	0.5227 0.4883	0.5051	0.5095	Ave		0.5190			0.0100	6.8		20.0			
2,4,6-Trichlorophenol	0.2198 0.3219	0.2380 0.3279	0.2742 0.3253	0.3055	0.3226	Ave		0.2919			0.2000	14.7		20.0			
2,4,5-Trichlorophenol	++++ 0.3524	0.2736 0.3497	0.3047 0.3481	0.3288	0.3364	Ave		0.3277			0.2000	8.8		20.0			
1,1'-Biphenyl	1.6600 1.4526	1.5363 1.4362	1.5243 1.4124	1.4592	1.5068	Ave		1.4985			0.0100	5.2		20.0			
2-Chloronaphthalene	1.3846 1.2034	1.2340 1.1264	1.2211 1.0800	1.1463	1.1958	Ave		1.1989			0.8000	7.6		20.0			
2-Nitroaniline	0.1962 0.2509	0.1830 0.2486	0.2210 0.2485	0.2470	0.2515	Ave		0.2308			0.0100	11.9		20.0			
Dimethyl phthalate	1.3310 1.2659	1.2270 1.2410	1.2640 1.2348	1.2418	1.2644	Ave		1.2587			0.0100	2.6		20.0			
1,3-Dinitrobenzene	0.0824 0.2261	0.1276 0.2310	0.1589 0.2367	0.1929	0.2053	Qua	0.1146	4.5643	-0.168		0.0100			20.0	0.9998		0.9900
2,6-Dinitrotoluene	0.2111 0.3116	0.2373 0.3116	0.2731 0.3052	0.2921	0.3059	Ave		0.2810			0.2000	13.5		20.0			
Acenaphthylene	1.8344 1.8948	1.6651 1.8766	1.8128 1.8646	1.8634	1.8998	Ave		1.8389			0.9000	4.1		20.0			
3-Nitroaniline	0.2477 0.3546	0.2487 0.3529	0.2843 0.3511	0.3305	0.3444	Ave		0.3143			0.0100	14.9		20.0			
Acenaphthene	1.3498 1.1769	1.2123 1.1592	1.2133 1.1310	1.1896	1.2003	Ave		1.2041			0.9000	5.4		20.0			
2,4-Dinitrophenol	++++ 0.1686	++++ 0.1887	0.0567 0.1998	0.1142	0.1367	Lin	1.3182	0.2092			0.0100			20.0	0.9959		0.9900
4-Nitrophenol	++++ 0.1586	++++ 0.1571	0.1203 0.1566	0.1395	0.1563	Ave		0.1481			0.0100	10.4		20.0			
2,4-Dinitrotoluene	0.2019 0.4204	0.2767 0.4194	0.3390 0.4163	0.3946	0.4099	Lin	0.0628	0.4210			0.2000			20.0	0.9999		0.9900

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93544

SDG No.: _____

Instrument ID: 722 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/25/2013 19:23 Calibration End Date: 12/25/2013 23:41 Calibration ID: 13164

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD #	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2							
Dibenzofuran	1.9249	1.6433	1.7132	1.6366	1.6802	Ave		1.6808			0.8000	6.3	20.0			
2,3,5,6-Tetrachlorophenol	1.6462	1.6123	1.5893													
	++++	0.1907	0.2225	0.2684	0.2886	Qua	0.1288	3.2891	-0.055		0.0100		20.0	1.0000		0.9900
2,3,4,6-Tetrachlorophenol	0.3054	0.3113	0.3168													
	++++	0.2271	0.2676	0.2946	0.2981	Ave		0.2907			0.0100	11.4	20.0			
2-Naphthylamine	0.3134	0.3149	0.3190													
	++++	0.5312	0.5619	0.6180	0.6490	Ave		0.5712			0.0100	8.5	20.0			
Diethyl phthalate	0.5819	0.5387	0.5174													
	1.3273	1.2642	1.3560	1.3423	1.3649	Ave		1.3206			0.0100	2.7	20.0			
Hexadecane	1.3276	1.3049	1.2775													
	0.2966	0.3357	0.3919	0.3923	0.3981	Ave		0.3569								
4-Chlorophenyl phenyl ether	0.3688	0.3489	0.3231													
	0.7568	0.6306	0.6383	0.6401	0.6545	Ave		0.6573			0.4000	6.2	20.0			
	0.6447	0.6527	0.6410													
4-Nitroaniline	0.2359	0.2874	0.3342	0.3626	0.3737	Ave		0.3364			0.0100	14.8	20.0			
	0.3720	0.3653	0.3597													
Fluorene	1.5554	1.3755	1.4200	1.3702	1.4069	Ave		1.4010			0.9000	4.8	20.0			
	1.3812	1.3592	1.3395													
4,6-Dinitro-2-methylphenol	++++	0.0431	0.0645	0.1053	0.1167	Lin	0.6766	0.1435			0.0100		20.0	0.9985		0.9900
	0.1293	0.1343	0.1415													
N-Nitrosodiphenylamine	0.5373	0.4963	0.5186	0.5396	0.5359	Ave		0.5280			0.0100	2.7	20.0			
	0.5294	0.5309	0.5356													
1,2-Diphenylhydrazine (as Azobenzene)	0.5973	0.5613	0.5990	0.6122	0.5893	Ave		0.5854			0.0100	2.9	20.0			
	0.5778	0.5754	0.5706													
4-Bromophenyl phenyl ether	0.2017	0.1803	0.1871	0.1948	0.1983	Ave		0.1968			0.1000	4.8	20.0			
	0.1981	0.2041	0.2103													
Hexachlorobenzene	0.2426	0.2074	0.2111	0.2066	0.2156	Ave		0.2193			0.1000	5.8	20.0			
	0.2149	0.2248	0.2311													
Atrazine	0.1714	0.1216	0.1337	0.1491	0.1519	Ave		0.1429			0.0100	10.7	20.0			
	0.1464	0.1361	0.1331													
Pentachlorophenol	0.0892	0.0972	0.0781	0.1166	0.1209	Qua	0.2291	7.7808	-0.426		0.0500		20.0	0.9996		0.9900
	0.1369	0.1446	0.1519													
n-Octadecane	++++	1.4494	1.7451	1.9845	1.9204	Ave		1.8007				10.2				
	1.9452	1.8403	1.7200													
Phenanthrene	1.3255	1.1184	1.1215	1.1017	1.1163	Ave		1.1413			0.7000	6.6	20.0			
	1.1171	1.1052	1.1244													
Anthracene	1.1194	1.0264	1.0910	1.1094	1.1368	Ave		1.1116			0.7000	3.5	20.0			
	1.1293	1.1258	1.1548													
Carbazole	0.9703	0.9224	1.0151	1.0554	1.0725	Ave		1.0318			0.0100	5.7	20.0			
	1.0723	1.0576	1.0891													

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93544

SDG No.: _____

Instrument ID: 722 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/25/2013 19:23 Calibration End Date: 12/25/2013 23:41 Calibration ID: 13164

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
Di-n-butyl phthalate	0.9509 1.2954	0.9072 1.3052	1.0721 1.3151	1.2532	1.2716	Ave		1.1713			0.0100	14.4		20.0			
Fluoranthene	1.0646 1.2138	0.9807 1.2018	1.0580 1.2367	1.1524	1.1872	Ave		1.1369			0.6000	8.1		20.0			
Benzidine	++++ 0.2350	++++ 0.2361	0.1016 0.2444	0.1867	0.1977	Lin	0.3805	0.2521			0.0100			20.0	0.9993		0.9900
Pyrene	1.1439 1.1876	1.0315 1.1777	1.1050 1.1804	1.1486	1.1962	Ave		1.1464			0.6000	4.8		20.0			
Butyl benzyl phthalate	0.3679 0.5522	0.3404 0.5609	0.4031 0.5669	0.5049	0.5313	Lin	0.1190	0.5710			0.0100			20.0	0.9998		0.9900
3,3'-Dichlorobenzidine	0.1711 0.3709	0.1931 0.3782	0.2356 0.3978	0.3237	0.3457	Lin	0.2016	0.3975			0.0100			20.0	0.9986		0.9900
Benzo[a]anthracene	1.0220 1.1068	0.9359 1.1080	0.9860 1.0998	1.0699	1.1109	Ave		1.0549			0.8000	6.3		20.0			
Bis(2-ethylhexyl) phthalate	0.4156 0.7419	0.4167 0.7460	0.5453 0.7416	0.6865	0.7182	Lin	0.0911	0.7512			0.0100			20.0	0.9999		0.9900
Chrysene	1.1007 1.0033	0.9967 0.9844	1.0314 0.9812	0.9839	1.0106	Ave		1.0115			0.7000	3.9		20.0			
Di-n-octyl phthalate	1.1844 1.4598	0.7676 1.5043	0.8476 1.5408	1.2141	1.3246	Qua	0.1340	0.7046	-0.004		0.0100			20.0	0.9996		0.9900
Benzo[b]fluoranthene	1.1887 1.3348	1.1440 1.3326	1.1984 1.3313	1.2652	1.3103	Ave		1.2632			0.7000	6.0		20.0			
7,12-Dimethylbenz[a]anthracene	++++ 0.6388	0.4524 0.6547	0.5036 0.6588	0.5667	0.6153	Ave		0.5843			0.0100	13.7		20.0			
Benzo[k]fluoranthene	1.1925 1.2686	1.1158 1.2801	1.1682 1.2547	1.2119	1.2830	Ave		1.2219			0.7000	4.9		20.0			
Benzo[a]pyrene	0.8966 1.2031	0.9158 1.2167	0.9945 1.2167	1.0670	1.1694	Ave		1.0864			0.7000	12.6		20.0			
Indeno[1,2,3-cd]pyrene	1.1406 1.4054	1.1128 1.4568	1.1715 1.4677	1.2939	1.3727	Ave		1.3027			0.5000	11.1		20.0			
Dibenz(a,h)anthracene	0.9296 1.1784	0.9619 1.2171	1.0043 1.2120	1.0817	1.1678	Ave		1.0941			0.4000	10.6		20.0			
Benzo[g,h,i]perylene	1.0422 1.1836	0.9751 1.2097	1.0223 1.2076	1.0815	1.1682	Ave		1.1113			0.5000	8.3		20.0			
2-Fluorophenol (Surr)	0.8920 1.0204	0.8906 1.0155	0.8948 1.0096	0.9973	0.9742	Ave		0.9618				6.1		20.0			
Phenol-d5 (Surr)	1.3327 1.3545	1.1668 1.3438	1.2145 1.3319	1.3219	1.3181	Ave		1.2980				5.3		20.0			
Nitrobenzene-d5 (Surr)	0.2581 0.2757	0.2381 0.2762	0.2613 0.2675	0.2756	0.2791	Ave		0.2665				5.2		20.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93544
 Instrument ID: 722 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 12/25/2013 19:23 Calibration End Date: 12/25/2013 23:41 Calibration ID: 13164

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD		
	LVL 1		LVL 2		LVL 3		LVL 4	LVL 5	B								M1	M2
	LVL 6	LVL 7	LVL 8															
2-Fluorobiphenyl	1.4771	1.3029	1.3367	1.2675	1.2808	Ave		1.3001				6.1	20.0					
	1.2649	1.2497	1.2209															
2,4,6-Tribromophenol (Surr)	0.0380	0.0508	0.0673	0.0784	0.0825	Qua	0.0989	11.634	-1.427	0.0100			20.0	0.9998		0.9900		
	0.0888	0.0940	0.0961															
Terphenyl-d14 (Surr)	0.8401	0.7591	0.7927	0.8322	0.8673	Ave		0.8373				5.0	20.0					
	0.8660	0.8701	0.8714															

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Lab File ID: F0108DF1.D DFTPP Injection Date: 01/08/2014
Instrument ID: 722 DFTPP Injection Time: 01:09
Analysis Batch No.: 93945

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	38.7
68	Less than 2.0 % of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.7
70	Less than 2.0 % of mass 69	0.0 (0.0)1
127	40.0 - 60.0 % of mass 198	55.3
197	Less than 1.0 % of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	6.5
275	10.0 - 30.0 % of mass 198	25.8
365	Greater than 1.0 % of mass 198	3.1
441	Present but less than mass 443	12.9 (79.2)3
442	Greater than 40.0 % of mass 198	88.2
443	17.0 - 23.0 % of mass 442	16.2 (18.4)2

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 180-93945/2	F01080C1.D	01/08/2014	01:27
SD-191-0-1 DL	180-28384-29 DL	F0108001.D	01/08/2014	02:23

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Lab Sample ID: CCVIS 180-93945/2

Calibration Date: 01/08/2014 01:27

Instrument ID: 722

Calib Start Date: 12/25/2013 19:23

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 12/25/2013 23:41

Lab File ID: F01080C1.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Naphthalene	Ave	1.061	1.063	0.7000	5.01	5.00	0.3	20.0
2-Methylnaphthalene	Ave	0.7647	0.7471	0.4000	4.89	5.00	-2.3	20.0
1-Methylnaphthalene	Ave	0.7213	0.7090	0.0100	4.91	5.00	-1.7	20.0
Acenaphthylene	Ave	1.839	1.934	0.9000	5.26	5.00	5.2	20.0
Acenaphthene	Ave	1.204	1.243	0.9000	5.16	5.00	3.3	20.0
Dibenzofuran	Ave	1.681	1.703	0.8000	5.07	5.00	1.3	20.0
Fluorene	Ave	1.401	1.398	0.9000	4.99	5.00	-0.2	20.0
Phenanthrene	Ave	1.141	1.165	0.7000	5.11	5.00	2.1	20.0
Anthracene	Ave	1.112	1.193	0.7000	5.37	5.00	7.3	20.0
Carbazole	Ave	1.032	1.102	0.0100	5.34	5.00	6.8	20.0
Fluoranthene	Ave	1.137	1.175	0.6000	5.17	5.00	3.3	20.0
Pyrene	Ave	1.146	1.125	0.6000	4.91	5.00	-1.9	20.0
Benzo[a]anthracene	Ave	1.055	1.047	0.8000	4.96	5.00	-0.8	20.0
Chrysene	Ave	1.012	0.9857	0.7000	4.87	5.00	-2.6	20.0
Benzo[b]fluoranthene	Ave	1.263	1.226	0.7000	4.85	5.00	-3.0	20.0
Benzo[k]fluoranthene	Ave	1.222	1.261	0.7000	5.16	5.00	3.2	20.0
Benzo[a]pyrene	Ave	1.086	1.080	0.7000	4.97	5.00	-0.6	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.303	1.309	0.5000	5.02	5.00	0.5	20.0
Dibenz(a,h)anthracene	Ave	1.094	1.114	0.4000	5.09	5.00	1.8	20.0
Benzo[g,h,i]perylene	Ave	1.111	1.120	0.5000	5.04	5.00	0.8	20.0
2-Fluorophenol (Surr)	Ave	0.9618	1.159		6.03	5.00	20.5*	20.0
Phenol-d5 (Surr)	Ave	1.298	1.527		5.88	5.00	17.6	20.0
Nitrobenzene-d5 (Surr)	Ave	0.2665	0.2998		5.62	5.00	12.5	20.0
2-Fluorobiphenyl	Ave	1.300	1.326		5.10	5.00	2.0	20.0
2,4,6-Tribromophenol (Surr)	Qua	0.0745	0.0831	0.0100	5.17	5.00	3.4	20.0
Terphenyl-d14 (Surr)	Ave	0.8373	0.8262		4.93	5.00	-1.3	20.0

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Lab File ID: D1211DF1.D DFTPP Injection Date: 12/11/2013
Instrument ID: 732 DFTPP Injection Time: 05:18
Analysis Batch No.: 92134

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	38.5
68	Less than 2.0 % of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.0
70	Less than 2.0 % of mass 69	0.0 (0.0)1
127	40.0 - 60.0 % of mass 198	42.6
197	Less than 1.0 % of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	7.0
275	10.0 - 30.0 % of mass 198	27.0
365	Greater than 1.0 % of mass 198	2.3
441	Present but less than mass 443	2.9 (25.9)3
442	Greater than 40.0 % of mass 198	58.1
443	17.0 - 23.0 % of mass 442	11.4 (19.6)2

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 180-92134/12	D1211IC1.D	12/11/2013	05:33
	IC 180-92134/2	D1211IC2.D	12/11/2013	05:59
	IC 180-92134/3	D1211IC3.D	12/11/2013	06:26
	ICIS 180-92134/4	D1211IC4.D	12/11/2013	06:52
	IC 180-92134/5	D1211IC5.D	12/11/2013	07:18
	IC 180-92134/6	D1211IC6.D	12/11/2013	07:45
	IC 180-92134/7	D1211IC7.D	12/11/2013	08:11
	IC 180-92134/8	D1211IC8.D	12/11/2013	08:37

FORM VI

GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

Analy Batch No.: 92134

SDG No.:

Instrument ID: 732

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 12/11/2013 05:33

Calibration End Date: 12/11/2013 08:37

Calibration ID: 12823

ANALYTE	RRF								CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1		LVL 2		LVL 3		LVL 4			B	M1	M2								
	LVL 6	LVL 7	LVL 7	LVL 8	LVL 4	LVL 5														
2-Methylphenol	0.9219	1.0613	1.1599	1.1805	1.2010	Ave	1.1324						0.7000	8.4		20.0				
Indene	1.1985	1.1667	1.1695																	
	2.0902	2.2738	2.2807	2.2763	2.3216	Ave	2.2535						0.0100	3.1		20.0				
	2.2810	2.2361	2.2681																	
2,2'-oxybis[1-chloropropane]	1.5649	1.6438	1.6760	1.6245	1.6020	Ave	1.5839						0.0100	4.2		20.0				
N-Nitrosopyrrolidine	1.5700	1.5081	1.4820																	
	++++	0.4404	0.5038	0.5412	0.5778	Ave	0.5434						0.0100	10.0		20.0				
	0.5822	0.5710	0.5873																	
Acetophenone	1.7204	1.7069	1.8264	1.7662	1.7963	Ave	1.7487						0.0100	2.9		20.0				
N-Nitrosodi-n-propylamine	1.7789	1.6883	1.7066																	
	0.6984	0.8663	0.8859	0.9072	0.8997	Ave	0.8499						0.5000	7.8		20.0				
	0.8643	0.8398	0.8379																	
Methylphenol, 3 & 4	1.0361	1.1798	1.2616	1.2460	1.2920	Ave	1.2230						0.6000	6.8		20.0				
Hexachloroethane	1.2816	1.2341	1.2525																	
	0.5566	0.5617	0.5643	0.5682	0.5823	Ave	0.5685						0.3000	1.4		20.0				
	0.5721	0.5725	0.5702																	
Nitrobenzene	0.2614	0.3165	0.3260	0.3198	0.3281	Ave	0.3169						0.2000	7.3		20.0				
Isophorone	0.3242	0.3255	0.3339																	
	0.4068	0.5113	0.5505	0.5615	0.5824	Ave	0.5497						0.4000	11.8		20.0				
	0.5901	0.5910	0.6037																	
2-Nitrophenol	++++	0.1451	0.1670	0.1777	0.1883	Ave	0.1821						0.1000	11.3		20.0				
2,4-Dimethylphenol	0.1943	0.1992	0.2028																	
	0.2407	0.2930	0.3235	0.3158	0.3241	Ave	0.3096						0.2000	9.7		20.0				
	0.3301	0.3253	0.3246																	
Benzoic acid	0.2074	0.1226	0.1244	0.1564	0.1818	Lin	0.4901						0.0100			20.0	0.9977	0.9900		
Bis(2-chloroethoxy)methane	0.2071	0.2108	0.2223																	
2,4-Dichlorophenol	0.3331	0.3691	0.3645	0.3603	0.3604	Ave	0.3598						0.3000	3.1		20.0				
	0.3644	0.3602	0.3663																	
	0.2347	0.2862	0.3045	0.3034	0.3147	Ave	0.3003						0.2000	9.7		20.0				
1,2,4-Trichlorobenzene	0.3155	0.3174	0.3260																	
Naphthalene	0.3479	0.3587	0.3710	0.3559	0.3598	Ave	0.3574						0.0100	2.1		20.0				
	0.3483	0.3562	0.3612																	
	1.0584	1.0406	1.0573	1.0323	1.0360	Ave	1.0482						0.7000	1.5		20.0				
4-Chloroaniline	1.0417	1.0403	1.0788																	
2,6-Dichlorophenol	0.3799	0.4021	0.4214	0.4295	0.4323	Ave	0.4229						0.0100	5.1		20.0				
	0.4403	0.4337	0.4440																	
	0.2552	0.2907	0.2963	0.3036	0.3060	Ave	0.2976						0.0100	6.2		20.0				
Hexachlorobutadiene	0.3092	0.3076	0.3126																	
	0.2202	0.2199	0.2299	0.2173	0.2209	Ave	0.2220						0.0100	1.7		20.0				
	0.2217	0.2220	0.2242																	

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI

GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

Analy Batch No.: 92134

SDG No.:

Instrument ID: 732

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 12/11/2013 05:33

Calibration End Date: 12/11/2013 08:37

Calibration ID: 12823

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRE	%RSD	#	R^2 OR COD	#	MIN R^2 OR COD
							B	M1	M2							
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5											
Caprolactam	0.0413	0.0624	0.0737	0.0857	0.0943	Lin	0.1694	0.1057		0.0100			20.0	0.9990		0.9900
4-Chloro-3-methylphenol	0.1005	0.1012	0.1058													
	0.2318	0.2587	0.2820	0.2896	0.2983	Ave	0.2842			0.2000	9.3		20.0			
	0.3038	0.3012	0.3079													
2-Methylnaphthalene	0.6962	0.7351	0.7511	0.7357	0.7410	Ave		0.7405		0.4000	2.7		20.0			
1-Methylnaphthalene	0.7531	0.7510	0.7610													
	0.6390	0.6819	0.7061	0.6835	0.6867	Ave	0.6875			0.0100	3.2		20.0			
	0.6973	0.6984	0.7069													
Hexachlorocyclopentadiene	0.3004	0.3318	0.3528	0.3868	0.4254	Ave	0.3846			0.0500	13.1		20.0			
1,2,4,5-Tetrachlorobenzene	0.4297	0.4239	0.4258													
	0.6497	0.6491	0.6414	0.6459	0.6524	Ave	0.6357			0.0100	2.9		20.0			
	0.6317	0.6073	0.6084													
2,4,6-Trichlorophenol	0.2436	0.3265	0.3508	0.3758	0.3842	Ave		0.3537		0.2000	13.9		20.0			
2,4,5-Trichlorophenol	0.3824	0.3819	0.3846													
	0.2767	0.3465	0.3963	0.3885	0.4156	Ave	0.3801			0.2000	12.4		20.0			
	0.4051	0.4008	0.4115													
1,1'-Biphenyl	1.4314	1.4528	1.4915	1.4358	1.5040	Ave	1.4485			0.0100	2.2		20.0			
	1.4267	1.4249	1.4211													
	1.0882	1.2539	1.2284	1.1933	1.1641	Ave	1.1754			0.8000	4.5		20.0			
2-Chloronaphthalene	1.1654	1.1848	1.1251													
2-Nitroaniline	++++	0.2111	0.2484	0.2854	0.3045	Ave	0.2810			0.0100	13.3		20.0			
	0.3057	0.3030	0.3089													
	1.1539	1.2509	1.2737	1.2388	1.3192	Ave	1.2585			0.0100	3.9		20.0			
Dimethyl phthalate	1.2811	1.2549	1.2954													
1,3-Dinitrobenzene	++++	0.1341	0.1666	0.1911	0.2158	Lin	0.1481	0.2247		0.0100			20.0	0.9997		0.9900
	0.2138	0.2182	0.2233													
	++++	0.2568	0.2631	0.2830	0.2933	Ave	0.2832			0.2000	5.9		20.0			
2,6-Dinitrotoluene	0.2959	0.2908	0.2999													
Acenaphthylene	1.4820	1.7266	1.7605	1.7726	1.8648	Ave	1.7599			0.9000	6.9		20.0			
	1.8301	1.8084	1.8341													
	++++	0.2548	0.2770	0.3080	0.3359	Ave	0.3089			0.0100	10.2		20.0			
3-Nitroaniline	0.3305	0.3219	0.3341													
2,4-Dinitrophenol	++++	0.1099	0.1127	0.1586	0.2016	Lin	0.7013	0.2463		0.0100			20.0	0.9982		0.9900
	0.2225	0.2294	0.2426													
	1.1791	1.1816	1.2161	1.1899	1.2041	Ave	1.1759			0.9000	2.4		20.0			
Acenaphthene	1.1608	1.1416	1.1341													
4-Nitrophenol	++++	0.1282	0.1347	0.1487	0.1578	Ave	0.1479			0.0100	7.9		20.0			
	0.1570	0.1543	0.1542													
	0.4166	0.3336	0.3584	0.3832	0.4193	Ave	0.3894			0.2000	8.4		20.0			
2,4-Dinitrotoluene	0.4166	0.4054	0.4097													

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

Analy Batch No.: 92134

SDG No.:

Instrument ID: 732

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 12/11/2013 05:33

Calibration End Date: 12/11/2013 08:37

Calibration ID: 12823

ANALYTE	RRF								CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	B	M1	M2												
Dibenzofuran	1.5596 1.6723	1.7343 1.6442	1.7203 1.6898	1.6779	1.7168	Ave		1.6769					0.8000	3.3		20.0				
2,3,5,6-Tetrachlorophenol	++++ 0.3943	0.3061 0.3916	0.3438 0.3982	0.3683	0.3934	Ave		0.3708					0.0100	9.3		20.0				
2,3,4,6-Tetrachlorophenol	0.2714 0.3871	0.3467 0.3908	0.3715 0.3912	0.3800	0.3981	Ave		0.3671					0.0100	11.4		20.0				
2-Naphthylamine	0.4470 0.5488	0.5771 0.5012	0.5698 0.5021	0.5937	0.6111	Ave		0.5439					0.0100	10.3		20.0				
Diethyl phthalate	1.1361 1.2265	1.1933 1.1869	1.2252 1.2148	1.2265	1.2599	Ave		1.2086					0.0100	3.1		20.0				
Hexadecane	0.3704 0.4509	0.4425 0.4449	0.4583 0.4553	0.4574	0.4565	Ave		0.4420						6.7						
4-Chlorophenyl phenyl ether	0.7333 0.7209	0.6996 0.7134	0.7180 0.7305	0.7215	0.7474	Ave		0.7231					0.4000	2.0		20.0				
4-Nitroaniline	++++ 0.3405	0.2604 0.3308	0.2932 0.3350	0.3194	0.3459	Ave		0.3179					0.0100	9.7		20.0				
Fluorene	1.2096 1.3557	1.3765 1.3381	1.3887 1.3653	1.3618	1.4096	Ave		1.3507					0.9000	4.5		20.0				
4,6-Dinitro-2-methylphenol	++++ 0.1576	0.0833 0.1631	0.1124 0.1672	0.1339	0.1487	Lin	0.4597	0.1693					0.0100			20.0	0.9994			0.9900
N-Nitrosodiphenylamine	0.4707 0.5370	0.5226 0.5418	0.5287 0.5449	0.5348	0.5423	Ave		0.5278					0.0100	4.6		20.0				
1,2-Diphenylhydrazine (as Azobenzene)	0.5120 0.6312	0.6144 0.6463	0.6235 0.6394	0.6379	0.6336	Ave		0.6173					0.0100	7.1		20.0				
4-Bromophenyl phenyl ether	0.2048 0.2352	0.2219 0.2346	0.2186 0.2352	0.2245	0.2331	Ave		0.2260					0.1000	4.8		20.0				
Hexachlorobenzene	0.2311 0.2182	0.2221 0.2181	0.2168 0.2202	0.2125	0.2205	Ave		0.2200					0.1000	2.4		20.0				
Atrazine	++++ 0.1649	0.1468 0.1548	0.1574 0.1497	0.1684	0.1709	Qua	0.0703	5.3037	0.8983				0.0100			20.0	0.9999			0.9900
Pentachlorophenol	0.2837 0.1589	0.1695 0.1643	0.1167 0.1668	0.1374	0.1530	Lin	0.2349	0.1671					0.0500			20.0	0.9991			0.9900
n-Octadecane	1.9390 1.1071	1.8955 1.1188	1.8682 1.1172	1.9668	1.9485	Ave		1.8196						12.0						
Phenanthrene	1.1020 0.9659	1.1098 1.1137	1.1169 1.1063	1.1019	1.1074	Ave		1.1101					0.7000	0.6		20.0				
Anthracene	1.1415 0.8440	1.1442 0.9812	1.1507 0.9863	1.1328	1.1480	Ave		1.1129					0.7000	5.5		20.0				
Carbazole	1.0428 0.8440	1.0463 0.9812	1.0577 0.9863	1.0406	1.0461	Ave		1.0056					0.0100	7.1		20.0				

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

Analy Batch No.: 92134

SDG No.:

Instrument ID: 732

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Heated Purge: (Y/N) N

Calibration Start Date: 12/11/2013 05:33

Calibration End Date: 12/11/2013 08:37

Calibration ID: 12823

ANALYTE	RRF				CURVE TYPE	COEFFICIENT			#	MIN RRF	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 5		B	M1	M2							
Di-n-butyl phthalate	++++ 1.1719	0.9127 1.2068	0.9921 1.2084	1.0963 1.1513	Ave		1.1056			0.0100	10.3	20.0			
Fluoranthene	1.0377 1.3187	1.2024 1.3339	1.2199 1.3368	1.2806 1.3359	Ave		1.2582			0.6000	8.2	20.0			
Benzidine	++++ 0.2835	++++ 0.2846	0.1349 0.2997	0.1770 1.1325	Qua	0.3228	3.3992	-0.050		0.0100		20.0	0.9987		0.9900
Pyrene	0.9336 1.1143	1.0394 1.1137	1.0823 1.1374	1.0965 1.1325	Ave		1.0812			0.6000	6.2	20.0			
Butyl benzyl phthalate	0.2120 0.4332	0.2835 0.4308	0.3308 0.4455	0.3851 0.4172	Lin	0.1215	0.4457			0.0100		20.0	0.9995		0.9900
3,3'-dichlorobenzidine	0.1618 0.3991	0.2375 0.4054	0.2628 0.4149	0.3237 0.3823	Qua	0.1204	2.5434	-0.039		0.0100		20.0	0.9998		0.9900
Bis(2-ethylhexyl) phthalate	0.2497 0.9974	0.3676 1.0416	0.4394 1.0850	0.5202 1.0942	Lin	0.1365	0.6204			0.0100		20.0	0.9997		0.9900
Benzo[a]anthracene	1.1139 0.9588	1.0829 1.0155	1.1138 1.0149	1.0942 1.0284	Ave		1.0792			0.8000	3.7	20.0			
Chrysene	1.0265 ++++	1.0403 0.5739	1.0440 0.6792	1.0536 0.8661	Ave		1.0209			0.7000	2.7	20.0			
Di-n-octyl phthalate	1.1618 0.4171	1.1871 0.5492	1.1944 0.6247	1.0536 0.8661	Qua	0.2335	0.8397	-0.002		0.0100		20.0	0.9996		0.9900
7,12-Dimethylbenz(a)anthracene	0.6337 0.9866	0.6222 1.1502	0.6247 1.2423	0.5849 1.2359	Ave		0.5682			0.0100	14.1	20.0			
Benzo[b]fluoranthene	1.3027 1.1761	1.2829 1.2409	1.3304 1.3091	1.2359 1.3540	Ave		1.2319			0.7000	9.3	20.0			
Benzo[k]fluoranthene	1.3109 0.8615	1.2684 0.9745	1.2555 1.0436	1.3540 1.1059	Ave		1.2783			0.7000	4.3	20.0			
Benzo[a]pyrene	1.2061 0.8670	1.1916 1.0470	1.1872 1.1175	1.1059 1.1871	Ave		1.0950			0.7000	11.5	20.0			
Indeno[1,2,3-cd]pyrene	1.2668 0.7091	1.2823 0.8827	1.2725 0.9628	1.1871 1.0063	Ave		1.1602			0.5000	12.5	20.0			
Dibenz(a,h)anthracene	1.0625 0.7731	1.0670 0.9034	1.0767 0.9915	1.0063 1.0207	Ave		0.9749			0.4000	12.9	20.0			
Benzo[g,h,i]perylene	1.0734 0.8733	1.0715 1.0165	1.0859 1.0587	1.0456 1.0642	Ave		0.9956			0.5000	10.8	20.0			
2-Fluorophenol (Surr)	1.1447 1.1126	1.1391 1.3138	1.1617 1.4230	1.1345 1.4501	Ave		1.0741				8.9	20.0			
Phenol-d5 (Surr)	1.5102 0.2354	1.4845 0.2855	1.5205 0.3052	1.5074 0.3134	Ave		1.4153				9.9	20.0			
Nitrobenzene-d5 (Surr)	0.3240 0.3240	0.3230 0.3230	0.3275 0.3275	0.3179 0.3179	Ave		0.3040				10.1	20.0			

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 92134
SDG No.:
Instrument ID: 732 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N
Calibration Start Date: 12/11/2013 05:33 Calibration End Date: 12/11/2013 08:37 Calibration ID: 12823

ANALYTE	RRF								CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	B	M1	M2												
2-Fluorobiphenyl	1.3056 1.3360	1.3765 1.3168	1.3781 1.3164	1.3468	1.3946		1.3463		Ave						2.5		20.0			
2,4,6-Tribromophenol (Surr)	++++ 0.0893	0.0672 0.0917	0.0766 0.0940	0.0816	0.0866		0.0838		Ave					0.0100	11.3		20.0			
Terphenyl-d14 (Surr)	0.6985 0.8427	0.7543 0.8316	0.7950 0.8525	0.8083	0.8350		0.8022		Ave						6.5		20.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab File ID: D1231DF1.D

DFTPP Injection Date: 12/31/2013

Instrument ID: 732

DFTPP Injection Time: 10:16

Analysis Batch No.: 93613

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 60.0 % of mass 198	40.9	
68	Less than 2.0 % of mass 69	0.0	(0.0)1
69	Mass 69 relative abundance	42.6	
70	Less than 2.0 % of mass 69	0.1	(0.2)1
127	40.0 - 60.0 % of mass 198	43.3	
197	Less than 1.0 % of mass 198	0.0	
198	Base Peak, 100 % relative abundance	100.0	
199	5.0- 9.0 % of mass 198	6.6	
275	10.0 - 30.0 % of mass 198	27.6	
365	Greater than 1.0 % of mass 198	2.6	
441	Present but less than mass 443	6.0	(55.8)3
442	Greater than 40.0 % of mass 198	55.6	
443	17.0 - 23.0 % of mass 442	10.7	(19.3)2

1-Value is % mass 69

2-Value is % mass 442

3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 180-93613/22	D12310CC.D	12/31/2013	10:31
	MB 180-93179/1-A	D1231003.D	12/31/2013	10:59
	LCS 180-93179/2-A	D1231004.D	12/31/2013	11:51
SD-163-0-1 MS	180-28384-1 MS	D1231005.D	12/31/2013	14:03
SD-163-0-1 MSD	180-28384-1 MSD	D1231006.D	12/31/2013	14:29
SD-163-0-1	180-28384-1	D1231007.D	12/31/2013	14:56
SD-164-0-1	180-28384-2	D1231008.D	12/31/2013	15:22
SD-165-0-1	180-28384-3	D1231009.D	12/31/2013	15:49
SD-166-0-1	180-28384-4	D1231010.D	12/31/2013	16:15
SD-167-0-1	180-28384-5	D1231011.D	12/31/2013	16:41
SD-168-0-1	180-28384-6	D1231012.D	12/31/2013	17:08
SD-169-0-1	180-28384-7	D1231013.D	12/31/2013	17:34
SD-170-0-1	180-28384-8	D1231014.D	12/31/2013	18:00
SD-171-0-1	180-28384-9	D1231015.D	12/31/2013	18:26
SD-172-0-3	180-28384-10	D1231016.D	12/31/2013	18:53
SD-173-0-3	180-28384-11	D1231017.D	12/31/2013	19:19
SD-174-0-1	180-28384-12	D1231018.D	12/31/2013	19:46
SD-175-0-1	180-28384-13	D1231019.D	12/31/2013	20:12
SD-176-0-3	180-28384-14	D1231020.D	12/31/2013	20:38
SD-177-0-2	180-28384-15	D1231021.D	12/31/2013	21:04
SD-178-0-1	180-28384-16	D1231022.D	12/31/2013	21:31
SD-179-0-1	180-28384-17	D1231023.D	12/31/2013	21:57

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93613/22

Calibration Date: 12/31/2013 10:31

Instrument ID: 732

Calib Start Date: 12/11/2013 05:33

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 12/11/2013 08:37

Lab File ID: D12310CC.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4034	0.4052	0.0100	5.02	5.00	0.4	20.0
N-Nitrosodimethylamine	Ave	0.5369	0.5861	0.0100	5.46	5.00	9.2	20.0
Pyridine	Ave	0.9657	1.036	0.0100	5.37	5.00	7.3	20.0
Methyl methanesulfonate	Ave	0.5820	0.6183	0.0100	5.31	5.00	6.2	20.0
Benzaldehyde	Qua	0.6652	0.8454	0.0100	4.93	5.00	-1.4	20.0
Aniline	Ave	1.715	1.863	0.0100	5.43	5.00	8.7	20.0
Phenol	Ave	1.632	1.679	0.8000	5.14	5.00	2.9	20.0
Bis(2-chloroethyl)ether	Ave	1.106	1.123	0.7000	5.08	5.00	1.5	20.0
2-Chlorophenol	Ave	1.282	1.349	0.8000	5.26	5.00	5.3	20.0
1,3-Dichlorobenzene	Ave	1.589	1.575	0.0100	4.96	5.00	-0.9	20.0
1,4-Dichlorobenzene	Ave	1.610	1.620	0.0100	5.03	5.00	0.6	20.0
Benzyl alcohol	Ave	0.7606	0.7499	0.0100	4.93	5.00	-1.4	20.0
1,2-Dichlorobenzene	Ave	1.532	1.549	0.0100	5.05	5.00	1.1	20.0
2-Methylphenol	Ave	1.132	1.186	0.7000	5.24	5.00	4.7	20.0
Indene	Ave	2.253	2.305	0.0100	5.11	5.00	2.3	20.0
2,2'-oxybis[1-chloropropane]	Ave	1.584	1.648	0.0100	5.20	5.00	4.0	20.0
N-Nitrosopyrrolidine	Ave	0.5434	0.5660	0.0100	5.21	5.00	4.2	20.0
Acetophenone	Ave	1.749	1.824	0.0100	5.22	5.00	4.3	20.0
N-Nitrosodi-n-propylamine	Ave	0.8499	0.9138	0.5000	5.38	5.00	7.5	20.0
Methylphenol, 3 & 4	Ave	1.223	1.264	0.6000	5.17	5.00	3.4	20.0
Hexachloroethane	Ave	0.5685	0.5937	0.3000	5.22	5.00	4.4	20.0
Nitrobenzene	Ave	0.3169	0.3312	0.2000	5.23	5.00	4.5	20.0
Isophorone	Ave	0.5497	0.5728	0.4000	5.21	5.00	4.2	20.0
2-Nitrophenol	Ave	0.1821	0.1846	0.1000	5.07	5.00	1.4	20.0
2,4-Dimethylphenol	Ave	0.3096	0.3140	0.2000	5.07	5.00	1.4	20.0
Benzoic acid	Lin	0.1791	0.1532	0.0100	8.83	10.0	-11.7	20.0
Bis(2-chloroethoxy)methane	Ave	0.3598	0.3547	0.3000	4.93	5.00	-1.4	20.0
2,4-Dichlorophenol	Ave	0.3003	0.3053	0.2000	5.08	5.00	1.7	20.0
1,2,4-Trichlorobenzene	Ave	0.3574	0.3514	0.0100	4.92	5.00	-1.7	20.0
Naphthalene	Ave	1.048	1.030	0.7000	4.91	5.00	-1.7	20.0
4-Chloroaniline	Ave	0.4229	0.4102	0.0100	4.85	5.00	-3.0	20.0
2,6-Dichlorophenol	Ave	0.2976	0.3084	0.0100	5.18	5.00	3.6	20.0
Hexachlorobutadiene	Ave	0.2220	0.2207	0.0100	4.97	5.00	-0.6	20.0
Caprolactam	Lin	0.0831	0.0855	0.0100	4.72	5.00	-5.6	20.0
4-Chloro-3-methylphenol	Ave	0.2842	0.2849	0.2000	5.01	5.00	0.3	20.0
2-Methylnaphthalene	Ave	0.7405	0.7220	0.4000	4.87	5.00	-2.5	20.0
1-Methylnaphthalene	Ave	0.6875	0.6750	0.0100	4.91	5.00	-1.8	20.0
Hexachlorocyclopentadiene	Ave	0.3846	0.3780	0.0500	4.91	5.00	-1.7	20.0
1,2,4,5-Tetrachlorobenzene	Ave	0.6357	0.6417	0.0100	5.05	5.00	0.9	20.0
2,4,6-Trichlorophenol	Ave	0.3537	0.3736	0.2000	5.28	5.00	5.6	20.0
2,4,5-Trichlorophenol	Ave	0.3801	0.4034	0.2000	5.31	5.00	6.1	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93613/22

Calibration Date: 12/31/2013 10:31

Instrument ID: 732

Calib Start Date: 12/11/2013 05:33

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Calib End Date: 12/11/2013 08:37

Lab File ID: D12310CC.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1'-Biphenyl	Ave	1.449	1.428	0.0100	4.93	5.00	-1.4	20.0
2-Chloronaphthalene	Ave	1.175	1.153	0.8000	4.91	5.00	-1.9	20.0
2-Nitroaniline	Ave	0.2810	0.2997	0.0100	5.33	5.00	6.7	20.0
Dimethyl phthalate	Ave	1.258	1.245	0.0100	4.95	5.00	-1.1	20.0
1,3-Dinitrobenzene	Lin	0.1947	0.2039	0.0100	5.13	5.00	2.6	20.0
2,6-Dinitrotoluene	Ave	0.2832	0.2799	0.2000	4.94	5.00	-1.2	20.0
Acenaphthylene	Ave	1.760	1.801	0.9000	5.12	5.00	2.3	20.0
3-Nitroaniline	Ave	0.3089	0.2996	0.0100	4.85	5.00	-3.0	20.0
2,4-Dinitrophenol	Lin	0.1825	0.1715	0.0100	9.77	10.0	-2.3	20.0
Acenaphthene	Ave	1.176	1.169	0.9000	4.97	5.00	-0.6	20.0
4-Nitrophenol	Ave	0.1479	0.1560	0.0100	10.6	10.0	5.5	20.0
2,4-Dinitrotoluene	Ave	0.3894	0.3797	0.2000	4.88	5.00	-2.5	20.0
Dibenzofuran	Ave	1.677	1.645	0.8000	4.91	5.00	-1.9	20.0
2,3,5,6-Tetrachlorophenol	Ave	0.3708	0.3599	0.0100	4.85	5.00	-2.9	20.0
2,3,4,6-Tetrachlorophenol	Ave	0.3671	0.3545	0.0100	4.83	5.00	-3.4	20.0
2-Naphthylamine	Ave	0.5439	0.5875	0.0100	5.40	5.00	8.0	20.0
Diethyl phthalate	Ave	1.209	1.277	0.0100	5.28	5.00	5.7	20.0
4-Chlorophenyl phenyl ether	Ave	0.7231	0.7146	0.4000	4.94	5.00	-1.2	20.0
4-Nitroaniline	Ave	0.3179	0.3194	0.0100	5.02	5.00	0.5	20.0
Fluorene	Ave	1.351	1.332	0.9000	4.93	5.00	-1.4	20.0
4,6-Dinitro-2-methylphenol	Lin	0.1380	0.1445	0.0100	10.4	10.0	3.7	20.0
N-Nitrosodiphenylamine	Ave	0.5278	0.5406	0.0100	5.12	5.00	2.4	20.0
1,2-Diphenylhydrazine (as Azobenzene)	Ave	0.6173	0.6502	0.0100	5.27	5.00	5.3	20.0
4-Bromophenyl phenyl ether	Ave	0.2260	0.2318	0.1000	5.13	5.00	2.6	20.0
Hexachlorobenzene	Ave	0.2200	0.2170	0.1000	4.93	5.00	-1.4	20.0
Atrazine	Qua	0.1590	0.1703	0.0100	4.96	5.00	-0.8	20.0
Pentachlorophenol	Lin	0.1688	0.1553	0.0500	10.2	10.0	2.3	20.0
Phenanthrene	Ave	1.110	1.097	0.7000	4.94	5.00	-1.1	20.0
Anthracene	Ave	1.113	1.160	0.7000	5.21	5.00	4.3	20.0
Carbazole	Ave	1.006	1.037	0.0100	5.15	5.00	3.1	20.0
Di-n-butyl phthalate	Ave	1.106	1.128	0.0100	5.10	5.00	2.0	20.0
Fluoranthene	Ave	1.258	1.293	0.6000	5.14	5.00	2.8	20.0
Benzidine	Qua	0.2433	0.2119	0.0100	4.88	5.00	-2.4	20.0
Pyrene	Ave	1.081	1.129	0.6000	5.22	5.00	4.4	20.0
Butyl benzyl phthalate	Lin	0.3673	0.4090	0.0100	5.07	5.00	1.5	20.0
3,3'-Dichlorobenzidine	Qua	0.3234	0.3499	0.0100	4.90	5.00	-2.0	20.0
Bis(2-ethylhexyl) phthalate	Lin	0.4963	0.5715	0.0100	5.15	5.00	3.0	20.0
Benzo[a]anthracene	Ave	1.079	1.088	0.8000	5.04	5.00	0.8	20.0
Chrysene	Ave	1.021	0.998	0.7000	4.89	5.00	-2.2	20.0
Di-n-octyl phthalate	Qua	0.9594	1.112	0.0100	5.59	5.00	11.7	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: CCVIS 180-93613/22 Calibration Date: 12/31/2013 10:31
 Instrument ID: 732 Calib Start Date: 12/11/2013 05:33
 GC Column: Rxi-5SilMS ID: 0.32 (mm) Calib End Date: 12/11/2013 08:37
 Lab File ID: D12310CC.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
7,12-Dimethylbenz(a)anthracene	Ave	0.5682	0.5778	0.0100	5.08	5.00	1.7	20.0
Benzo[b]fluoranthene	Ave	1.232	1.292	0.7000	5.25	5.00	4.9	20.0
Benzo[k]fluoranthene	Ave	1.278	1.227	0.7000	4.80	5.00	-4.0	20.0
Benzo[a]pyrene	Ave	1.095	1.156	0.7000	5.28	5.00	5.5	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.160	1.229	0.5000	5.30	5.00	6.0	20.0
Dibenz(a,h)anthracene	Ave	0.9749	1.035	0.4000	5.31	5.00	6.2	20.0
Benzo[g,h,i]perylene	Ave	0.996	1.057	0.5000	5.31	5.00	6.1	20.0
2-Fluorophenol (Surr)	Ave	1.074	1.132		5.27	5.00	5.4	20.0
Phenol-d5 (Surr)	Ave	1.415	1.511		5.34	5.00	6.8	20.0
Nitrobenzene-d5 (Surr)	Ave	0.3040	0.3313		5.45	5.00	9.0	20.0
2-Fluorobiphenyl	Ave	1.346	1.339		4.97	5.00	-0.6	20.0
2,4,6-Tribromophenol (Surr)	Ave	0.0838	0.0878	0.0100	5.23	5.00	4.7	20.0
Terphenyl-d14 (Surr)	Ave	0.8022	0.8376		5.22	5.00	4.4	20.0

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab File ID: D0102DF1.D

DFTPP Injection Date: 01/02/2014

Instrument ID: 732

DFTPP Injection Time: 12:00

Analysis Batch No.: 93710

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	42.0
68	Less than 2.0 % of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	43.5
70	Less than 2.0 % of mass 69	0.0 (0.0)1
127	40.0 - 60.0 % of mass 198	44.8
197	Less than 1.0 % of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	6.9
275	10.0 - 30.0 % of mass 198	26.4
365	Greater than 1.0 % of mass 198	2.1
441	Present but less than mass 443	8.6 (86.3)3
442	Greater than 40.0 % of mass 198	53.5
443	17.0 - 23.0 % of mass 442	10.0 (18.7)2

1-Value is % mass 69

2-Value is % mass 442

3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 180-93710/10	D01020CC.D	01/02/2014	12:15
SD-180-0-1	180-28384-18	D0102001.D	01/02/2014	19:05
SD-181-0-1	180-28384-19	D0102002.D	01/02/2014	19:32
SD-182-0-3	180-28384-20	D0102003.D	01/02/2014	19:58

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93710/10

Calibration Date: 01/02/2014 12:15

Instrument ID: 732

Calib Start Date: 12/11/2013 05:33

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Calib End Date: 12/11/2013 08:37

Lab File ID: D01020CC.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4034	0.4205	0.0100	5.21	5.00	4.2	20.0
N-Nitrosodimethylamine	Ave	0.5369	0.5491	0.0100	5.11	5.00	2.3	20.0
Pyridine	Ave	0.9657	0.9797	0.0100	5.07	5.00	1.4	20.0
Methyl methanesulfonate	Ave	0.5820	0.5787	0.0100	4.97	5.00	-0.6	20.0
Benzaldehyde	Qua	0.6652	0.7990	0.0100	4.69	5.00	-6.1	20.0
Aniline	Ave	1.715	1.692	0.0100	4.93	5.00	-1.3	20.0
Phenol	Ave	1.632	1.575	0.8000	4.83	5.00	-3.5	20.0
Bis(2-chloroethyl)ether	Ave	1.106	1.057	0.7000	4.78	5.00	-4.4	20.0
2-Chlorophenol	Ave	1.282	1.261	0.8000	4.92	5.00	-1.6	20.0
1,3-Dichlorobenzene	Ave	1.589	1.567	0.0100	4.93	5.00	-1.4	20.0
1,4-Dichlorobenzene	Ave	1.610	1.569	0.0100	4.87	5.00	-2.6	20.0
Benzyl alcohol	Ave	0.7606	0.6876	0.0100	4.52	5.00	-9.6	20.0
1,2-Dichlorobenzene	Ave	1.532	1.508	0.0100	4.92	5.00	-1.6	20.0
Indene	Ave	2.253	2.183	0.0100	4.84	5.00	-3.1	20.0
2-Methylphenol	Ave	1.132	1.119	0.7000	4.94	5.00	-1.2	20.0
2,2'-oxybis[1-chloropropane]	Ave	1.584	1.549	0.0100	4.89	5.00	-2.2	20.0
N-Nitrosopyrrolidine	Ave	0.5434	0.5051	0.0100	4.65	5.00	-7.0	20.0
Acetophenone	Ave	1.749	1.653	0.0100	4.73	5.00	-5.5	20.0
N-Nitrosodi-n-propylamine	Ave	0.8499	0.8198	0.5000	4.82	5.00	-3.5	20.0
Methylphenol, 3 & 4	Ave	1.223	1.160	0.6000	4.74	5.00	-5.2	20.0
Hexachloroethane	Ave	0.5685	0.5745	0.3000	5.05	5.00	1.1	20.0
Nitrobenzene	Ave	0.3169	0.3349	0.2000	5.28	5.00	5.7	20.0
Isophorone	Ave	0.5497	0.5455	0.4000	4.96	5.00	-0.8	20.0
2-Nitrophenol	Ave	0.1821	0.1902	0.1000	5.22	5.00	4.5	20.0
2,4-Dimethylphenol	Ave	0.3096	0.3114	0.2000	5.03	5.00	0.6	20.0
Benzoic acid	Lin	0.1791	0.1568	0.0100	9.00	10.0	-10.0	20.0
Bis(2-chloroethoxy)methane	Ave	0.3598	0.3503	0.3000	4.87	5.00	-2.6	20.0
2,4-Dichlorophenol	Ave	0.3003	0.3123	0.2000	5.20	5.00	4.0	20.0
1,2,4-Trichlorobenzene	Ave	0.3574	0.3627	0.0100	5.07	5.00	1.5	20.0
Naphthalene	Ave	1.048	1.042	0.7000	4.97	5.00	-0.6	20.0
4-Chloroaniline	Ave	0.4229	0.3959	0.0100	4.68	5.00	-6.4	20.0
2,6-Dichlorophenol	Ave	0.2976	0.3018	0.0100	5.07	5.00	1.4	20.0
Hexachlorobutadiene	Ave	0.2220	0.2343	0.0100	5.28	5.00	5.5	20.0
Caprolactam	Lin	0.0831	0.0773	0.0100	4.33	5.00	-13.3	20.0
4-Chloro-3-methylphenol	Ave	0.2842	0.2695	0.2000	4.74	5.00	-5.2	20.0
2-Methylnaphthalene	Ave	0.7405	0.7054	0.4000	4.76	5.00	-4.7	20.0
1-Methylnaphthalene	Ave	0.6875	0.6614	0.0100	4.81	5.00	-3.8	20.0
Hexachlorocyclopentadiene	Ave	0.3846	0.4078	0.0500	5.30	5.00	6.0	20.0
1,2,4,5-Tetrachlorobenzene	Ave	0.6357	0.7041	0.0100	5.54	5.00	10.7	20.0
2,4,6-Trichlorophenol	Ave	0.3537	0.3971	0.2000	5.61	5.00	12.3	20.0
2,4,5-Trichlorophenol	Ave	0.3801	0.4079	0.2000	5.36	5.00	7.3	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93710/10

Calibration Date: 01/02/2014 12:15

Instrument ID: 732

Calib Start Date: 12/11/2013 05:33

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 12/11/2013 08:37

Lab File ID: D01020CC.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1'-Biphenyl	Ave	1.449	1.478	0.0100	5.10	5.00	2.0	20.0
2-Chloronaphthalene	Ave	1.175	1.281	0.8000	5.45	5.00	9.0	20.0
2-Nitroaniline	Ave	0.2810	0.2963	0.0100	5.27	5.00	5.4	20.0
Dimethyl phthalate	Ave	1.258	1.228	0.0100	4.88	5.00	-2.4	20.0
1,3-Dinitrobenzene	Lin	0.1947	0.1897	0.0100	4.81	5.00	-3.7	20.0
2,6-Dinitrotoluene	Ave	0.2832	0.2783	0.2000	4.91	5.00	-1.7	20.0
Acenaphthylene	Ave	1.760	1.788	0.9000	5.08	5.00	1.6	20.0
3-Nitroaniline	Ave	0.3089	0.2868	0.0100	4.64	5.00	-7.2	20.0
2,4-Dinitrophenol	Lin	0.1825	0.1563	0.0100	9.15	10.0	-8.5	20.0
Acenaphthene	Ave	1.176	1.188	0.9000	5.05	5.00	1.1	20.0
4-Nitrophenol	Ave	0.1479	0.1348	0.0100	9.11	10.0	-8.9	20.0
2,4-Dinitrotoluene	Ave	0.3894	0.3653	0.2000	4.69	5.00	-6.2	20.0
Dibenzofuran	Ave	1.677	1.664	0.8000	4.96	5.00	-0.8	20.0
2,3,5,6-Tetrachlorophenol	Ave	0.3708	0.3442	0.0100	4.64	5.00	-7.2	20.0
2,3,4,6-Tetrachlorophenol	Ave	0.3671	0.3534	0.0100	4.81	5.00	-3.7	20.0
2-Naphthylamine	Ave	0.5439	0.5354	0.0100	4.92	5.00	-1.6	20.0
Diethyl phthalate	Ave	1.209	1.185	0.0100	4.90	5.00	-1.9	20.0
4-Chlorophenyl phenyl ether	Ave	0.7231	0.6981	0.4000	4.83	5.00	-3.5	20.0
4-Nitroaniline	Ave	0.3179	0.2820	0.0100	4.43	5.00	-11.3	20.0
Fluorene	Ave	1.351	1.309	0.9000	4.85	5.00	-3.1	20.0
4,6-Dinitro-2-methylphenol	Lin	0.1380	0.1384	0.0100	10.0	10.0	0.1	20.0
N-Nitrosodiphenylamine	Ave	0.5278	0.5486	0.0100	5.20	5.00	3.9	20.0
1,2-Diphenylhydrazine(as Azobenzene)	Ave	0.6173	0.6988	0.0100	5.66	5.00	13.2	20.0
4-Bromophenyl phenyl ether	Ave	0.2260	0.2393	0.1000	5.29	5.00	5.9	20.0
Hexachlorobenzene	Ave	0.2200	0.2184	0.1000	4.97	5.00	-0.7	20.0
Atrazine	Qua	0.1590	0.1625	0.0100	4.74	5.00	-5.2	20.0
Pentachlorophenol	Lin	0.1688	0.1429	0.0500	9.49	10.0	-5.1	20.0
Phenanthrene	Ave	1.110	1.108	0.7000	4.99	5.00	-0.2	20.0
Anthracene	Ave	1.113	1.116	0.7000	5.01	5.00	0.3	20.0
Carbazole	Ave	1.006	0.9813	0.0100	4.88	5.00	-2.4	20.0
Di-n-butyl phthalate	Ave	1.106	1.097	0.0100	4.96	5.00	-0.8	20.0
Fluoranthene	Ave	1.258	1.202	0.6000	4.77	5.00	-4.5	20.0
Benzidine	Qua	0.2433	0.2024	0.0100	4.72	5.00	-5.6	20.0
Pyrene	Ave	1.081	1.205	0.6000	5.57	5.00	11.4	20.0
Butyl benzyl phthalate	Lin	0.3673	0.4359	0.0100	5.38	5.00	7.5	20.0
3,3'-Dichlorobenzidine	Qua	0.3234	0.3575	0.0100	5.00	5.00	-0.0	20.0
Bis(2-ethylhexyl) phthalate	Lin	0.4963	0.6025	0.0100	5.40	5.00	8.0	20.0
Benzo[a]anthracene	Ave	1.079	1.119	0.8000	5.18	5.00	3.7	20.0
Chrysene	Ave	1.021	1.026	0.7000	5.03	5.00	0.5	20.0
Di-n-octyl phthalate	Qua	0.9594	1.182	0.0100	5.88	5.00	17.5	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93710/10

Calibration Date: 01/02/2014 12:15

Instrument ID: 732

Calib Start Date: 12/11/2013 05:33

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Calib End Date: 12/11/2013 08:37

Lab File ID: D01020CC.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
7,12-Dimethylbenz(a)anthracene	Ave	0.5682	0.5881	0.0100	5.18	5.00	3.5	20.0
Benzo[b]fluoranthene	Ave	1.232	1.309	0.7000	5.31	5.00	6.3	20.0
Benzo[k]fluoranthene	Ave	1.278	1.237	0.7000	4.84	5.00	-3.2	20.0
Benzo[a]pyrene	Ave	1.095	1.144	0.7000	5.23	5.00	4.5	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.160	1.202	0.5000	5.18	5.00	3.6	20.0
Dibenz(a,h)anthracene	Ave	0.9749	1.032	0.4000	5.29	5.00	5.8	20.0
Benzo[g,h,i]perylene	Ave	0.996	1.015	0.5000	5.10	5.00	2.0	20.0
2-Fluorophenol (Surr)	Ave	1.074	1.136		5.29	5.00	5.8	20.0
Phenol-d5 (Surr)	Ave	1.415	1.441		5.09	5.00	1.9	20.0
Nitrobenzene-d5 (Surr)	Ave	0.3040	0.3322		5.46	5.00	9.3	20.0
2-Fluorobiphenyl	Ave	1.346	1.385		5.14	5.00	2.9	20.0
2,4,6-Tribromophenol (Surr)	Ave	0.0838	0.0865	0.0100	5.16	5.00	3.2	20.0
Terphenyl-d14 (Surr)	Ave	0.8022	0.8846		5.51	5.00	10.3	20.0

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Lab File ID: S1107DF1.D DFTPP Injection Date: 11/07/2013
Instrument ID: 71 DFTPP Injection Time: 03:02
Analysis Batch No.: 89450

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	43.0
68	Less than 2.0 % of mass 69	0.7 (1.7)1
69	Mass 69 relative abundance	39.9
70	Less than 2.0 % of mass 69	0.0 (0.0)1
127	40.0 - 60.0 % of mass 198	46.2
197	Less than 1.0 % of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	7.0
275	10.0 - 30.0 % of mass 198	25.3
365	Greater than 1.0 % of mass 198	2.7
441	Present but less than mass 443	10.5 (85.7)3
442	Greater than 40.0 % of mass 198	67.8
443	17.0 - 23.0 % of mass 442	12.3 (18.1)2

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 180-89450/1	S11070C2.D	11/07/2013	04:37
	IC 180-89450/2	S11070C3.D	11/07/2013	05:04
	ICIS 180-89450/3	S11070C4.D	11/07/2013	05:30
	IC 180-89450/4	S11070C5.D	11/07/2013	05:57
	IC 180-89450/5	S11070C6.D	11/07/2013	06:23
	IC 180-89450/6	S11070C7.D	11/07/2013	06:50
	IC 180-89450/7	S11070C8.D	11/07/2013	07:16
	IC 180-89450/8	S11070C9.D	11/07/2013	08:11

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 89450

SDG No.: _____

Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/07/2013 04:37 Calibration End Date: 11/07/2013 08:11 Calibration ID: 12367

ANALYTE	RRF										CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	B	M1	M2														
2-Methylphenol	1.1974	1.3049	1.3882	1.3912	1.3822	Ave		1.3179							0.7000	5.1		20.0				
Indene	1.3166	1.2760	1.2867												0.0100	4.0		20.0				
	2.4204	2.4825	2.5523	2.4956	2.4829	Ave		2.4250														
	2.3692	2.2646	2.3327																			
2,2'-oxybis[1-chloropropane]	2.5713	2.5711	2.6050	2.5117	2.4868	Ave		2.3927							0.0100	9.7		20.0				
N-Nitrosopyrrolidine	2.2866	2.0865	2.0222												0.0100	7.0		20.0				
	0.5623	0.6528	0.6777	0.6944	0.7149	Ave		0.6671														
	0.6886	0.6611	0.6852																			
Acetophenone	2.0601	2.3114	2.1938	2.1495	2.0878	Ave		2.0559							0.0100	8.1		20.0				
N-Nitrosodi-n-propylamine	1.9591	1.8447	1.8410												0.5000	7.7		20.0				
	1.0449	1.1827	1.1820	1.1712	1.1601	Ave		1.0979														
	1.0566	0.9991	0.9868																			
Methylphenol, 3 & 4	1.3079	1.4204	1.4746	1.4427	1.4330	Ave		1.3809							0.6000	5.1		20.0				
Hexachloroethane	1.3617	1.2897	1.3171												0.3000	2.9		20.0				
	0.5931	0.6546	0.6275	0.6279	0.6326	Ave		0.6238														
	0.6287	0.6076	0.6186																			
Nitrobenzene	0.3318	0.3871	0.3966	0.4025	0.4061	Ave		0.3878							0.2000	6.1		20.0				
Isophorone	0.3974	0.3947	0.3863												0.4000	6.3		20.0				
	0.5904	0.7077	0.7177	0.7128	0.7135	Ave		0.6831														
	0.6883	0.6736	0.6608																			
2-Nitrophenol	++++	0.1500	0.1610	0.1728	0.1813	Ave		0.1734							0.1000	7.6		20.0				
2,4-Dimethylphenol	0.1821	0.1838	0.1824												0.2000	8.6		20.0				
	0.3082	0.2873	0.3687	0.3655	0.3645	Ave		0.3421														
	0.3535	0.3487	0.3403																			
Bis(2-chloroethoxy)methane	0.4100	0.4351	0.4380	0.4358	0.4261	Ave		0.4200							0.3000	3.7		20.0				
Benzoic acid	0.4117	0.4056	0.3981																			
	++++	0.0802	0.1076	0.1464	0.1694	Qua		0.4206	5.3915	-0.085					0.0100			20.0	0.9998		0.9900	
	0.1830	0.1901	0.1928																			
2,4-Dichlorophenol	0.2176	0.2685	0.2775	0.2831	0.2819	Ave		0.2668							0.2000	7.9		20.0				
1,2,4-Trichlorobenzene	0.2727	0.2703	0.2632												0.0100	5.1		20.0				
	0.3325	0.3344	0.3247	0.3213	0.3090	Ave		0.3144														
	0.3036	0.2978	0.2917																			
Naphthalene	1.1017	1.0871	1.0923	1.0636	1.0476	Ave		1.0482							0.7000	4.4		20.0				
4-Chloroaniline	1.0106	1.0006	0.9823												0.0100	4.8		20.0				
	0.3941	0.4396	0.4317	0.4452	0.4433	Ave		0.4230														
	0.4207	0.4106	0.3989																			
2,6-Dichlorophenol	0.2373	0.2815	0.2778	0.2874	0.2783	Ave		0.2695							0.0100	5.9		20.0				
Hexachlorobutadiene	0.2691	0.2637	0.2611																			
	0.2074	0.1991	0.1986	0.1957	0.1917	Ave		0.1931							0.0100	4.5		20.0				
	0.1848	0.1859	0.1819																			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 89450
SDG No.:

Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N
Calibration Start Date: 11/07/2013 04:37 Calibration End Date: 11/07/2013 08:11 Calibration ID: 12367

ANALYTE	RRF								CURVE TYPE	COEFFICIENT				#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6		LVL 2 LVL 7		LVL 3 LVL 8		LVL 4 LVL 5			B	M1	M2									
Caprolactam	++++	0.0862	0.0917	0.0980	0.1057	0.1050	Ave		0.0958			0.0100	8.4		20.0						
4-Chloro-3-methylphenol	0.2511	0.2881	0.2995	0.3073	0.3184	0.3169	Ave		0.2970			0.2000	7.3		20.0						
2-Methylnaphthalene	0.7340	0.7531	0.7593	0.7593	0.7475	0.7239	Ave		0.7143			0.4000	6.1		20.0						
1-Methylnaphthalene	0.6863	0.6654	0.6447																		
	0.6798	0.7148	0.7061	0.6946	0.6732	Ave			0.6657			0.0100	6.3		20.0						
	0.6351	0.6214	0.6003																		
Hexachlorocyclopentadiene	++++	0.2778	0.2961	0.3168	0.3245	Ave			0.3232			0.0500	8.9		20.0						
	0.3416	0.3491	0.3563																		
1,2,4,5-Tetrachlorobenzene	0.5894	0.5649	0.5698	0.5325	0.5259	Ave			0.5468			0.0100	4.5		20.0						
	0.5224	0.5269	0.5427																		
2,4,6-Trichlorophenol	0.2345	0.3341	0.3469	0.3458	0.3535	Ave			0.3353			0.2000	12.4		20.0						
	0.3508	0.3495	0.3671																		
2,4,5-Trichlorophenol	0.2532	0.3434	0.3613	0.3742	0.3712	Ave			0.3470			0.2000	11.4		20.0						
	0.3685	0.3576	0.3470																		
1,1'-Biphenyl	1.5497	1.5405	1.5237	1.4567	1.4317	Ave			1.4582			0.0100	4.9		20.0						
	1.4046	1.3702	1.3883																		
2-Chloronaphthalene	1.2396	1.2036	1.1655	1.1564	1.1525	Ave			1.1625			0.8000	3.9		20.0						
	1.1143	1.0979	1.1699																		
2-Nitroaniline	++++	0.3011	0.3214	0.3572	0.3691	Ave			0.3468			0.0100	7.3		20.0						
	0.3652	0.3547	0.3590																		
Dimethyl phthalate	1.1508	1.3243	1.3252	1.2755	1.2394	Ave			1.2134			0.0100	7.4		20.0						
	1.1688	1.1209	1.1021																		
1,3-Dinitrobenzene	++++	0.1409	0.1628	0.1879	0.2008	Ave			0.1853			0.0100	13.1		20.0						
	0.2049	0.1993	0.2003																		
2,6-Dinitrotoluene	++++	0.2567	0.2799	0.2885	0.2840	Ave			0.2750			0.2000	4.0		20.0						
	0.2793	0.2688	0.2676																		
Acenaphthylene	1.6518	1.8563	1.8804	1.8570	1.8109	Ave			1.7813			0.9000	4.7		20.0						
	1.7660	1.7158	1.7121																		
3-Nitroaniline	++++	0.2849	0.2853	0.3119	0.3136	Ave			0.2949			0.0100	4.3		20.0						
	0.2958	0.2883	0.2846																		
2,4-Dinitrophenol	++++	++++	0.0450	0.0736	0.0997	Qua		0.8543	8.1984	-0.434		0.0100			20.0	0.9996		0.9900			
	0.1201	0.1287	0.1361																		
Acenaphthene	1.2253	1.2277	1.2051	1.1886	1.1367	Ave			1.1451			0.9000	6.7		20.0						
	1.0765	1.0457	1.0550																		
4-Nitrophenol	++++	0.1145	0.1335	0.1584	0.1655	Ave			0.1503			0.0100	12.6		20.0						
	0.1625	0.1594	0.1583																		
2,4-Dinitrotoluene	0.1455	0.3068	0.3356	0.3601	0.3575	Qua		0.0070	2.7907	0.1181		0.2000			20.0	0.9997		0.9900			
	0.3339	0.3201	0.3175																		

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 89450

SDG No.: _____

Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/07/2013 04:37 Calibration End Date: 11/07/2013 08:11 Calibration ID: 12367

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5		B	M1	M2								
Dibenzofuran	1.7824 1.5459	1.7454 1.4877	1.7455 1.4897	1.6811	1.6111	Ave		1.6361			0.8000	7.3		20.0			
2,3,5,6-Tetrachlorophenol	++++ 0.3113	0.2785 0.3109	0.2996 0.3091	0.3167	0.3193	Ave		0.3065			0.0100	4.5		20.0			
2,3,4,6-Tetrachlorophenol	++++ 0.3048	0.3226 0.2922	0.3198 0.2907	0.3394	0.3319	Ave		0.3145			0.0100	6.0		20.0			
2-Naphthylamine	0.5152 0.3965	1.0989 0.3603	0.6180 0.3386	0.5868	0.5069	Qua	-0.147	1.7694	0.3728		0.0100			20.0	0.9984		0.9900
Diethyl phthalate	1.1998 1.1345	1.3684 1.0745	1.3578 1.0510	1.3112	1.2525	Ave		1.2187			0.0100	10.2		20.0			
Hexadecane	0.5593 0.5990	0.6380 0.5689	0.6666 0.5343	0.6560	0.6441	Ave		0.6083				8.2					
4-Chlorophenyl phenyl ether	0.7012 0.6104	0.7247 0.5878	0.7039 0.5803	0.6863	0.6486	Ave		0.6554			0.4000	8.6		20.0			
4-Nitroaniline	++++ 0.2637	0.2669 0.2545	0.2819 0.2457	0.3008	0.2838	Ave		0.2710			0.0100	7.0		20.0			
Fluorene	1.3985 1.1867	1.4293 1.1399	1.4128 1.1315	1.3547	1.2864	Ave		1.2925			0.9000	9.6		20.0			
4,6-Dinitro-2-methylphenol	++++ 0.1157	0.0487 0.1188	0.0612 0.1233	0.0879	0.1048	Qua	0.4473	8.7273	-0.324		0.0100			20.0	0.9998		0.9900
N-Nitrosodiphenylamine	0.5043 0.5578	0.5398 0.5489	0.5549 0.5503	0.5593	0.5509	Ave		0.5458			0.0100	3.3		20.0			
1,2-Diphenylhydrazine (as Azobenzene)	0.7220 0.9269	0.8387 0.9098	0.8689 0.9255	0.8809	0.8920	Ave		0.8706			0.0100	7.7		20.0			
4-Bromophenyl phenyl ether	0.2141 0.2261	0.2279 0.2189	0.2323 0.2179	0.2308	0.2287	Ave		0.2246			0.1000	3.0		20.0			
Hexachlorobenzene	0.2524 0.2161	0.2427 0.2063	0.2415 0.2028	0.2360	0.2302	Ave		0.2285			0.1000	7.9		20.0			
Atrazine	++++ 0.1522	0.1986 0.1464	0.1571 0.1451	0.1597	0.1576	Ave		0.1595			0.0100	11.4		20.0			
Pentachlorophenol	0.0338 0.1240	0.1047 0.1210	0.1026 0.1224	0.1236	0.1302	Qua	0.0740	7.8434	0.1390		0.0500			20.0	0.9996		0.9900
n-Octadecane	2.0219 2.6288	2.8412 2.3789	2.9579 2.2978	2.9477	2.9585	Ave		2.6291				13.7					
Phenanthrene	1.1943 1.0818	1.1342 1.0615	1.1324 1.0554	1.1086	1.0810	Ave		1.1061			0.7000	4.2		20.0			
Anthracene	0.9944 1.0422	1.1379 1.0154	1.1393 0.9880	1.1265	1.0898	Ave		1.0667			0.7000	6.0		20.0			
Carbazole	0.8481 0.8925	0.9952 0.8681	0.9982 0.8587	0.9862	0.9514	Ave		0.9248			0.0100	7.0		20.0			

Note: The ml coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 89450

SDG No.: _____

Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 11/07/2013 04:37 Calibration End Date: 11/07/2013 08:11 Calibration ID: 12367

ANALYTE	RRF								CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD	
	LVL 1 LVL 6		LVL 2 LVL 7		LVL 3 LVL 8		LVL 4	LVL 5		TYPE	B	M1									M2
Di-n-butyl phthalate	0.7721 1.1488	1.1150 1.1176	1.1259 1.1104	1.1953	1.1984	Ave				1.0979			0.0100	12.4		20.0					
Fluoranthene	0.9881 1.0372	1.1456 1.0002	1.1230 0.9754	1.1487	1.1035	Ave				1.0652			0.6000	6.9		20.0					
Benzidine	++++ 0.1726	++++ 0.1975	0.1233 0.2093	0.1303	0.1330	Qua				0.3231	5.9257	-0.641	0.0100			20.0	0.9978		0.9900		
Pyrene	1.2648 1.3179	1.2909 1.2893	1.3521 1.2742	1.3583	1.3615	Ave				1.3136			0.6000	3.0		20.0					
Butyl benzyl phthalate	++++ 0.5279	0.4092 0.5344	0.4325 0.5533	0.4879	0.5236	Ave				0.4955			0.0100	11.1		20.0					
3,3'-Dichlorobenzidine	++++ 0.3765	0.2816 0.3878	0.2893 0.3961	0.3209	0.3458	Ave				0.3426			0.0100	13.6		20.0					
Bis(2-ethylhexyl) phthalate	++++ 0.6932	0.4879 0.7115	0.5454 0.7330	0.6174	0.6865	Ave				0.6393			0.0100	14.5		20.0					
Benzo[a]anthracene	1.0032 1.0776	1.1014 1.0733	1.1257 1.0944	1.1188	1.1262	Ave				1.0901			0.8000	3.7		20.0					
Chrysene	0.9924 0.9775	1.0222 0.9670	1.0424 0.9849	1.0320	1.0134	Ave				1.0040			0.7000	2.7		20.0					
Di-n-octyl phthalate	++++ 1.2995	1.1643 1.2875	1.0349 1.2202	1.1745	1.3341	Ave				1.2164			0.0100	8.4		20.0					
7,12-Dimethylbenz(a)anthracene	0.4466 0.5768	0.5043 0.5410	0.6109 0.4864	0.6184	0.6315	Ave				0.5520			0.0100	12.4		20.0					
Benzo[b]fluoranthene	1.1139 1.2647	1.2848 1.1715	1.3735 1.1080	1.3372	1.3541	Ave				1.2510			0.7000	8.5		20.0					
Benzo[k]fluoranthene	1.0597 1.2353	1.2775 1.1654	1.2805 1.0886	1.2933	1.3153	Ave				1.2145			0.7000	8.1		20.0					
Benzo[a]pyrene	0.8256 1.1546	1.0204 1.1248	1.0733 1.0809	1.1246	1.1763	Ave				1.0726			0.7000	10.4		20.0					
Indeno[1,2,3-cd]pyrene	1.0437 1.3670	1.1012 1.3659	1.1804 1.3120	1.2227	1.3149	Ave				1.2385			0.5000	9.9		20.0					
Dibenz(a,h)anthracene	0.8549 1.1550	0.9410 1.1346	1.0234 1.0879	1.0463	1.1300	Ave				1.0466			0.4000	10.0		20.0					
Benzo[g,h,i]perylene	0.8929 1.1680	0.9688 1.1791	1.0014 1.1351	1.0264	1.1138	Ave				1.0607			0.5000	9.8		20.0					
2-Fluorophenol (Surr)	1.1072 1.2628	1.1927 1.2263	1.2462 1.2761	1.2480	1.2659	Ave				1.2281				4.5		20.0					
Phenol-d5 (Surr)	1.5249 1.7126	1.6624 1.6434	1.7385 1.6725	1.7357	1.7469	Ave				1.6796				4.4		20.0					
Nitrobenzene-d5 (Surr)	0.3281 0.3882	0.3727 0.3891	0.3713 0.3835	0.3864	0.3926	Ave				0.3765				5.6		20.0					

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI

GC/MS SEMI VOA INITIAL CALIBRATION DATA
INTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 89450
 SDG No.:
 Instrument ID: 71 GC Column: Rxi-5SilMS ID: 0.32 (mm) Heated Purge: (Y/N) N
 Calibration Start Date: 11/07/2013 04:37 Calibration End Date: 11/07/2013 08:11 Calibration ID: 12367

ANALYTE	RRF					COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	B	M1	M2								
2-Fluorobiphenyl	1.3692 1.2698	1.4066 1.2548	1.3635 1.2850	1.3299	1.2991	1.3222					4.1		20.0			
2,4,6-Tribromophenol (Surr)	0.0346 0.0933	0.0796 0.0891	0.0859 0.0886	0.0922	0.0952	0.0421	10.178	1.2422		0.0100			20.0	0.9998		0.9900
Terphenyl-d14 (Surr)	0.8864 0.9364	0.9492 0.9145	0.9909 0.8950	0.9848	0.9848	0.9428					4.4		20.0			

Note: The m1 coefficient is the same as Ave RRF for an Ave curve type.

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Lab File ID: S0101DF1.D DFTPP Injection Date: 01/01/2014
Instrument ID: 71 DFTPP Injection Time: 04:01
Analysis Batch No.: 93752

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	33.5
68	Less than 2.0 % of mass 69	0.0 (0.0) 1
69	Mass 69 relative abundance	36.1
70	Less than 2.0 % of mass 69	0.3 (0.7) 1
127	40.0 - 60.0 % of mass 198	44.4
197	Less than 1.0 % of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	6.8
275	10.0 - 30.0 % of mass 198	25.9
365	Greater than 1.0 % of mass 198	3.0
441	Present but less than mass 443	12.3 (92.7) 3
442	Greater than 40.0 % of mass 198	68.4
443	17.0 - 23.0 % of mass 442	13.3 (19.5) 2

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 180-93752/22	S01010C2.D	01/01/2014	04:44
	MB 180-93531/1-A	S0101001.D	01/01/2014	05:41
	LCS 180-93531/2-A	S0101002.D	01/01/2014	06:35
SD-185-0-1 MS	180-28384-23 MS	S0101003.D	01/01/2014	08:22
SD-185-0-1 MSD	180-28384-23 MSD	S0101004.D	01/01/2014	08:48
SD-183-0-1	180-28384-21	S0101005.D	01/01/2014	09:15
SD-184-0-2	180-28384-22	S0101006.D	01/01/2014	09:42
SD-185-0-1	180-28384-23	S0101007.D	01/01/2014	10:08
SD-186-0-1	180-28384-24	S0101008.D	01/01/2014	10:35
SD-187-0-1	180-28384-25	S0101009.D	01/01/2014	11:01
SD-188-0-1	180-28384-26	S0101010.D	01/01/2014	11:28
SD-189-0-1	180-28384-27	S0101011.D	01/01/2014	11:55
SD-190-0-1	180-28384-28	S0101012.D	01/01/2014	12:22
SD-191-0-1	180-28384-29	S0101013.D	01/01/2014	12:48
SD-192-0-1	180-28384-30	S0101014.D	01/01/2014	13:15
SD-193-0-1	180-28384-31	S0101015.D	01/01/2014	13:42
SD-194-0-1	180-28384-32	S0101016.D	01/01/2014	14:09

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93752/22

Calibration Date: 01/01/2014 04:44

Instrument ID: 71

Calib Start Date: 11/07/2013 04:37

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 11/07/2013 08:11

Lab File ID: S01010C2.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4681	0.3553	0.0100	3.80	5.00	-24.1*	20.0
N-Nitrosodimethylamine	Ave	0.6583	0.4986	0.0100	3.79	5.00	-24.3*	20.0
Pyridine	Ave	1.147	0.8659	0.0100	3.77	5.00	-24.5*	20.0
Methyl methanesulfonate	Ave	0.7540	0.5888	0.0100	3.90	5.00	-21.9*	20.0
Benzaldehyde	Qua	0.8334	0.8710	0.0100	4.58	5.00	-8.3	20.0
Aniline	Ave	2.130	1.812	0.0100	4.25	5.00	-14.9	20.0
Phenol	Ave	1.912	1.723	0.8000	4.51	5.00	-9.9	20.0
Bis(2-chloroethyl)ether	Ave	1.431	1.221	0.7000	4.27	5.00	-14.7	20.0
2-Chlorophenol	Ave	1.409	1.363	0.8000	4.84	5.00	-3.2	20.0
1,3-Dichlorobenzene	Ave	1.528	1.566	0.0100	5.12	5.00	2.4	20.0
1,4-Dichlorobenzene	Ave	1.535	1.601	0.0100	5.21	5.00	4.3	20.0
Benzyl alcohol	Ave	0.9074	0.9032	0.0100	4.98	5.00	-0.5	20.0
1,2-Dichlorobenzene	Ave	1.486	1.564	0.0100	5.26	5.00	5.2	20.0
Indene	Ave	2.425	2.405	0.0100	4.96	5.00	-0.8	20.0
2-Methylphenol	Ave	1.318	1.307	0.7000	4.96	5.00	-0.8	20.0
2,2'-oxybis[1-chloropropane]	Ave	2.393	1.574	0.0100	3.29	5.00	-34.2*	20.0
N-Nitrosopyrrolidine	Ave	0.6671	0.6391	0.0100	4.79	5.00	-4.2	20.0
Acetophenone	Ave	2.056	1.991	0.0100	4.84	5.00	-3.1	20.0
N-Nitrosodi-n-propylamine	Ave	1.098	1.028	0.5000	4.68	5.00	-6.4	20.0
Methylphenol, 3 & 4	Ave	1.381	1.433	0.6000	5.19	5.00	3.8	20.0
Hexachloroethane	Ave	0.6238	0.6066	0.3000	4.86	5.00	-2.8	20.0
Nitrobenzene	Ave	0.3878	0.3313	0.2000	4.27	5.00	-14.6	20.0
Isophorone	Ave	0.6831	0.6072	0.4000	4.44	5.00	-11.1	20.0
2-Nitrophenol	Ave	0.1734	0.1745	0.1000	5.03	5.00	0.6	20.0
2,4-Dimethylphenol	Ave	0.3421	0.3320	0.2000	4.85	5.00	-3.0	20.0
Benzoic acid	Qua	0.1528	0.2050	0.0100	12.6	10.0	26.5*	20.0
Bis(2-chloroethoxy)methane	Ave	0.4200	0.3720	0.3000	4.43	5.00	-11.4	20.0
2,4-Dichlorophenol	Ave	0.2668	0.2918	0.2000	5.47	5.00	9.4	20.0
1,2,4-Trichlorobenzene	Ave	0.3144	0.3283	0.0100	5.22	5.00	4.4	20.0
Naphthalene	Ave	1.048	1.049	0.7000	5.00	5.00	0.0	20.0
4-Chloroaniline	Ave	0.4230	0.4053	0.0100	4.79	5.00	-4.2	20.0
2,6-Dichlorophenol	Ave	0.2695	0.2984	0.0100	5.54	5.00	10.7	20.0
Hexachlorobutadiene	Ave	0.1931	0.2068	0.0100	5.35	5.00	7.1	20.0
Caprolactam	Ave	0.0958	0.1200	0.0100	6.26	5.00	25.3*	20.0
4-Chloro-3-methylphenol	Ave	0.2970	0.3265	0.2000	5.50	5.00	9.9	20.0
2-Methylnaphthalene	Ave	0.7143	0.7817	0.4000	5.47	5.00	9.4	20.0
1-Methylnaphthalene	Ave	0.6657	0.7284	0.0100	5.47	5.00	9.4	20.0
Hexachlorocyclopentadiene	Ave	0.3232	0.3277	0.0500	5.07	5.00	1.4	20.0
1,2,4,5-Tetrachlorobenzene	Ave	0.5468	0.5397	0.0100	4.93	5.00	-1.3	20.0
2,4,6-Trichlorophenol	Ave	0.3353	0.3490	0.2000	5.21	5.00	4.1	20.0
2,4,5-Trichlorophenol	Ave	0.3470	0.3752	0.2000	5.41	5.00	8.1	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93752/22

Calibration Date: 01/01/2014 04:44

Instrument ID: 71

Calib Start Date: 11/07/2013 04:37

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 11/07/2013 08:11

Lab File ID: S01010C2.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1'-Biphenyl	Ave	1.458	1.413	0.0100	4.84	5.00	-3.1	20.0
2-Chloronaphthalene	Ave	1.162	1.161	0.8000	4.99	5.00	-0.1	20.0
2-Nitroaniline	Ave	0.3468	0.3144	0.0100	4.53	5.00	-9.4	20.0
Dimethyl phthalate	Ave	1.213	1.286	0.0100	5.30	5.00	5.9	20.0
1,3-Dinitrobenzene	Ave	0.1853	0.2104	0.0100	5.68	5.00	13.6	20.0
2,6-Dinitrotoluene	Ave	0.2750	0.3018	0.2000	5.49	5.00	9.7	20.0
Acenaphthylene	Ave	1.781	1.823	0.9000	5.12	5.00	2.3	20.0
3-Nitroaniline	Ave	0.2949	0.3280	0.0100	5.56	5.00	11.2	20.0
Acenaphthene	Ave	1.145	1.170	0.9000	5.11	5.00	2.2	20.0
2,4-Dinitrophenol	Qua	0.1005	0.1145	0.0100	12.7	10.0	26.6*	20.0
4-Nitrophenol	Ave	0.1503	0.1758	0.0100	11.7	10.0	17.0	20.0
2,4-Dinitrotoluene	Qua	0.3096	0.4179	0.2000	5.99	5.00	19.8	20.0
Dibenzofuran	Ave	1.636	1.708	0.8000	5.22	5.00	4.4	20.0
2,3,5,6-Tetrachlorophenol	Ave	0.3065	0.3441	0.0100	5.61	5.00	12.3	20.0
2,3,4,6-Tetrachlorophenol	Ave	0.3145	0.3725	0.0100	5.92	5.00	18.4	20.0
2-Naphthylamine	Qua	0.5527	0.4670	0.0100	4.05	5.00	-18.9	20.0
Diethyl phthalate	Ave	1.219	1.325	0.0100	5.44	5.00	8.7	20.0
4-Chlorophenyl phenyl ether	Ave	0.6554	0.7116	0.4000	5.43	5.00	8.6	20.0
Fluorene	Ave	1.292	1.438	0.9000	5.56	5.00	11.2	20.0
4-Nitroaniline	Ave	0.2710	0.3636	0.0100	6.71	5.00	34.2*	20.0
4,6-Dinitro-2-methylphenol	Qua	0.0944	0.1208	0.0100	12.2	10.0	22.1*	20.0
N-Nitrosodiphenylamine	Ave	0.5458	0.5299	0.0100	4.85	5.00	-2.9	20.0
1,2-Diphenylhydrazine(as Azobenzene)	Ave	0.8706	0.7144	0.0100	4.10	5.00	-17.9	20.0
4-Bromophenyl phenyl ether	Ave	0.2246	0.2197	0.1000	4.89	5.00	-2.2	20.0
Hexachlorobenzene	Ave	0.2285	0.2262	0.1000	4.95	5.00	-1.0	20.0
Atrazine	Ave	0.1595	0.1714	0.0100	5.37	5.00	7.4	20.0
Pentachlorophenol	Qua	0.1078	0.1286	0.0500	10.4	10.0	4.4	20.0
Phenanthrene	Ave	1.106	1.132	0.7000	5.12	5.00	2.3	20.0
Anthracene	Ave	1.067	1.175	0.7000	5.51	5.00	10.1	20.0
Carbazole	Ave	0.9248	1.101	0.0100	5.95	5.00	19.0	20.0
Di-n-butyl phthalate	Ave	1.098	1.250	0.0100	5.69	5.00	13.8	20.0
Fluoranthene	Ave	1.065	1.296	0.6000	6.08	5.00	21.6*	20.0
Benzidine	Qua	0.1610	0.1009	0.0100	4.24	5.00	-15.2	20.0
Pyrene	Ave	1.314	1.086	0.6000	4.13	5.00	-17.4	20.0
Butyl benzyl phthalate	Ave	0.4955	0.4693	0.0100	4.74	5.00	-5.3	20.0
3,3'-Dichlorobenzidine	Ave	0.3426	0.4034	0.0100	5.89	5.00	17.7	20.0
Bis(2-ethylhexyl) phthalate	Ave	0.6393	0.6723	0.0100	5.26	5.00	5.2	20.0
Benzo[a]anthracene	Ave	1.090	1.117	0.8000	5.12	5.00	2.5	20.0
Chrysene	Ave	1.004	1.027	0.7000	5.12	5.00	2.3	20.0
Di-n-octyl phthalate	Ave	1.216	1.158	0.0100	4.76	5.00	-4.8	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93752/22

Calibration Date: 01/01/2014 04:44

Instrument ID: 71

Calib Start Date: 11/07/2013 04:37

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Calib End Date: 11/07/2013 08:11

Lab File ID: S01010C2.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
7,12-Dimethylbenz(a)anthracene	Ave	0.5520	0.5418	0.0100	4.91	5.00	-1.8	20.0
Benzo[b]fluoranthene	Ave	1.251	1.207	0.7000	4.83	5.00	-3.5	20.0
Benzo[k]fluoranthene	Ave	1.214	1.171	0.7000	4.82	5.00	-3.6	20.0
Benzo[a]pyrene	Ave	1.073	1.111	0.7000	5.18	5.00	3.6	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.238	1.332	0.5000	5.38	5.00	7.6	20.0
Dibenz(a,h)anthracene	Ave	1.047	1.136	0.4000	5.43	5.00	8.5	20.0
Benzo[g,h,i]perylene	Ave	1.061	1.118	0.5000	5.27	5.00	5.4	20.0
2-Fluorophenol (Surr)	Ave	1.228	1.054		4.29	5.00	-14.1	20.0
Phenol-d5 (Surr)	Ave	1.680	1.527		4.55	5.00	-9.1	20.0
Nitrobenzene-d5 (Surr)	Ave	0.3765	0.3293		4.37	5.00	-12.5	20.0
2-Fluorobiphenyl	Ave	1.322	1.275		4.82	5.00	-3.5	20.0
2,4,6-Tribromophenol (Surr)	Qua	0.0823	0.0945	0.0100	5.05	5.00	0.9	20.0
Terphenyl-d14 (Surr)	Ave	0.9428	0.8074		4.28	5.00	-14.4	20.0

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Lab File ID: S0104DF1.D DFTPP Injection Date: 01/04/2014
Instrument ID: 71 DFTPP Injection Time: 07:39
Analysis Batch No.: 93785

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0 % of mass 198	34.3
68	Less than 2.0 % of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	36.3
70	Less than 2.0 % of mass 69	0.4 (1.2)1
127	40.0 - 60.0 % of mass 198	44.8
197	Less than 1.0 % of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0- 9.0 % of mass 198	6.8
275	10.0 - 30.0 % of mass 198	26.1
365	Greater than 1.0 % of mass 198	3.1
441	Present but less than mass 443	12.8 (97.5)3
442	Greater than 40.0 % of mass 198	66.5
443	17.0 - 23.0 % of mass 442	13.1 (19.7)2

1-Value is % mass 69 2-Value is % mass 442 3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 180-93785/3	S01040C1.D	01/04/2014	07:53
SD-190-0-1 DL	180-28384-28 DL	S0104012.D	01/04/2014	13:38

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93785/3

Calibration Date: 01/04/2014 07:53

Instrument ID: 71

Calib Start Date: 11/07/2013 04:37

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 11/07/2013 08:11

Lab File ID: S01040C1.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	Ave	0.4681	0.3889	0.0100	4.15	5.00	-16.9	20.0
N-Nitrosodimethylamine	Ave	0.6583	0.5153	0.0100	3.91	5.00	-21.7*	20.0
Pyridine	Ave	1.147	0.8860	0.0100	3.86	5.00	-22.8*	20.0
Methyl methanesulfonate	Ave	0.7540	0.5431	0.0100	3.60	5.00	-28.0*	20.0
Benzaldehyde	Qua	0.8334	0.6088	0.0100	3.36	5.00	-32.9*	20.0
Aniline	Ave	2.130	1.568	0.0100	3.68	5.00	-26.4*	20.0
Phenol	Ave	1.912	1.538	0.8000	4.02	5.00	-19.5	20.0
Bis(2-chloroethyl)ether	Ave	1.431	1.112	0.7000	3.88	5.00	-22.3*	20.0
2-Chlorophenol	Ave	1.409	1.307	0.8000	4.64	5.00	-7.2	20.0
1,3-Dichlorobenzene	Ave	1.528	1.544	0.0100	5.05	5.00	1.0	20.0
1,4-Dichlorobenzene	Ave	1.535	1.581	0.0100	5.15	5.00	3.0	20.0
Benzyl alcohol	Ave	0.9074	0.7853	0.0100	4.33	5.00	-13.4	20.0
1,2-Dichlorobenzene	Ave	1.486	1.532	0.0100	5.15	5.00	3.1	20.0
Indene	Ave	2.425	2.250	0.0100	4.64	5.00	-7.2	20.0
2-Methylphenol	Ave	1.318	1.163	0.7000	4.41	5.00	-11.7	20.0
2,2'-oxybis[1-chloropropane]	Ave	2.393	1.396	0.0100	2.92	5.00	-41.7*	20.0
N-Nitrosopyrrolidine	Ave	0.6671	0.5096	0.0100	3.82	5.00	-23.6*	20.0
Acetophenone	Ave	2.056	1.729	0.0100	4.20	5.00	-15.9	20.0
N-Nitrosodi-n-propylamine	Ave	1.098	0.8540	0.5000	3.89	5.00	-22.2*	20.0
Methylphenol, 3 & 4	Ave	1.381	1.230	0.6000	4.45	5.00	-10.9	20.0
Hexachloroethane	Ave	0.6238	0.5841	0.3000	4.68	5.00	-6.4	20.0
Nitrobenzene	Ave	0.3878	0.3361	0.2000	4.33	5.00	-13.3	20.0
Isophorone	Ave	0.6831	0.5716	0.4000	4.18	5.00	-16.3	20.0
2-Nitrophenol	Ave	0.1734	0.1745	0.1000	5.03	5.00	0.6	20.0
2,4-Dimethylphenol	Ave	0.3421	0.3208	0.2000	4.69	5.00	-6.2	20.0
Benzoic acid	Qua	0.1528	0.1457	0.0100	9.49	10.0	-5.1	20.0
Bis(2-chloroethoxy)methane	Ave	0.4200	0.3533	0.3000	4.21	5.00	-15.9	20.0
2,4-Dichlorophenol	Ave	0.2668	0.2975	0.2000	5.57	5.00	11.5	20.0
1,2,4-Trichlorobenzene	Ave	0.3144	0.3445	0.0100	5.48	5.00	9.6	20.0
Naphthalene	Ave	1.048	1.055	0.7000	5.03	5.00	0.6	20.0
4-Chloroaniline	Ave	0.4230	0.3871	0.0100	4.58	5.00	-8.5	20.0
2,6-Dichlorophenol	Ave	0.2695	0.2972	0.0100	5.51	5.00	10.3	20.0
Hexachlorobutadiene	Ave	0.1931	0.2282	0.0100	5.91	5.00	18.2	20.0
Caprolactam	Ave	0.0958	0.0901	0.0100	4.70	5.00	-5.9	20.0
4-Chloro-3-methylphenol	Ave	0.2970	0.2847	0.2000	4.79	5.00	-4.2	20.0
2-Methylnaphthalene	Ave	0.7143	0.7009	0.4000	4.91	5.00	-1.9	20.0
1-Methylnaphthalene	Ave	0.6657	0.6592	0.0100	4.95	5.00	-1.0	20.0
Hexachlorocyclopentadiene	Ave	0.3232	0.3333	0.0500	5.16	5.00	3.1	20.0
1,2,4,5-Tetrachlorobenzene	Ave	0.5468	0.5831	0.0100	5.33	5.00	6.6	20.0
2,4,6-Trichlorophenol	Ave	0.3353	0.3565	0.2000	5.32	5.00	6.3	20.0
2,4,5-Trichlorophenol	Ave	0.3470	0.3721	0.2000	5.36	5.00	7.2	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93785/3

Calibration Date: 01/04/2014 07:53

Instrument ID: 71

Calib Start Date: 11/07/2013 04:37

GC Column: Rxi-5SilMS ID: 0.32(mm)

Calib End Date: 11/07/2013 08:11

Lab File ID: S01040C1.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1'-Biphenyl	Ave	1.458	1.400	0.0100	4.80	5.00	-4.0	20.0
2-Chloronaphthalene	Ave	1.162	1.140	0.8000	4.90	5.00	-2.0	20.0
2-Nitroaniline	Ave	0.3468	0.2889	0.0100	4.16	5.00	-16.7	20.0
Dimethyl phthalate	Ave	1.213	1.210	0.0100	4.99	5.00	-0.3	20.0
1,3-Dinitrobenzene	Ave	0.1853	0.1922	0.0100	5.19	5.00	3.7	20.0
2,6-Dinitrotoluene	Ave	0.2750	0.2818	0.2000	5.12	5.00	2.5	20.0
Acenaphthylene	Ave	1.781	1.856	0.9000	5.21	5.00	4.2	20.0
3-Nitroaniline	Ave	0.2949	0.3160	0.0100	5.36	5.00	7.2	20.0
Acenaphthene	Ave	1.145	1.177	0.9000	5.14	5.00	2.8	20.0
2,4-Dinitrophenol	Qua	0.1005	0.0763	0.0100	9.61	10.0	-3.9	20.0
4-Nitrophenol	Ave	0.1503	0.1635	0.0100	10.9	10.0	8.8	20.0
2,4-Dinitrotoluene	Qua	0.3096	0.4044	0.2000	5.79	5.00	15.8	20.0
Dibenzofuran	Ave	1.636	1.792	0.8000	5.48	5.00	9.5	20.0
2,3,5,6-Tetrachlorophenol	Ave	0.3065	0.3219	0.0100	5.25	5.00	5.0	20.0
2,3,4,6-Tetrachlorophenol	Ave	0.3145	0.3499	0.0100	5.56	5.00	11.3	20.0
2-Naphthylamine	Qua	0.5527	0.5186	0.0100	4.63	5.00	-7.5	20.0
Diethyl phthalate	Ave	1.219	1.352	0.0100	5.55	5.00	10.9	20.0
4-Chlorophenyl phenyl ether	Ave	0.6554	0.7342	0.4000	5.60	5.00	12.0	20.0
4-Nitroaniline	Ave	0.2710	0.3412	0.0100	6.29	5.00	25.9*	20.0
Fluorene	Ave	1.292	1.487	0.9000	5.75	5.00	15.0	20.0
4,6-Dinitro-2-methylphenol	Qua	0.0944	0.1001	0.0100	10.4	10.0	4.4	20.0
N-Nitrosodiphenylamine	Ave	0.5458	0.5423	0.0100	4.97	5.00	-0.6	20.0
1,2-Diphenylhydrazine (as Azobenzene)	Ave	0.8706	0.7409	0.0100	4.26	5.00	-14.9	20.0
4-Bromophenyl phenyl ether	Ave	0.2246	0.2286	0.1000	5.09	5.00	1.8	20.0
Hexachlorobenzene	Ave	0.2285	0.2295	0.1000	5.02	5.00	0.4	20.0
Atrazine	Ave	0.1595	0.1661	0.0100	5.21	5.00	4.1	20.0
Pentachlorophenol	Qua	0.1078	0.1082	0.0500	8.82	10.0	-11.8	20.0
Phenanthrene	Ave	1.106	1.144	0.7000	5.17	5.00	3.4	20.0
Anthracene	Ave	1.067	1.167	0.7000	5.47	5.00	9.4	20.0
Carbazole	Ave	0.9248	1.057	0.0100	5.72	5.00	14.3	20.0
Di-n-butyl phthalate	Ave	1.098	1.251	0.0100	5.70	5.00	13.9	20.0
Fluoranthene	Ave	1.065	1.257	0.6000	5.90	5.00	18.0	20.0
Benzidine	Qua	0.1610	0.1872	0.0100	6.70	5.00	34.0*	20.0
Pyrene	Ave	1.314	1.145	0.6000	4.36	5.00	-12.8	20.0
Butyl benzyl phthalate	Ave	0.4955	0.4916	0.0100	4.96	5.00	-0.8	20.0
3,3'-Dichlorobenzidine	Ave	0.3426	0.3905	0.0100	5.70	5.00	14.0	20.0
Bis(2-ethylhexyl) phthalate	Ave	0.6393	0.6956	0.0100	5.44	5.00	8.8	20.0
Benzo[a]anthracene	Ave	1.090	1.133	0.8000	5.20	5.00	3.9	20.0
Chrysene	Ave	1.004	1.062	0.7000	5.29	5.00	5.8	20.0
Di-n-octyl phthalate	Ave	1.216	1.313	0.0100	5.40	5.00	7.9	20.0

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCVIS 180-93785/3

Calibration Date: 01/04/2014 07:53

Instrument ID: 71

Calib Start Date: 11/07/2013 04:37

GC Column: Rxi-5SilMS ID: 0.32 (mm)

Calib End Date: 11/07/2013 08:11

Lab File ID: S01040C1.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
7,12-Dimethylbenz(a)anthracene	Ave	0.5520	0.5641	0.0100	5.11	5.00	2.2	20.0
Benzo[b]fluoranthene	Ave	1.251	1.270	0.7000	5.08	5.00	1.6	20.0
Benzo[k]fluoranthene	Ave	1.214	1.228	0.7000	5.06	5.00	1.1	20.0
Benzo[a]pyrene	Ave	1.073	1.127	0.7000	5.25	5.00	5.1	20.0
Indeno[1,2,3-cd]pyrene	Ave	1.238	1.387	0.5000	5.60	5.00	12.0	20.0
Dibenz(a,h)anthracene	Ave	1.047	1.165	0.4000	5.57	5.00	11.3	20.0
Benzo[g,h,i]perylene	Ave	1.061	1.196	0.5000	5.64	5.00	12.8	20.0
2-Fluorophenol (Surr)	Ave	1.228	1.085		4.42	5.00	-11.7	20.0
Phenol-d5 (Surr)	Ave	1.680	1.382		4.11	5.00	-17.7	20.0
Nitrobenzene-d5 (Surr)	Ave	0.3765	0.3292		4.37	5.00	-12.6	20.0
2-Fluorobiphenyl	Ave	1.322	1.305		4.94	5.00	-1.3	20.0
2,4,6-Tribromophenol (Surr)	Qua	0.0823	0.0940	0.0100	5.02	5.00	0.4	20.0
Terphenyl-d14 (Surr)	Ave	0.9428	0.8380		4.44	5.00	-11.1	20.0

FORM II
GC SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

GC Column (2): RTX-1701 ID: 0.53 (mm)

Client Sample ID	Lab Sample ID	TCX2 #	DCB2 #
SD-163-0-1	180-28384-1	102	103
SD-164-0-1	180-28384-2	104	180 X
SD-165-0-1	180-28384-3	99	105
SD-166-0-1	180-28384-4	88	73
SD-167-0-1	180-28384-5	69	69
SD-168-0-1	180-28384-6	102	131
SD-169-0-1	180-28384-7	76	74
SD-170-0-1	180-28384-8	71	64
SD-171-0-1	180-28384-9	0 X D	0 X D
SD-172-0-3	180-28384-10	0 X D	0 X D
SD-173-0-3	180-28384-11	0 X D	0 X D
SD-174-0-1	180-28384-12	96	131
SD-175-0-1	180-28384-13	120 D	180 D X
SD-176-0-3	180-28384-14	89	88
SD-177-0-2	180-28384-15	93	84
SD-178-0-1	180-28384-16	75	62
SD-179-0-1	180-28384-17	94	81
SD-180-0-1	180-28384-18	115	61
SD-181-0-1	180-28384-19	0 X D	0 X D
SD-182-0-3	180-28384-20	0 X D	0 X D
SD-183-0-1	180-28384-21	0 X D	0 X D
SD-184-0-2	180-28384-22	89	105
SD-185-0-1	180-28384-23	123	103
SD-186-0-1	180-28384-24	87	64
SD-187-0-1	180-28384-25	86	65
SD-188-0-1	180-28384-26	77	64
SD-189-0-1	180-28384-27	82	70
SD-190-0-1	180-28384-28	81	53
SD-191-0-1	180-28384-29	82	89
SD-192-0-1	180-28384-30	65	54
SD-193-0-1	180-28384-31	78	68
SD-194-0-1	180-28384-32	91	72
	MB 180-93257/1-C	92	82
	MB 180-93333/1-C	76	70

QC LIMITS

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

30-150
20-150

Column to be used to flag recovery values

FORM II 8082A

FORM II
GC SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

GC Column (2): RTX-1701 ID: 0.53 (mm)

Client Sample ID	Lab Sample ID	TCX2 #	DCB2 #
	LCS 180-93257/2-C	91	81
	LCS 180-93333/2-C	84	74
SD-165-0-1 MS	180-28384-3 MS	92	95
SD-185-0-1 MS	180-28384-23 MS	103	47
SD-165-0-1 MSD	180-28384-3 MSD	88	94
SD-185-0-1 MSD	180-28384-23 MSD	98	65

TCX = Tetrachloro-m-xylene
DCB = DCB Decachlorobiphenyl (Surr)

QC LIMITS
30-150
20-150

Column to be used to flag recovery values

FORM II 8082A

FORM IV
GC SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: MB 180-93257/1-C
 Matrix: Sediment Date Extracted: 12/26/2013 03:40
 Lab File ID: (1) _____ Lab File ID: (2) T1230582.D
 Date Analyzed: (1) _____ Date Analyzed: (2) 12/27/2013 21:15
 Instrument ID: (1) _____ Instrument ID: (2) GC10
 GC Column: (1) _____ ID: _____ GC Column: (2) RTX-1701 ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
SD-163-0-1	180-28384-1		12/27/2013 04:27
SD-164-0-1	180-28384-2		12/27/2013 04:58
SD-165-0-1	180-28384-3		12/27/2013 05:30
SD-165-0-1 MS	180-28384-3 MS		12/27/2013 06:01
SD-165-0-1 MSD	180-28384-3 MSD		12/27/2013 06:33
SD-166-0-1	180-28384-4		12/27/2013 07:04
SD-167-0-1	180-28384-5		12/27/2013 07:36
SD-168-0-1	180-28384-6		12/27/2013 08:07
SD-169-0-1	180-28384-7		12/27/2013 08:39
SD-170-0-1	180-28384-8		12/27/2013 09:10
SD-174-0-1	180-28384-12		12/27/2013 14:26
SD-176-0-3	180-28384-14		12/27/2013 15:28
SD-177-0-2	180-28384-15		12/27/2013 16:00
SD-178-0-1	180-28384-16		12/27/2013 16:31
SD-179-0-1	180-28384-17		12/27/2013 17:03
SD-171-0-1	180-28384-9		12/27/2013 19:09
SD-172-0-3	180-28384-10		12/27/2013 19:40
SD-173-0-3	180-28384-11		12/27/2013 20:12
	LCS 180-93257/2-C		12/27/2013 21:46
SD-175-0-1	180-28384-13		12/28/2013 08:16
SD-180-0-1	180-28384-18		12/28/2013 08:48
SD-181-0-1	180-28384-19		12/28/2013 11:58
SD-182-0-3	180-28384-20		12/28/2013 12:29

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93257

Batch Start Date: 12/26/13 03:20 Batch Analyst: Geehring, Kevin

Batch Method: 3541

Batch End Date: 12/26/13 09:47

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	InitialAmount	GCMAATRIXWORKS 00009	op-p/pcb sur 00010
MB 180-93257/1		3541, 3665A, 3660B, 8082A		1.0 mL	30.0 g		25 uL
LCS 180-93257/2		3541, 3665A, 3660B, 8082A		1.0 mL	30.0 g	25 uL	25 uL
180-28384-A-3	SD-165-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g	25 uL	25 uL
MS							
180-28384-A-3	SD-165-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g	25 uL	25 uL
MSD							
180-28384-A-1	SD-163-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-2	SD-164-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-3	SD-165-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-4	SD-166-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-5	SD-167-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-6	SD-168-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-7	SD-169-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-8	SD-170-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-9	SD-171-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-10	SD-172-0-3	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-11	SD-173-0-3	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-12	SD-174-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-13	SD-175-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-14	SD-176-0-3	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-15	SD-177-0-2	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.2 g		25 uL
180-28384-A-16	SD-178-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-17	SD-179-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93257

Batch Start Date: 12/26/13 03:20

Batch Analyst: Geehring, Kevin

Batch Method: 3541

Batch End Date: 12/26/13 09:47

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	InitialAmount	GC/MATRIXWORKS 00009	op-p/pcb sur 00010
180-28384-A-18	SD-180-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-19	SD-181-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-20	SD-182-0-3	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL

Batch Notes

Balance ID	1120122641
Batch Comment	sox # 1 - 2 - 3 - 4
Person's name who did the concentration	kg
Exchange Solvent Lot #	1017776
Exchange Solvent Name	Hexane
Magnesium Sulfate Lot #	1055012
N-evap #	2
Na2SO4 Lot Number	1047333
Person's name who did the prep	KG KG
Solvent	Hexane/acetone
Solvent Lot #	1055182
Uncorrected N-evap Temperature	32 Degrees C

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

FORM I
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 180-93257/1-C
 Matrix: Sediment Lab File ID: T1230582.D
 Analysis Method: 8082A Date Collected: _____
 Extraction Method: 3541 Date Extracted: 12/26/2013 03:40
 Sample wt/vol: 30.0(g) Date Analyzed: 12/27/2013 21:15
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) GC Column: RTX-1701 ID: 0.53(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 93552 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.42	0.062
11104-28-2	PCB-1221	ND		0.42	0.080
11141-16-5	PCB-1232	ND		0.42	0.071
53469-21-9	PCB-1242	ND		0.42	0.068
12672-29-6	PCB-1248	ND		0.42	0.039
11097-69-1	PCB-1254	ND		0.42	0.059
11096-82-5	PCB-1260	ND		0.42	0.059

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl (Surr)	82		20-150
877-09-8	Tetrachloro-m-xylene	92		30-150

FORM III
GC SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
SDG No.: _____
Matrix: Sediment Level: Low Lab File ID: T1230583.D
Lab ID: LCS 180-93257/2-C Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
PCB-1016	33.3	29.5	88	50-120	
PCB-1260	33.3	28.6	86	50-120	

Column to be used to flag recovery and RPD values

FORM III 8082A

FORM III
GC SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

Lab File ID: T1230553.D

Lab ID: 180-28384-3 MS

Client ID: SD-165-0-1 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
PCB-1016	43.6	ND	47.4	109	50-120	
PCB-1260	43.6	99	117	40	50-120	F

Column to be used to flag recovery and RPD values

FORM III 8082A

FORM III
GC SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Matrix: Sediment Level: Low Lab File ID: T1230554.D
 Lab ID: 180-28384-3 MSD Client ID: SD-165-0-1 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	MSD % RPD	QC LIMITS		#
					RPD	REC	
PCB-1016	43.6	46.3	106	2	30	50-120	
PCB-1260	43.6	113	31	3	30	50-120	F

Column to be used to flag recovery and RPD values

FORM III 8082A

FORM IV
GC SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: MB 180-93333/1-C
 Matrix: Sediment Date Extracted: 12/27/2013 02:40
 Lab File ID: (1) _____ Lab File ID: (2) T1230600.D
 Date Analyzed: (1) _____ Date Analyzed: (2) 12/28/2013 06:42
 Instrument ID: (1) _____ Instrument ID: (2) GC10
 GC Column: (1) _____ ID: _____ GC Column: (2) RTX-1701 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
SD-184-0-2	180-28384-22		12/27/2013 23:21
SD-185-0-1	180-28384-23		12/27/2013 23:52
SD-185-0-1 MS	180-28384-23 MS		12/28/2013 00:24
SD-185-0-1 MSD	180-28384-23 MSD		12/28/2013 00:55
SD-186-0-1	180-28384-24		12/28/2013 01:27
SD-187-0-1	180-28384-25		12/28/2013 01:58
SD-188-0-1	180-28384-26		12/28/2013 02:30
SD-189-0-1	180-28384-27		12/28/2013 03:01
SD-190-0-1	180-28384-28		12/28/2013 03:33
SD-191-0-1	180-28384-29		12/28/2013 04:04
SD-192-0-1	180-28384-30		12/28/2013 04:36
SD-193-0-1	180-28384-31		12/28/2013 05:07
SD-194-0-1	180-28384-32		12/28/2013 05:39
	LCS 180-93333/2-C		12/28/2013 07:13
SD-183-0-1	180-28384-21		12/28/2013 10:23

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93333

Batch Start Date: 12/27/13 02:40

Batch Analyst: Geehring, Kevin

Batch Method: 3541

Batch End Date: 12/27/13 08:37

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	InitialAmount	GC/MATRIXWORKS 00009	op-p/pcb sur 00010
MB 180-93333/1		3541, 3665A, 3660B, 8082A		1.0 mL	30.0 g		25 uL
LCS 180-93333/2		3541, 3665A, 3660B, 8082A		1.0 mL	30.0 g	25 uL	25 uL
180-28384-A-23	SD-185-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g	25 uL	25 uL
MS		3541, 3665A, 3660B, 8082A		1.0 mL	30.1 g	25 uL	25 uL
180-28384-A-23	SD-185-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
MSD		3541, 3665A, 3660B, 8082A		1.0 mL	30.0 g		25 uL
180-28384-A-21	SD-183-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.2 g		25 uL
180-28384-A-22	SD-184-0-2	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-23	SD-185-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-24	SD-186-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-25	SD-187-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-26	SD-188-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-27	SD-189-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-28	SD-190-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL
180-28384-A-29	SD-191-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-30	SD-192-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-31	SD-193-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.0 g		25 uL
180-28384-A-32	SD-194-0-1	3541, 3665A, 3660B, 8082A	T	1.0 mL	30.1 g		25 uL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93333

Batch Start Date: 12/27/13 02:40

Batch Analyst: Geehring, Kevin

Batch Method: 3541

Batch End Date: 12/27/13 08:37

Batch Notes			
Balance ID	1120122641		
Batch Comment	sox #	2 - 3 - 4	
Person's name who did the concentration	kg		
Exchange Solvent Lot #	1017776		
Exchange Solvent Name	Hexane		
Magnesium Sulfate Lot #	1055012		
N-evap #	2		
Na2SO4 Lot Number	1047333		
Person's name who did the prep	kg		
Solvent	Hexane/acetone		
Solvent Lot #	1055182		
Uncorrected N-evap Temperature	32 Degrees C		

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

FORM I
GC SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 180-93333/1-C
 Matrix: Sediment Lab File ID: T1230600.D
 Analysis Method: 8082A Date Collected: _____
 Extraction Method: 3541 Date Extracted: 12/27/2013 02:40
 Sample wt/vol: 30.0(g) Date Analyzed: 12/28/2013 06:42
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 1(uL) GC Column: RTX-1701 ID: 0.53(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 93552 Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	PCB-1016	ND		0.42	0.062
11104-28-2	PCB-1221	ND		0.42	0.080
11141-16-5	PCB-1232	ND		0.42	0.071
53469-21-9	PCB-1242	ND		0.42	0.068
12672-29-6	PCB-1248	ND		0.42	0.039
11097-69-1	PCB-1254	ND		0.42	0.059
11096-82-5	PCB-1260	ND		0.42	0.059

CAS NO.	SURROGATE	%REC	Q	LIMITS
2051-24-3	DCB Decachlorobiphenyl (Surr)	70		20-150
877-09-8	Tetrachloro-m-xylene	76		30-150

FORM III
GC SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment Level: Low Lab File ID: T1230601.D

Lab ID: LCS 180-93333/2-C Client ID: _____

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
PCB-1016	33.3	26.3	79	50-120	
PCB-1260	33.3	25.5	77	50-120	

Column to be used to flag recovery and RPD values

FORM III 8082A

FORM III
GC SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment Level: Low Lab File ID: T1230588.D

Lab ID: 180-28384-23 MS Client ID: SD-185-0-1 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
PCB-1016	44.7	ND	67.0	150	50-120	F
PCB-1260	44.7	550	579	66	50-120	4

Column to be used to flag recovery and RPD values

FORM III 8082A

FORM III
GC SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Matrix: Sediment

Level: Low

Lab File ID: T1230589.D

Lab ID: 180-28384-23 MSD

Client ID: SD-185-0-1 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD				QC LIMITS		#
			% REC	% RPD	RPD	REC	RPD	REC	
PCB-1016	44.5	58.8	132	13	30	50-120			F
PCB-1260	44.5	553	8	5	30	50-120			4

Column to be used to flag recovery and RPD values

FORM III 8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1

SDG No.:

Batch Number: 93283

Batch Start Date: 12/26/13 10:24

Batch Analyst: Gupta, Ashok

Batch Method: 3665A

Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount
MB		3665A, 8082A		2 mL	2 mL
180-93257/1-A		3660B, 8082A			
LCS		3665A, 8082A		2 mL	2 mL
180-93257/2-A		3660B, 8082A			
180-28384-A-3-B	SD-165-0-1	3665A, 8082A	T	2 mL	2 mL
MS		3660B, 8082A			
180-28384-A-3-C	SD-165-0-1	3665A, 8082A	T	2 mL	2 mL
MSD		3660B, 8082A			
180-28384-A-1-D	SD-163-0-1	3665A, 8082A	T	2 mL	2 mL
180-28384-A-2-B	SD-164-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-3-D	SD-165-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-4-B	SD-166-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-5-B	SD-167-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-6-B	SD-168-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-7-B	SD-169-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-8-B	SD-170-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-9-B	SD-171-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-10-B	SD-172-0-3	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-11-B	SD-173-0-3	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-12-B	SD-174-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-13-B	SD-175-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-14-B	SD-176-0-3	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-15-B	SD-177-0-2	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-16-B	SD-178-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL
180-28384-A-17-B	SD-179-0-1	3660B, 8082A			
		3665A, 8082A	T	2 mL	2 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.:
 Batch Number: 93283 Batch Start Date: 12/26/13 10:24 Batch Analyst: Gupta, Ashok
 Batch Method: 3665A Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	Initial Amount	Final Amount	
180-28384-A-18-B	SD-180-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL	
180-28384-A-19-B	SD-181-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL	
180-28384-A-20-B	SD-182-0-3	3665A, 3660B, 8082A	T	2 mL	2 mL	

Batch Notes	

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93284

Batch Start Date: 12/26/13 10:25

Batch Analyst: Gupta, Ashok

Batch Method: 3660B

Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	GCTBASOLUTION 00015
MB 180-93257/1-B		3660B, 8082A		2 mL	2 mL	2 mL
LCS 180-93257/2-B		3660B, 8082A		2 mL	2 mL	2 mL
MS 180-28384-A-3-E	SD-165-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
MSD 180-28384-A-3-F	SD-165-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-1-E	SD-163-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-2-C	SD-164-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-3-G	SD-165-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-4-C	SD-166-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-5-C	SD-167-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-6-C	SD-168-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-7-C	SD-169-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-8-C	SD-170-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-9-C	SD-171-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-10-C	SD-172-0-3	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-11-C	SD-173-0-3	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-12-C	SD-174-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-13-C	SD-175-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-14-C	SD-176-0-3	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-15-C	SD-177-0-2	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-16-C	SD-178-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-17-C	SD-179-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-18-C	SD-180-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-19-C	SD-181-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-20-C	SD-182-0-3	3660B, 8082A	T	2 mL	2 mL	2 mL

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1

SDG No.:

Batch Number: 93284

Batch Start Date: 12/26/13 10:25

Batch Analyst: Gupta, Ashok

Batch Method: 3660B

Batch End Date:

Batch Notes	
Batch Comment	H2SO4 lot-52267 is used for cleanup ref-3665A

Basis		Basis Description
T	Total/NA	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Batch Number: 93363

Batch Start Date: 12/27/13 10:34

Batch Analyst: Gupta, Ashok

Batch Method: 3665A

Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount		
MB		3665A, 3660B, 8082A		2 mL	2 mL		
180-93333/1-A		3665A, 3660B, 8082A		2 mL	2 mL		
LCS		3665A, 3660B, 8082A		2 mL	2 mL		
180-93333/2-A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-23-	SD-185-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A MS		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-23-	SD-185-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
B MSD		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-21-	SD-183-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-22-	SD-184-0-2	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-23-	SD-185-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
C		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-24-	SD-186-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-25-	SD-187-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-26-	SD-188-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-27-	SD-189-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-28-	SD-190-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-29-	SD-191-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-30-	SD-192-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-31-	SD-193-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		
180-28384-A-32-	SD-194-0-1	3665A, 3660B, 8082A	T	2 mL	2 mL		
A		3665A, 3660B, 8082A		2 mL	2 mL		

Batch Notes

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Batch Start Date: 12/27/13 10:35 Batch Analyst: Gupta, Ashok
 SDG No.: Batch Number: 93364 Batch End Date: Batch Method: 3660B

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	GCTBASOLUTION 00015
MB 180-93333/1-B		3660B, 8082A		2 mL	2 mL	2 mL
LCS 180-93333/2-B		3660B, 8082A		2 mL	2 mL	2 mL
180-28384-A-23-D MS	SD-185-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-23-E MSD	SD-185-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-21-B	SD-183-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-22-B	SD-184-0-2	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-23-F	SD-185-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-24-B	SD-186-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-25-B	SD-187-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-26-B	SD-188-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-27-B	SD-189-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-28-B	SD-190-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-29-B	SD-191-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-30-B	SD-192-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-31-B	SD-193-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL
180-28384-A-32-B	SD-194-0-1	3660B, 8082A	T	2 mL	2 mL	2 mL

Batch Notes

Batch Comment	
	H2SO4 lot-53267 is used for cleanup ref-3665A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8082A

GC SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Instrument ID: GC10

Start Date: 12/26/2013 17:57

Analysis Batch Number: 93552

End Date: 12/28/2013 15:07

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 180-93552/1		12/26/2013 17:57	1	T1230530.D	RTX-1701 0.53 (mm)
IC 180-93552/2		12/26/2013 18:28	1	T1230531.D	RTX-1701 0.53 (mm)
IC 180-93552/3		12/26/2013 19:00	1	T1230532.D	RTX-1701 0.53 (mm)
IC 180-93552/4		12/26/2013 19:31	1	T1230533.D	RTX-1701 0.53 (mm)
IC 180-93552/5		12/26/2013 20:03	1		RTX-1701 0.53 (mm)
IC 180-93552/6		12/26/2013 20:34	1		RTX-1701 0.53 (mm)
IC 180-93552/7		12/26/2013 21:06	1	T1230536.D	RTX-1701 0.53 (mm)
IC 180-93552/8		12/26/2013 21:37	1	T1230537.D	RTX-1701 0.53 (mm)
IC 180-93552/9		12/26/2013 22:09	1	T1230538.D	RTX-1701 0.53 (mm)
ICRT 180-93552/10		12/26/2013 22:40	1	T1230539.D	RTX-1701 0.53 (mm)
IC 180-93552/11		12/26/2013 23:12	1	T1230540.D	RTX-1701 0.53 (mm)
IC 180-93552/12		12/26/2013 23:43	1	T1230541.D	RTX-1701 0.53 (mm)
IC 180-93552/13		12/27/2013 00:15	1	T1230542.D	RTX-1701 0.53 (mm)
ICV 180-93552/14		12/27/2013 00:46	1	T1230543.D	RTX-1701 0.53 (mm)
ICV 180-93552/15		12/27/2013 01:18	1	T1230544.D	RTX-1701 0.53 (mm)
ICV 180-93552/16		12/27/2013 01:49	1	T1230545.D	RTX-1701 0.53 (mm)
ICV 180-93552/17		12/27/2013 02:21	1	T1230546.D	RTX-1701 0.53 (mm)
ICV 180-93552/18		12/27/2013 02:52	1		RTX-1701 0.53 (mm)
ICV 180-93552/19		12/27/2013 03:24	1		RTX-1701 0.53 (mm)
ICV 180-93552/20		12/27/2013 03:55	1	T1230549.D	RTX-1701 0.53 (mm)
180-28384-1	SD-163-0-1	12/27/2013 04:27	5	T1230550.D	RTX-1701 0.53 (mm)
180-28384-2	SD-164-0-1	12/27/2013 04:58	5	T1230551.D	RTX-1701 0.53 (mm)
180-28384-3	SD-165-0-1	12/27/2013 05:30	5	T1230552.D	RTX-1701 0.53 (mm)
180-28384-3 MS	SD-165-0-1 MS	12/27/2013 06:01	5	T1230553.D	RTX-1701 0.53 (mm)
180-28384-3 MSD	SD-165-0-1 MSD	12/27/2013 06:33	5	T1230554.D	RTX-1701 0.53 (mm)
180-28384-4	SD-166-0-1	12/27/2013 07:04	5	T1230555.D	RTX-1701 0.53 (mm)
180-28384-5	SD-167-0-1	12/27/2013 07:36	5	T1230556.D	RTX-1701 0.53 (mm)
180-28384-6	SD-168-0-1	12/27/2013 08:07	5	T1230557.D	RTX-1701 0.53 (mm)
180-28384-7	SD-169-0-1	12/27/2013 08:39	5	T1230558.D	RTX-1701 0.53 (mm)
180-28384-8	SD-170-0-1	12/27/2013 09:10	5	T1230559.D	RTX-1701 0.53 (mm)
CCV 180-93552/31		12/27/2013 13:22	1	T1230567.D	RTX-1701 0.53 (mm)
180-28384-12	SD-174-0-1	12/27/2013 14:26	5	T1230569.D	RTX-1701 0.53 (mm)
180-28384-14	SD-176-0-3	12/27/2013 15:28	5	T1230571.D	RTX-1701 0.53 (mm)
180-28384-15	SD-177-0-2	12/27/2013 16:00	5	T1230572.D	RTX-1701 0.53 (mm)
180-28384-16	SD-178-0-1	12/27/2013 16:31	5	T1230573.D	RTX-1701 0.53 (mm)
180-28384-17	SD-179-0-1	12/27/2013 17:03	5	T1230574.D	RTX-1701 0.53 (mm)
180-28384-9	SD-171-0-1	12/27/2013 19:09	1000	T1230578.D	RTX-1701 0.53 (mm)
180-28384-10	SD-172-0-3	12/27/2013 19:40	1000	T1230579.D	RTX-1701 0.53 (mm)
180-28384-11	SD-173-0-3	12/27/2013 20:12	5000	T1230580.D	RTX-1701 0.53 (mm)
MB 180-93257/1-C		12/27/2013 21:15	1	T1230582.D	RTX-1701 0.53 (mm)
LCS 180-93257/2-C		12/27/2013 21:46	1	T1230583.D	RTX-1701 0.53 (mm)
CCV 180-93552/42		12/27/2013 22:18	1	T1230584.D	RTX-1701 0.53 (mm)
180-28384-22	SD-184-0-2	12/27/2013 23:21	10	T1230586.D	RTX-1701 0.53 (mm)
180-28384-23	SD-185-0-1	12/27/2013 23:52	10	T1230587.D	RTX-1701 0.53 (mm)
180-28384-23 MS	SD-185-0-1 MS	12/28/2013 00:24	10	T1230588.D	RTX-1701 0.53 (mm)

GC SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.:

Instrument ID: GC10

Start Date: 12/26/2013 17:57

Analysis Batch Number: 93552

End Date: 12/28/2013 15:07

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
180-28384-23 MSD	SD-185-0-1 MSD	12/28/2013 00:55	10	T1230589.D	RTX-1701 0.53 (mm)
180-28384-24	SD-186-0-1	12/28/2013 01:27	10	T1230590.D	RTX-1701 0.53 (mm)
180-28384-25	SD-187-0-1	12/28/2013 01:58	10	T1230591.D	RTX-1701 0.53 (mm)
180-28384-26	SD-188-0-1	12/28/2013 02:30	10	T1230592.D	RTX-1701 0.53 (mm)
180-28384-27	SD-189-0-1	12/28/2013 03:01	10	T1230593.D	RTX-1701 0.53 (mm)
180-28384-28	SD-190-0-1	12/28/2013 03:33	10	T1230594.D	RTX-1701 0.53 (mm)
180-28384-29	SD-191-0-1	12/28/2013 04:04	10	T1230595.D	RTX-1701 0.53 (mm)
180-28384-30	SD-192-0-1	12/28/2013 04:36	10	T1230596.D	RTX-1701 0.53 (mm)
180-28384-31	SD-193-0-1	12/28/2013 05:07	10	T1230597.D	RTX-1701 0.53 (mm)
180-28384-32	SD-194-0-1	12/28/2013 05:39	10	T1230598.D	RTX-1701 0.53 (mm)
MB 180-93333/1-C		12/28/2013 06:42	1	T1230600.D	RTX-1701 0.53 (mm)
LCS 180-93333/2-C		12/28/2013 07:13	1	T1230601.D	RTX-1701 0.53 (mm)
CCV 180-93552/58		12/28/2013 07:45	1	T1230602.D	RTX-1701 0.53 (mm)
180-28384-13	SD-175-0-1	12/28/2013 08:16	50	T1230603.D	RTX-1701 0.53 (mm)
180-28384-18	SD-180-0-1	12/28/2013 08:48	10	T1230604.D	RTX-1701 0.53 (mm)
180-28384-21	SD-183-0-1	12/28/2013 10:23	2000	T1230607.D	RTX-1701 0.53 (mm)
180-28384-19	SD-181-0-1	12/28/2013 11:58	20000	T1230610.D	RTX-1701 0.53 (mm)
180-28384-20	SD-182-0-3	12/28/2013 12:29	20000	T1230611.D	RTX-1701 0.53 (mm)
CCV 180-93552/64		12/28/2013 15:07	1	T1230616.D	RTX-1701 0.53 (mm)

FORM VIII
GC SEMI VOA ANALYTICAL SEQUENCE

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: ICRT 180-93552/10 Date Analyzed: 12/26/2013 22:40
 Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm)
 Lab File ID (Standard): T1230539.D Heated Purge: (Y/N) N
 Calibration ID: 13174

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, STANDARDS, MS/MSDs AND LCSs IS GIVEN BELOW:

				TCX	DCB
				RT #	RT #
INITIAL CALIBRATION SURROGATE				5.66	17.60
UPPER LIMIT				5.71	17.65
LOWER LIMIT				5.61	17.55
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID		
ICRT 180-93552/10		12/26/2013 22:40	T1230539.D	5.66	17.60
ICV 180-93552/20		12/27/2013 03:55	T1230549.D	0.00	0.00
180-28384-1	SD-163-0-1	12/27/2013 04:27	T1230550.D	5.66	17.59
180-28384-2	SD-164-0-1	12/27/2013 04:58	T1230551.D	5.66	17.59
180-28384-3	SD-165-0-1	12/27/2013 05:30	T1230552.D	5.66	17.59
180-28384-3 MS	SD-165-0-1 MS	12/27/2013 06:01	T1230553.D	5.66	17.59
180-28384-3 MSD	SD-165-0-1 MSD	12/27/2013 06:33	T1230554.D	5.66	17.60
180-28384-4	SD-166-0-1	12/27/2013 07:04	T1230555.D	5.66	17.60
180-28384-5	SD-167-0-1	12/27/2013 07:36	T1230556.D	5.66	17.59
180-28384-6	SD-168-0-1	12/27/2013 08:07	T1230557.D	5.66	17.57
180-28384-7	SD-169-0-1	12/27/2013 08:39	T1230558.D	5.66	17.59
180-28384-8	SD-170-0-1	12/27/2013 09:10	T1230559.D	5.66	17.59
CCV 180-93552/31		12/27/2013 13:22	T1230567.D	5.66	17.60
180-28384-12	SD-174-0-1	12/27/2013 14:26	T1230569.D	5.66	17.60
180-28384-14	SD-176-0-3	12/27/2013 15:28	T1230571.D	5.66	17.60
180-28384-15	SD-177-0-2	12/27/2013 16:00	T1230572.D	5.66	17.60
180-28384-16	SD-178-0-1	12/27/2013 16:31	T1230573.D	5.66	17.59
180-28384-17	SD-179-0-1	12/27/2013 17:03	T1230574.D	5.66	17.60
180-28384-9	SD-171-0-1	12/27/2013 19:09	T1230578.D	0.00	0.00
180-28384-10	SD-172-0-3	12/27/2013 19:40	T1230579.D	0.00	0.00
180-28384-11	SD-173-0-3	12/27/2013 20:12	T1230580.D	0.00	0.00
MB 180-93257/1-C		12/27/2013 21:15	T1230582.D	5.66	17.59
LCS 180-93257/2-C		12/27/2013 21:46	T1230583.D	5.66	17.59
CCV 180-93552/42		12/27/2013 22:18	T1230584.D	5.66	17.59
180-28384-22	SD-184-0-2	12/27/2013 23:21	T1230586.D	5.66	17.59
180-28384-23	SD-185-0-1	12/27/2013 23:52	T1230587.D	5.66	17.59
180-28384-23 MS	SD-185-0-1 MS	12/28/2013 00:24	T1230588.D	5.66	17.59

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

TCX RT Limit = ± 0.05 minutes of surrogate RT
 DCB RT Limit = ± 0.05 minutes of surrogate RT

Column used to flag values outside QC limits

FORM VIII
GC SEMI VOA ANALYTICAL SEQUENCE

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Sample No.: ICRT 180-93552/10 Date Analyzed: 12/26/2013 22:40
 Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm)
 Lab File ID (Standard): T1230539.D Heated Purge: (Y/N) N
 Calibration ID: 13174

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, STANDARDS, MS/MSDs AND LCSs IS GIVEN BELOW:

				TCX	DCB
				RT #	RT #
INITIAL CALIBRATION SURROGATE				5.66	17.60
UPPER LIMIT				5.71	17.65
LOWER LIMIT				5.61	17.55
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID		
180-28384-23 MSD	SD-185-0-1 MSD	12/28/2013 00:55	T1230589.D	5.66	17.59
180-28384-24	SD-186-0-1	12/28/2013 01:27	T1230590.D	5.66	17.59
180-28384-25	SD-187-0-1	12/28/2013 01:58	T1230591.D	5.66	17.58
180-28384-26	SD-188-0-1	12/28/2013 02:30	T1230592.D	5.66	17.59
180-28384-27	SD-189-0-1	12/28/2013 03:01	T1230593.D	5.66	17.57
180-28384-28	SD-190-0-1	12/28/2013 03:33	T1230594.D	5.66	17.59
180-28384-29	SD-191-0-1	12/28/2013 04:04	T1230595.D	5.66	17.59
180-28384-30	SD-192-0-1	12/28/2013 04:36	T1230596.D	5.66	17.59
180-28384-31	SD-193-0-1	12/28/2013 05:07	T1230597.D	5.66	17.59
180-28384-32	SD-194-0-1	12/28/2013 05:39	T1230598.D	5.66	17.59
MB 180-93333/1-C		12/28/2013 06:42	T1230600.D	5.66	17.59
LCS 180-93333/2-C		12/28/2013 07:13	T1230601.D	5.66	17.59
CCV 180-93552/58		12/28/2013 07:45	T1230602.D	5.66	17.59
180-28384-13	SD-175-0-1	12/28/2013 08:16	T1230603.D	5.66	17.59
180-28384-18	SD-180-0-1	12/28/2013 08:48	T1230604.D	5.66	17.59
180-28384-21	SD-183-0-1	12/28/2013 10:23	T1230607.D	0.00	0.00
180-28384-19	SD-181-0-1	12/28/2013 11:58	T1230610.D	0.00	0.00
180-28384-20	SD-182-0-3	12/28/2013 12:29	T1230611.D	0.00	0.00
CCV 180-93552/64		12/28/2013 15:07	T1230616.D	5.66	17.60

TCX = Tetrachloro-m-xylene
 DCB = DCB Decachlorobiphenyl (Surr)

TCX RT Limit = ± 0.05 minutes of surrogate RT
 DCB RT Limit = ± 0.05 minutes of surrogate RT

Column used to flag values outside QC limits

FORM VI

GC SEMI VOA INITIAL CALIBRATION DATA
EXTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93552

SDG No.:

Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/26/2013 17:57 Calibration End Date: 12/26/2013 17:57 Calibration ID: 13168

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 180-93552/1	T1230530.D

ANALYTE	LVL 1	CF	CURVE TYPE	COEFFICIENT			MIN CF	%RSD #	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
				B	M1	M2						
PCB-1221 Peak 1	186256		Ave		186256.000				20.0			
PCB-1221 Peak 2	115178		Ave		115178.000				20.0			
PCB-1221 Peak 3	358064		Ave		358064.000				20.0			
PCB-1254 Peak 1	267766		Ave		267766.000				20.0			
PCB-1254 Peak 2	421038		Ave		421038.000				20.0			
PCB-1254 Peak 3	306508		Ave		306508.000				20.0			
PCB-1254 Peak 4	582504		Ave		582504.000				20.0			
PCB-1254 Peak 5	362774		Ave		362774.000				20.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI

GC SEMI VOA INITIAL CALIBRATION DATA
EXTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93552
 SDG No.:
 Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm) Heated Purge: (Y/N) N
 Calibration Start Date: 12/26/2013 18:28 Calibration End Date: 12/26/2013 18:28 Calibration ID: 13169

Calibration Files:

LEVEL: LAB SAMPLE ID: LAB FILE ID:
 Level 1 IC 180-93552/2 T1230531.D

ANALYTE	LVL 1	CF		CURVE TYPE	B	COEFFICIENT		#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
						M1	M2								
PCB-1232 Peak 1	103436			Ave		103436.000						20.0			
PCB-1232 Peak 2	78870			Ave		78870.0000						20.0			
PCB-1232 Peak 3	106964			Ave		106964.000						20.0			
PCB-1232 Peak 4	151424			Ave		151424.000						20.0			
PCB-1232 Peak 5	123748			Ave		123748.000						20.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI

GC SEMI VOA INITIAL CALIBRATION DATA
EXTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93552

SDG No.:

Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm) Heated Purge: (Y/N) N
Calibration Start Date: 12/26/2013 19:00 Calibration End Date: 12/26/2013 19:00 Calibration ID: 13170

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 180-93552/3	T1230532.D

ANALYTE	CF		CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1			B	M1	M2								
PCB-1242 Peak 1	445914		Ave		445914.000						20.0			
PCB-1242 Peak 2	181944		Ave		181944.000						20.0			
PCB-1242 Peak 3	207238		Ave		207238.000						20.0			
PCB-1242 Peak 4	262994		Ave		262994.000						20.0			
PCB-1242 Peak 5	150326		Ave		150326.000						20.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI

GC SEMI VOA INITIAL CALIBRATION DATA
EXTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93552

SDG No.:

Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/26/2013 19:31 Calibration End Date: 12/26/2013 19:31 Calibration ID: 13171

Calibration Files:

LEVEL:	LAB SAMPLE ID:
Level 1	IC 180-93552/4
	LAB FILE ID:
	T1230533.D

ANALYTE	LVL 1	CF	CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
				B	M1	M2								
PCB-1248 Peak 1	367610		Ave		367610.000						20.0			
PCB-1248 Peak 2	138678		Ave		138678.000						20.0			
PCB-1248 Peak 3	416140		Ave		416140.000						20.0			
PCB-1248 Peak 4	327236		Ave		327236.000						20.0			
PCB-1248 Peak 5	196130		Ave		196130.000						20.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI

GC SEMI VOA INITIAL CALIBRATION DATA
EXTERNAL STANDARD CURVE EVALUATION

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1 Analy Batch No.: 93552

SDG No.:

Instrument ID: GC10 GC Column: RTX-1701 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/26/2013 21:06 Calibration End Date: 12/27/2013 00:15 Calibration ID: 13174

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 180-93552/7	T1230536.D
Level 2	IC 180-93552/8	T1230537.D
Level 3	IC 180-93552/9	T1230538.D
Level 4	ICRT 180-93552/10	T1230539.D
Level 5	IC 180-93552/11	T1230540.D
Level 6	IC 180-93552/12	T1230541.D
Level 7	IC 180-93552/13	T1230542.D

ANALYTE	CF							CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R ² OR COD	#	MIN R ² OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3 LVL 7	LVL 4	B	M1	M2												
PCB-1016 Peak 1	316100 277780	321920 288527	324650 289245	272626 Ave		298692.607								7.3		20.0			
PCB-1016 Peak 2	721900 567004	669580 575662	655870 565740	557236 Ave		616141.679								10.6		20.0			
PCB-1016 Peak 3	922400 816699	855600 864238	887920 878292	757466 Ave		854659.179								6.3		20.0			
PCB-1016 Peak 4	383100 334904	382100 350688	382720 352908	315518 Ave		357419.714								7.4		20.0			
PCB-1016 Peak 5	301000 254818	291900 270609	292005 278743	239116 Ave		275455.714								8.1		20.0			
PCB-1260 Peak 1	551100 462417	538120 459277	525755 440183	449752 Ave		489514.786								9.6		20.0			
PCB-1260 Peak 2	615200 537849	624580 535772	612015 517796	518906 Ave		566016.857								8.6		20.0			
PCB-1260 Peak 3	601200 514968	595100 511784	576755 490603	491290 Ave		540242.786								9.1		20.0			
PCB-1260 Peak 4	431700 382380	441180 371533	434045 363082	368872 Ave		398970.179								8.7		20.0			
PCB-1260 Peak 5	896200 835493	879360 830650	898340 818292	785820 Ave		849164.964								5.1		20.0			
Tetrachloro-m-xylene	28846000 22706160	23855600 23965560	24641400 23855935	21955760 Ave		24259487.9								9.1		20.0			
DCB Decachlorobiphenyl (Surr)	9714000 8304980	8719600 8018880	9245100 7675175	8010200 Ave		8526847.86								8.6		20.0			

Note: The m1 coefficient is the same as Ave CF for an Ave curve type.

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: ICV 180-93552/14 Calibration Date: 12/27/2013 00:46
 Instrument ID: GC10 Calib Start Date: 12/26/2013 17:57
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/26/2013 17:57
 Lab File ID: T1230543.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1221 Peak 1	Ave	186256	180814		0.485	0.500	-2.9	20.0
PCB-1221 Peak 2	Ave	115178	113616		0.493	0.500	-1.4	20.0
PCB-1221 Peak 3	Ave	358064	354118		0.494	0.500	-1.1	20.0
PCB-1254 Peak 1	Ave	267766	290136		0.542	0.500	8.4	20.0
PCB-1254 Peak 2	Ave	421038	448990		0.533	0.500	6.6	20.0
PCB-1254 Peak 3	Ave	306508	339866		0.554	0.500	10.9	20.0
PCB-1254 Peak 4	Ave	582504	648740		0.557	0.500	11.4	20.0
PCB-1254 Peak 5	Ave	362774	388648		0.536	0.500	7.1	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: ICV 180-93552/15 Calibration Date: 12/27/2013 01:18
 Instrument ID: GC10 Calib Start Date: 12/26/2013 18:28
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/26/2013 18:28
 Lab File ID: T1230544.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1232 Peak 1	Ave	103436	105430		0.510	0.500	1.9	20.0
PCB-1232 Peak 2	Ave	78870	80908		0.513	0.500	2.6	20.0
PCB-1232 Peak 3	Ave	106964	109506		0.512	0.500	2.4	20.0
PCB-1232 Peak 4	Ave	151424	153464		0.507	0.500	1.3	20.0
PCB-1232 Peak 5	Ave	123748	127758		0.516	0.500	3.2	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: ICV 180-93552/16 Calibration Date: 12/27/2013 01:49
 Instrument ID: GC10 Calib Start Date: 12/26/2013 19:00
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/26/2013 19:00
 Lab File ID: T1230545.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1242 Peak 1	Ave	445914	473648		0.531	0.500	6.2	20.0
PCB-1242 Peak 2	Ave	181944	180526		0.496	0.500	-0.8	20.0
PCB-1242 Peak 3	Ave	207238	204500		0.493	0.500	-1.3	20.0
PCB-1242 Peak 4	Ave	262994	268914		0.511	0.500	2.3	20.0
PCB-1242 Peak 5	Ave	150326	146902		0.489	0.500	-2.3	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: ICV 180-93552/17 Calibration Date: 12/27/2013 02:21
 Instrument ID: GC10 Calib Start Date: 12/26/2013 19:31
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/26/2013 19:31
 Lab File ID: T1230546.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1248 Peak 1	Ave	367610	304126		0.414	0.500	-17.3	20.0
PCB-1248 Peak 2	Ave	138678	116780		0.421	0.500	-15.8	20.0
PCB-1248 Peak 3	Ave	416140	354832		0.426	0.500	-14.7	20.0
PCB-1248 Peak 4	Ave	327236	297900		0.455	0.500	-9.0	20.0
PCB-1248 Peak 5	Ave	196130	182354		0.465	0.500	-7.0	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: ICV 180-93552/20 Calibration Date: 12/27/2013 03:55
 Instrument ID: GC10 Calib Start Date: 12/26/2013 21:06
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/27/2013 00:15
 Lab File ID: T1230549.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	298693	253758		0.425	0.500	-15.0	20.0
PCB-1016 Peak 2	Ave	616142	546314		0.443	0.500	-11.3	20.0
PCB-1016 Peak 3	Ave	854659	748164		0.438	0.500	-12.5	20.0
PCB-1016 Peak 4	Ave	357420	314542		0.440	0.500	-12.0	20.0
PCB-1016 Peak 5	Ave	275456	240406		0.436	0.500	-12.7	20.0
PCB-1260 Peak 1	Ave	489515	469866		0.480	0.500	-4.0	20.0
PCB-1260 Peak 2	Ave	566017	537872		0.475	0.500	-5.0	20.0
PCB-1260 Peak 3	Ave	540243	507318		0.470	0.500	-6.1	20.0
PCB-1260 Peak 4	Ave	398970	388902		0.487	0.500	-2.5	20.0
PCB-1260 Peak 5	Ave	849165	816856		0.481	0.500	-3.8	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCV 180-93552/31

Calibration Date: 12/27/2013 13:22

Instrument ID: GC10

Calib Start Date: 12/26/2013 21:06

GC Column: RTX-1701 ID: 0.53(mm)

Calib End Date: 12/27/2013 00:15

Lab File ID: T1230567.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	298693	309384		1.04	1.00	3.6	20.0
PCB-1016 Peak 2	Ave	616142	623214		1.01	1.00	1.1	20.0
PCB-1016 Peak 3	Ave	854659	889676		1.04	1.00	4.1	20.0
PCB-1016 Peak 4	Ave	357420	373856		1.05	1.00	4.6	20.0
PCB-1016 Peak 5	Ave	275456	288706		1.05	1.00	4.8	20.0
PCB-1260 Peak 1	Ave	489515	481278		0.983	1.00	-1.7	20.0
PCB-1260 Peak 2	Ave	566017	557420		0.985	1.00	-1.5	20.0
PCB-1260 Peak 3	Ave	540243	525912		0.973	1.00	-2.7	20.0
PCB-1260 Peak 4	Ave	398970	385777		0.967	1.00	-3.3	20.0
PCB-1260 Peak 5	Ave	849165	824971		0.972	1.00	-2.8	20.0
Tetrachloro-m-xylene	Ave	24259488	25277800		0.0521	0.0500	4.2	20.0
DCB Decachlorobiphenyl (Surr)	Ave	8526848	7584760		0.0445	0.0500	-11.0	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: CCV 180-93552/42 Calibration Date: 12/27/2013 22:18
 Instrument ID: GC10 Calib Start Date: 12/26/2013 21:06
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/27/2013 00:15
 Lab File ID: T1230584.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	298693	313303		1.05	1.00	4.9	20.0
PCB-1016 Peak 2	Ave	616142	623305		1.01	1.00	1.2	20.0
PCB-1016 Peak 3	Ave	854659	908124		1.06	1.00	6.3	20.0
PCB-1016 Peak 4	Ave	357420	379352		1.06	1.00	6.1	20.0
PCB-1016 Peak 5	Ave	275456	293450		1.07	1.00	6.5	20.0
PCB-1260 Peak 1	Ave	489515	493291		1.01	1.00	0.8	20.0
PCB-1260 Peak 2	Ave	566017	577675		1.02	1.00	2.1	20.0
PCB-1260 Peak 3	Ave	540243	538644		0.997	1.00	-0.3	20.0
PCB-1260 Peak 4	Ave	398970	398658		0.999	1.00	-0.0	20.0
PCB-1260 Peak 5	Ave	849165	844400		0.994	1.00	-0.6	20.0
Tetrachloro-m-xylene	Ave	24259488	25280260		0.0521	0.0500	4.2	20.0
DCB Decachlorobiphenyl (Surr)	Ave	8526848	7416580		0.0435	0.0500	-13.0	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh Job No.: 180-28384-1
 SDG No.: _____
 Lab Sample ID: CCV 180-93552/58 Calibration Date: 12/28/2013 07:45
 Instrument ID: GC10 Calib Start Date: 12/26/2013 21:06
 GC Column: RTX-1701 ID: 0.53(mm) Calib End Date: 12/27/2013 00:15
 Lab File ID: T1230602.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	298693	292456		0.490	0.500	-2.1	20.0
PCB-1016 Peak 2	Ave	616142	601886		0.488	0.500	-2.3	20.0
PCB-1016 Peak 3	Ave	854659	829186		0.485	0.500	-3.0	20.0
PCB-1016 Peak 4	Ave	357420	352062		0.493	0.500	-1.5	20.0
PCB-1016 Peak 5	Ave	275456	272830		0.495	0.500	-1.0	20.0
PCB-1260 Peak 1	Ave	489515	477412		0.488	0.500	-2.5	20.0
PCB-1260 Peak 2	Ave	566017	547626		0.484	0.500	-3.2	20.0
PCB-1260 Peak 3	Ave	540243	517984		0.479	0.500	-4.1	20.0
PCB-1260 Peak 4	Ave	398970	382532		0.479	0.500	-4.1	20.0
PCB-1260 Peak 5	Ave	849165	775262		0.456	0.500	-8.7	20.0
Tetrachloro-m-xylene	Ave	24259488	23823440		0.0246	0.0250	-1.8	20.0
DCB Decachlorobiphenyl (Surr)	Ave	8526848	6601840		0.0194	0.0250	-22.6*	20.0

FORM VII
GC SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Pittsburgh

Job No.: 180-28384-1

SDG No.: _____

Lab Sample ID: CCV 180-93552/64

Calibration Date: 12/28/2013 15:07

Instrument ID: GC10

Calib Start Date: 12/26/2013 21:06

GC Column: RTX-1701 ID: 0.53(mm)

Calib End Date: 12/27/2013 00:15

Lab File ID: T1230616.D

Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	298693	281292		0.471	0.500	-5.8	20.0
PCB-1016 Peak 2	Ave	616142	581766		0.472	0.500	-5.6	20.0
PCB-1016 Peak 3	Ave	854659	800442		0.468	0.500	-6.3	20.0
PCB-1016 Peak 4	Ave	357420	331934		0.464	0.500	-7.1	20.0
PCB-1016 Peak 5	Ave	275456	256490		0.466	0.500	-6.9	20.0
PCB-1260 Peak 1	Ave	489515	462622		0.473	0.500	-5.5	20.0
PCB-1260 Peak 2	Ave	566017	531850		0.470	0.500	-6.0	20.0
PCB-1260 Peak 3	Ave	540243	498412		0.461	0.500	-7.7	20.0
PCB-1260 Peak 4	Ave	398970	375246		0.470	0.500	-5.9	20.0
PCB-1260 Peak 5	Ave	849165	761052		0.448	0.500	-10.4	20.0
Tetrachloro-m-xylene	Ave	24259488	22764120		0.0235	0.0250	-6.2	20.0
DCB Decachlorobiphenyl (Surr)	Ave	8526848	6472600		0.0190	0.0250	-24.1*	20.0

Data File: T1230550.D

Date: 27-DEC-2013 04:27

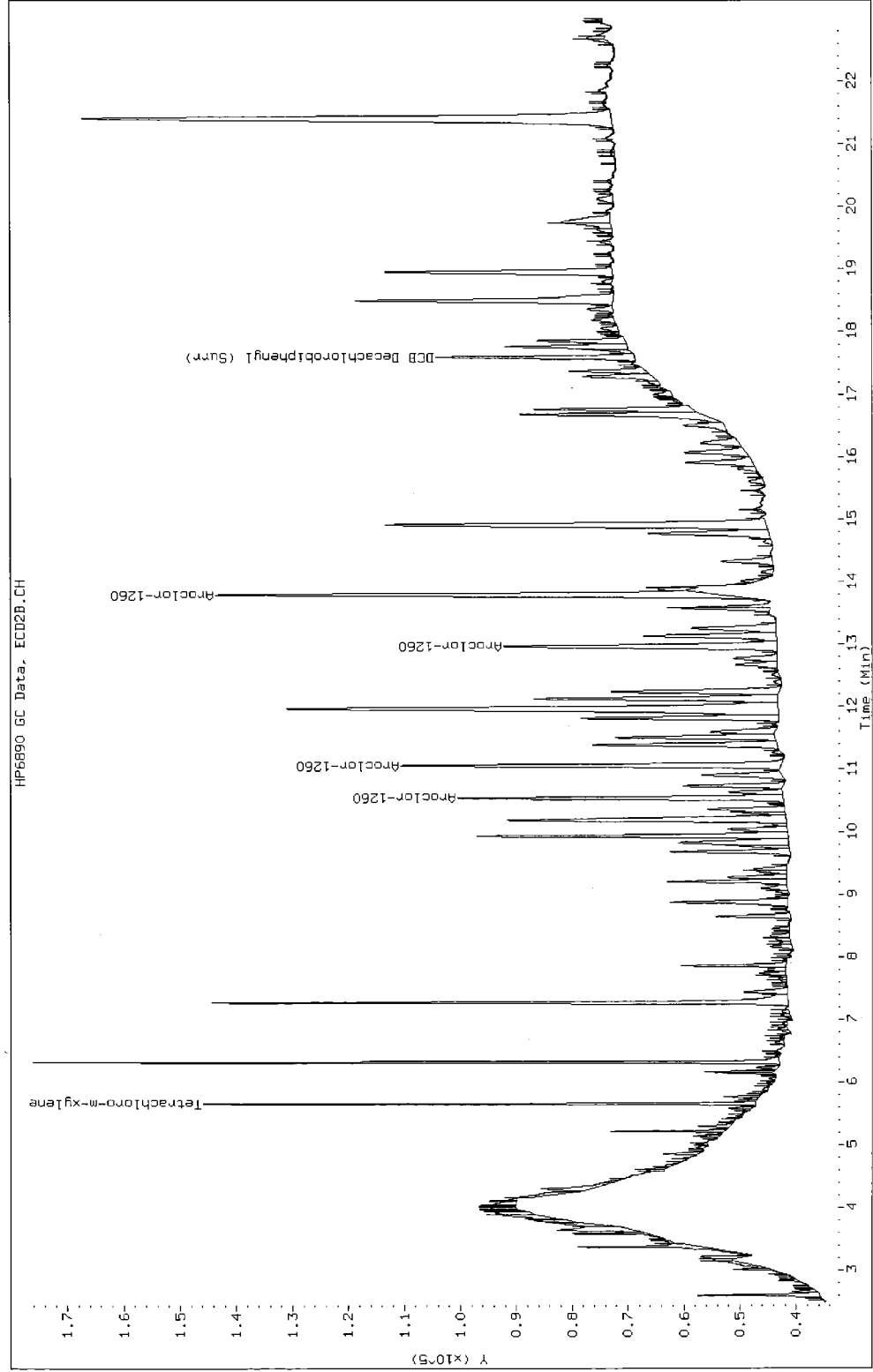
Client ID:

Sample Info: 12273B8082ALL.b

SD-163-0-1

Instrument: gc10.i

Operator: 402360



Data File: T1230551.D

Date: 27-DEC-2013 04:58

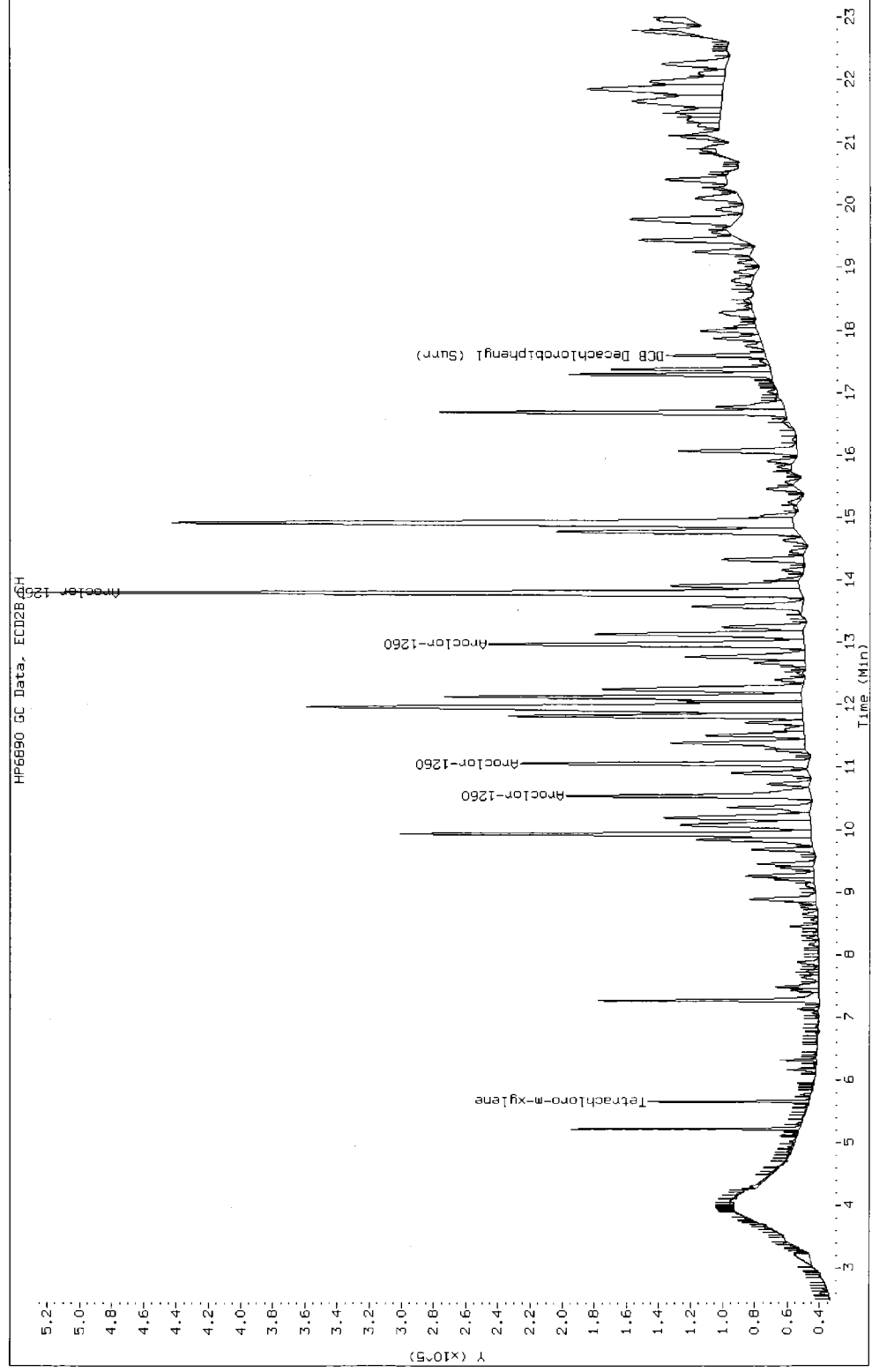
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-164-0-1



Data File: T1230552.D

Date: 27-DEC-2013 05:30

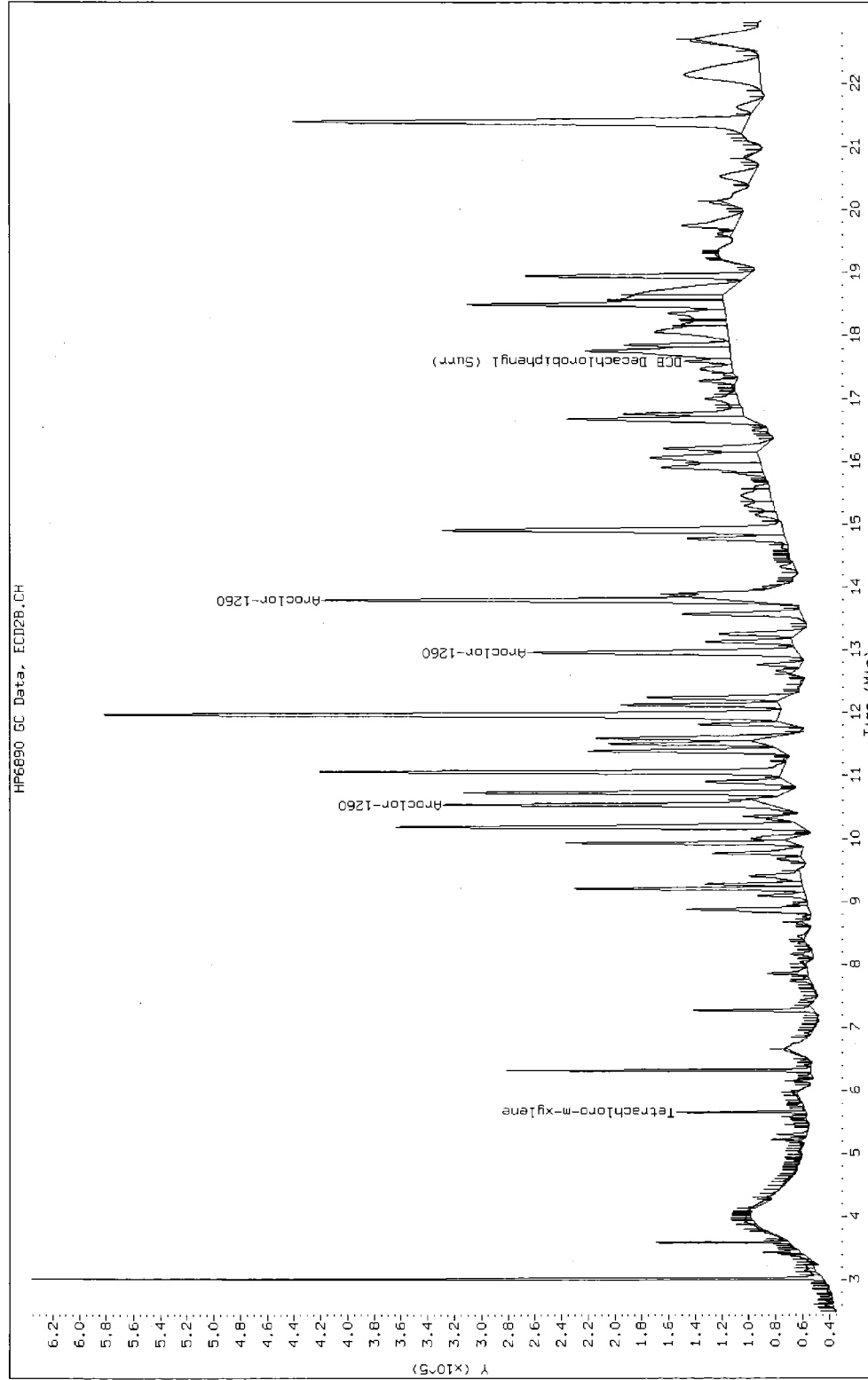
SD-165-0-1

Client ID:

Instrument: gcl0.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230555.D

Date: 27-DEC-2013 07:04

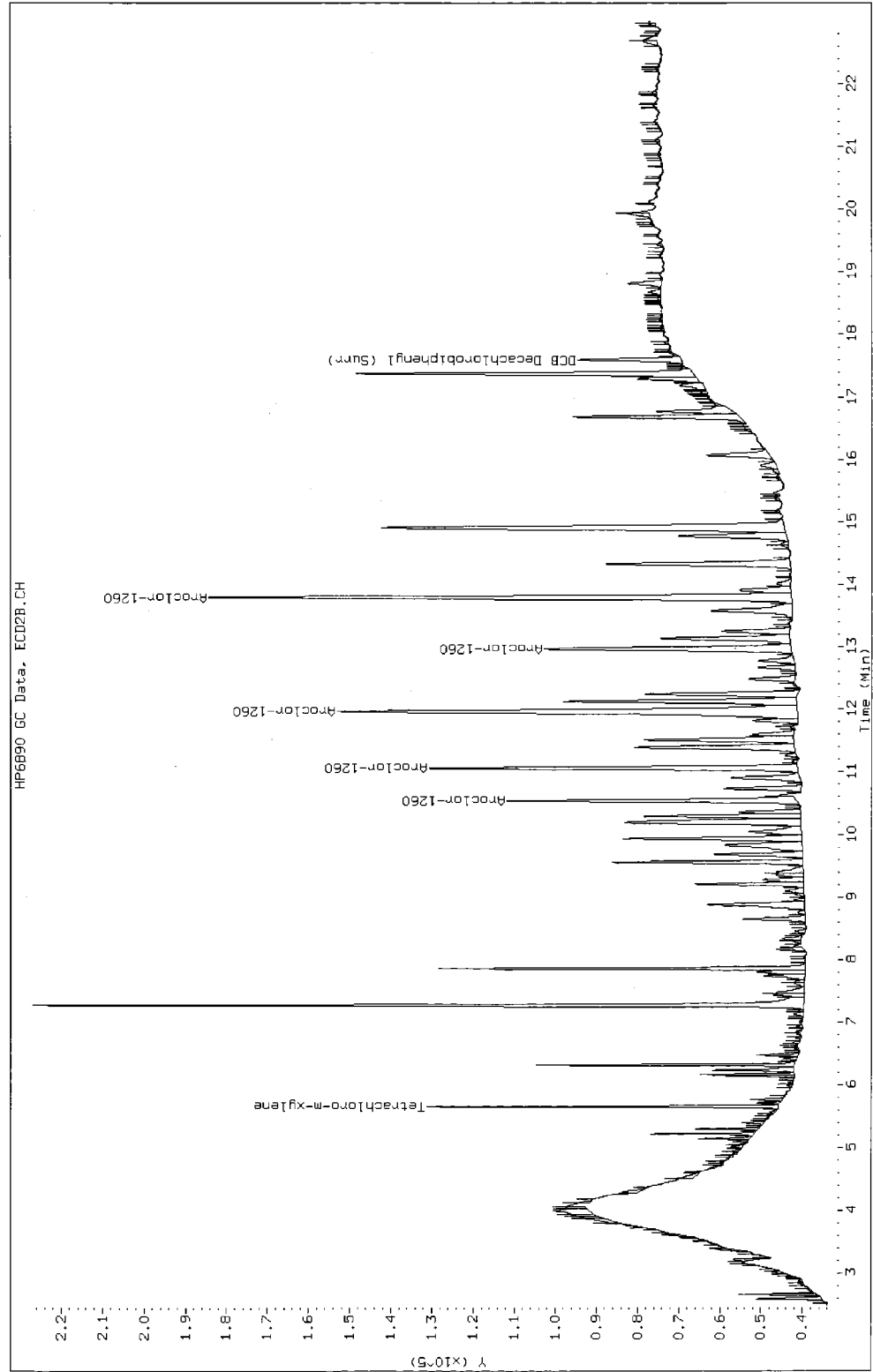
Client ID:

Sample Info: 12273B8082ALL.b

Instrument: gc10.i

Operator: 402360

SD-166-0-1



Data File: T1230556.D

Date: 27-DEC-2013 07:36

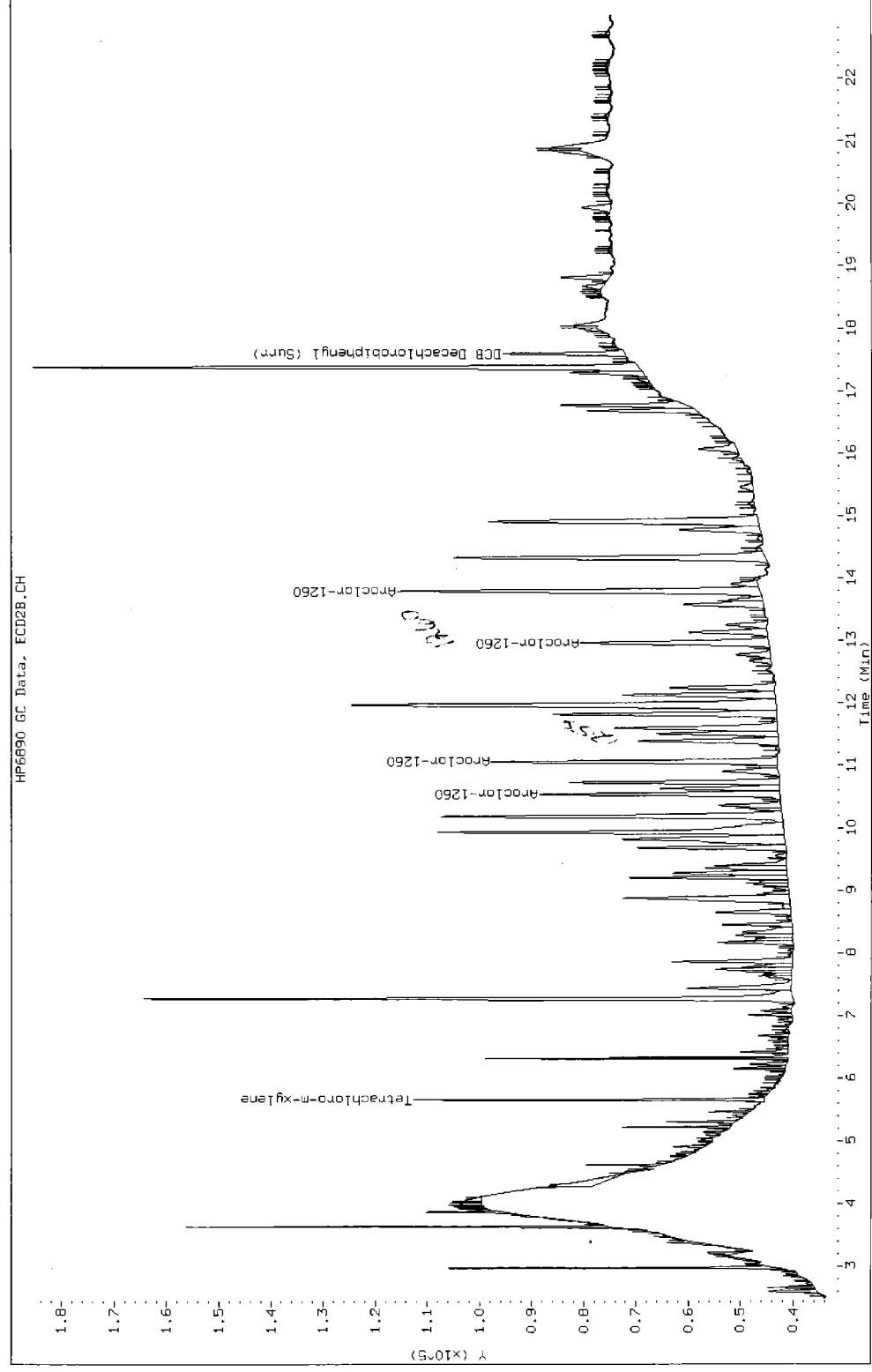
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-167-D-1



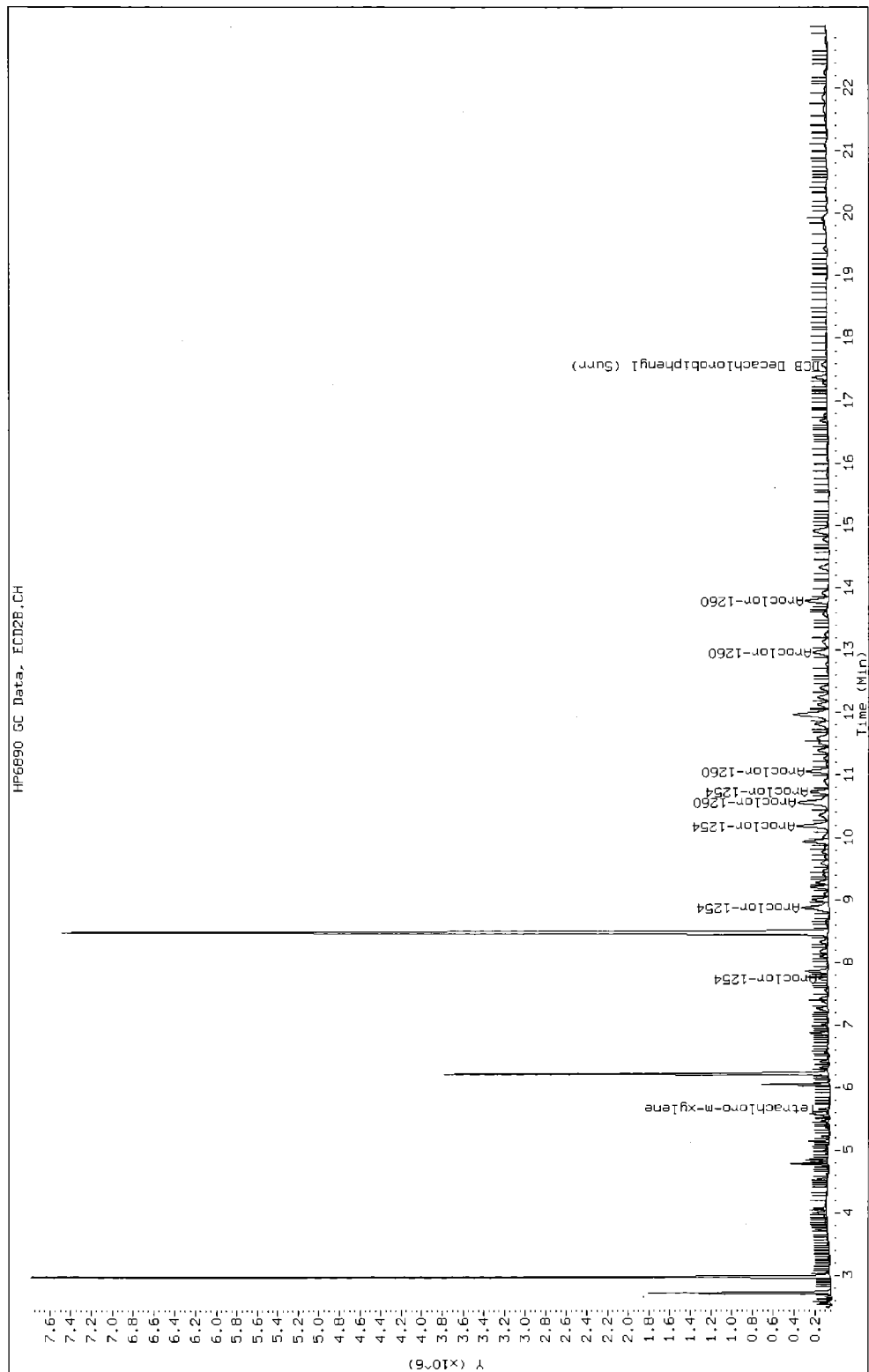
Date: 27-DEC-2013 08:07

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230558.D

Date: 27-DEC-2013 08:39

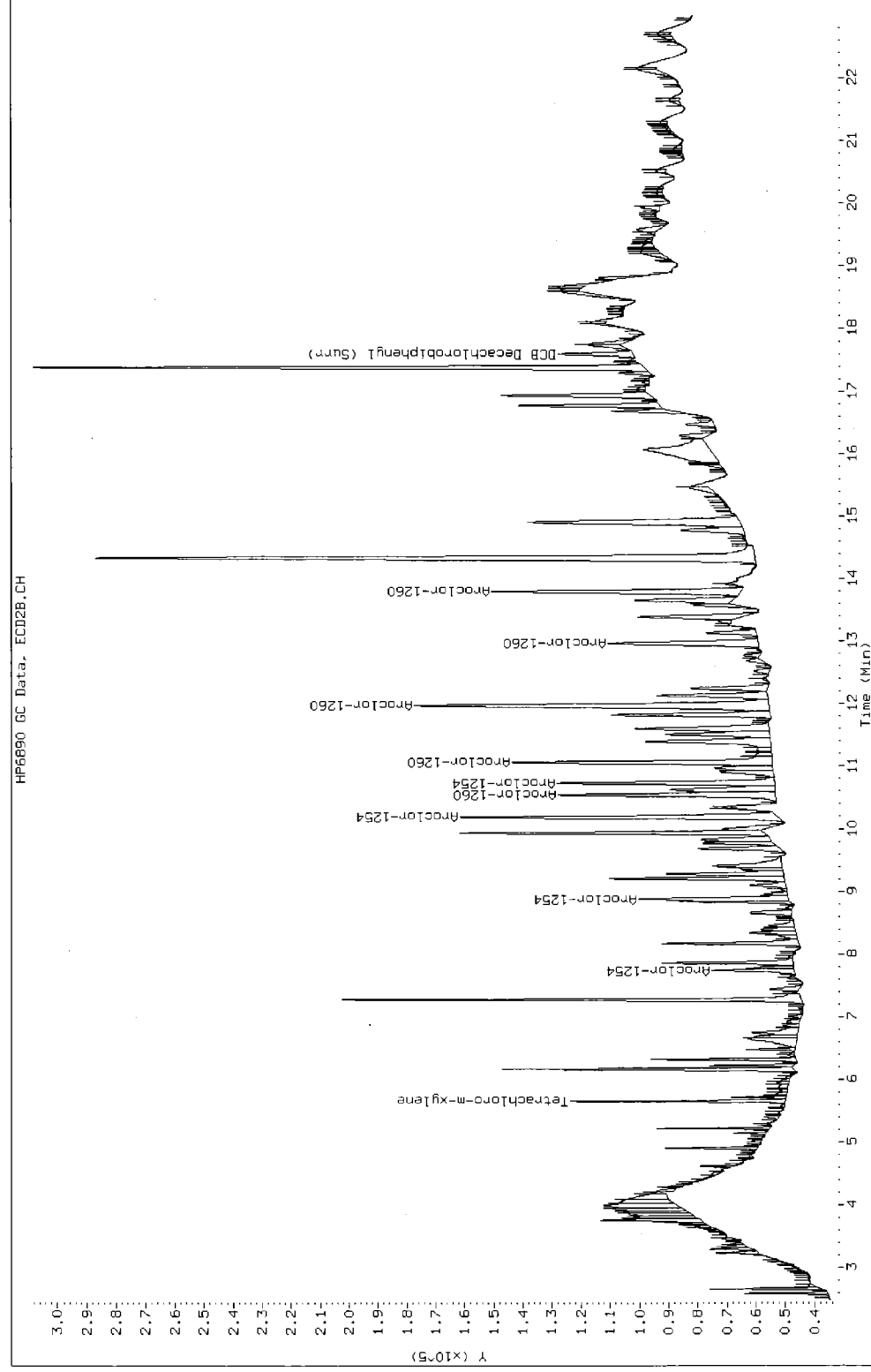
SD-169-0-1

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230559.D

Date: 27-DEC-2013 09:10

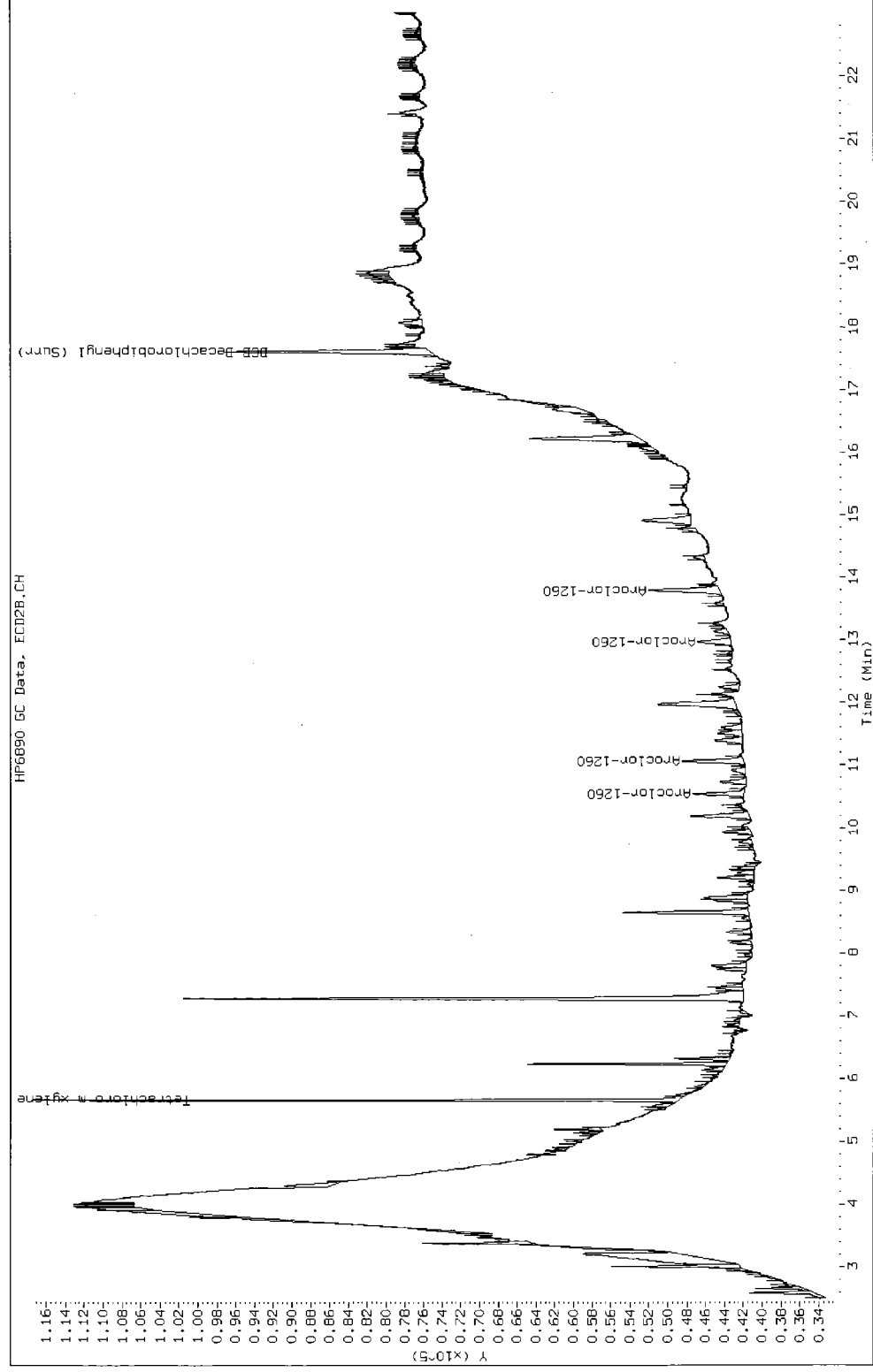
SD-170-0-1

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230578.D

Date: 27-DEC-2013 19:09

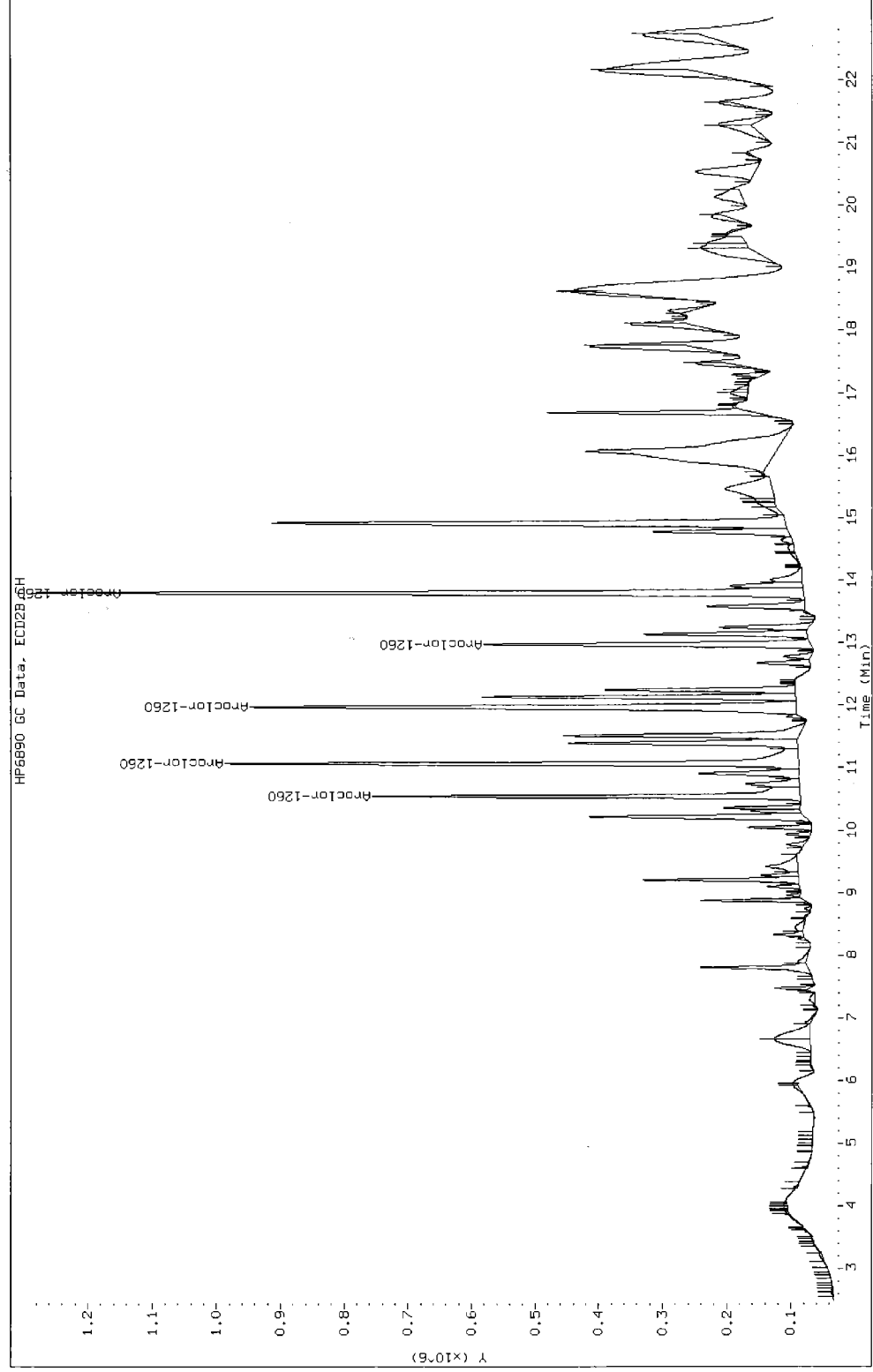
Client ID:

Instrument: gcl0.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-171-0-1



Data File: T1230579.D

Date: 27-DEC-2013 19:40

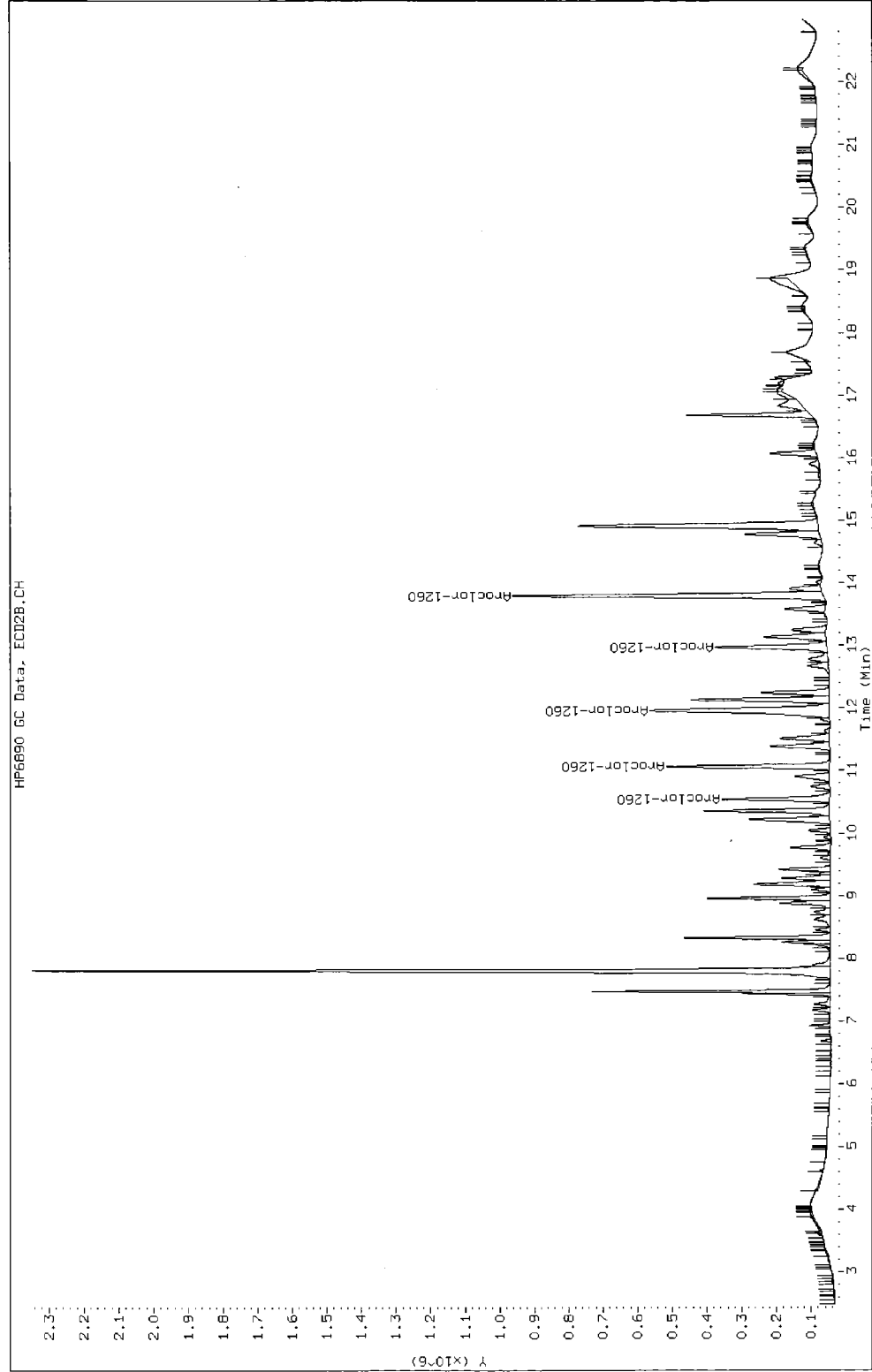
SD-172-0-3

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230580.D

Date: 27-DEC-2013 20:12

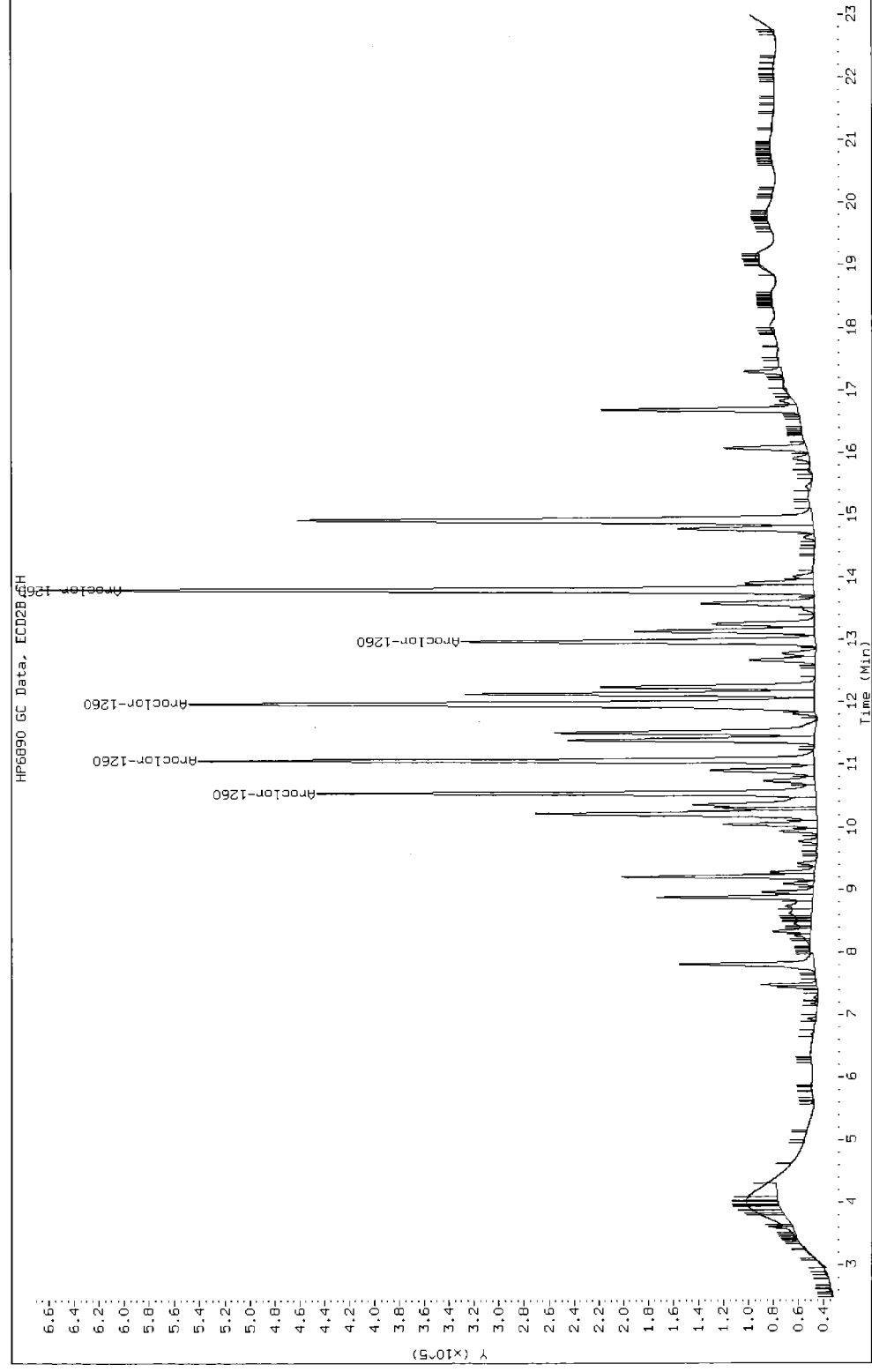
SP-173-0-3

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230569.D

Date: 27-DEC-2013 14:26

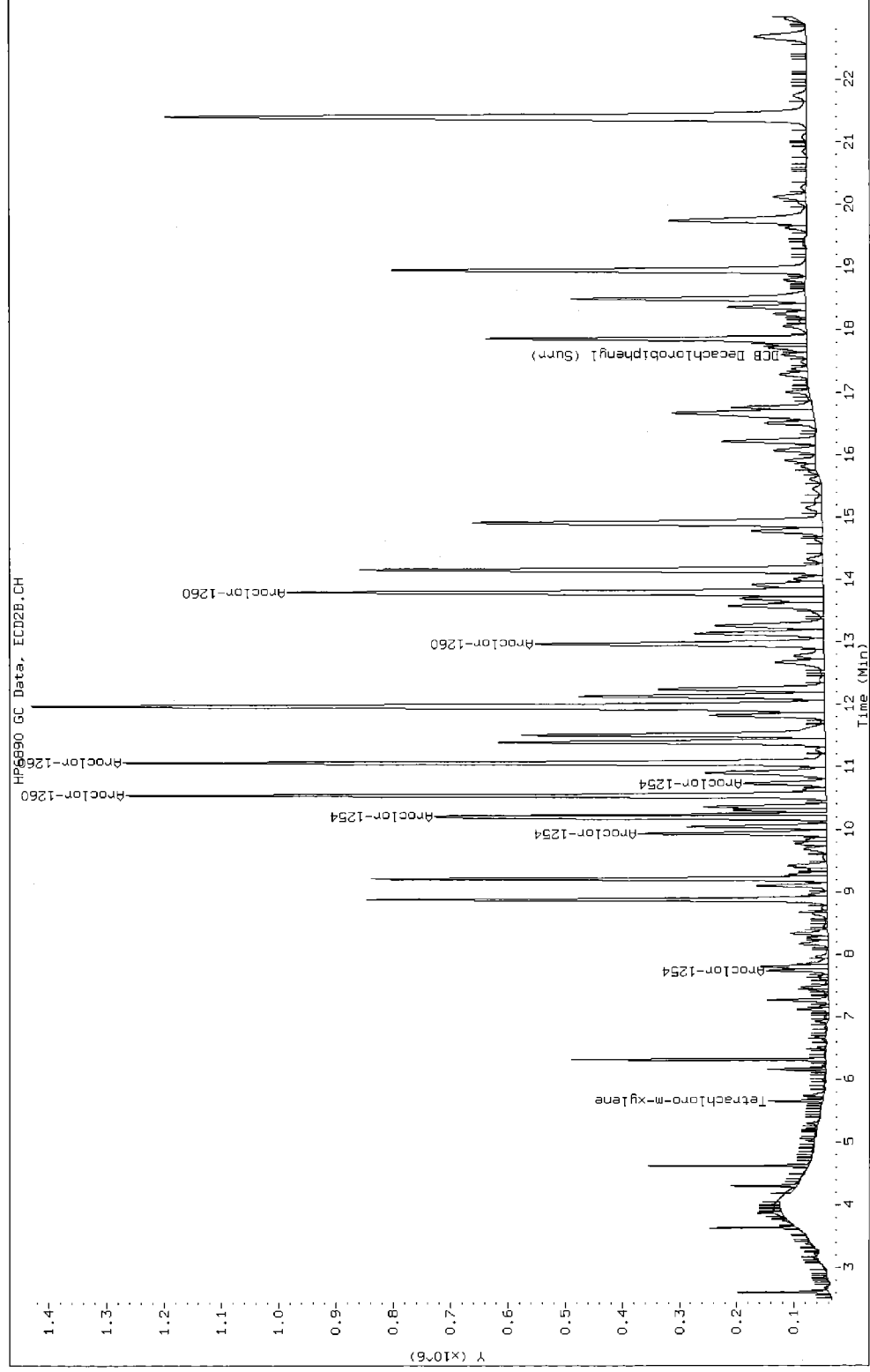
SD-174-0-1

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230603.D

Date: 28-DEC-2013 08:16

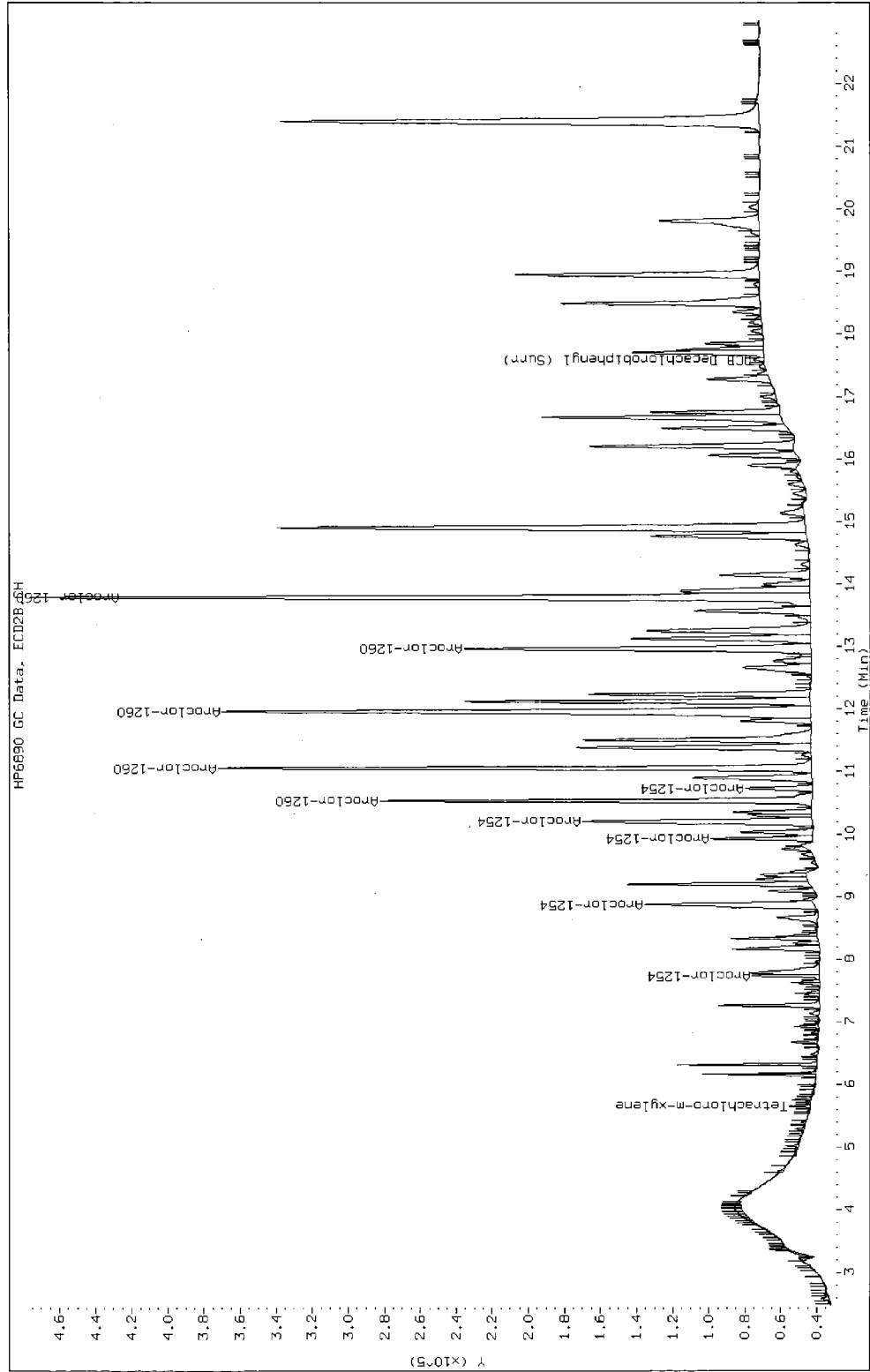
SD-175-0-1

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230571.D

Date: 27-DEC-2013 15:28

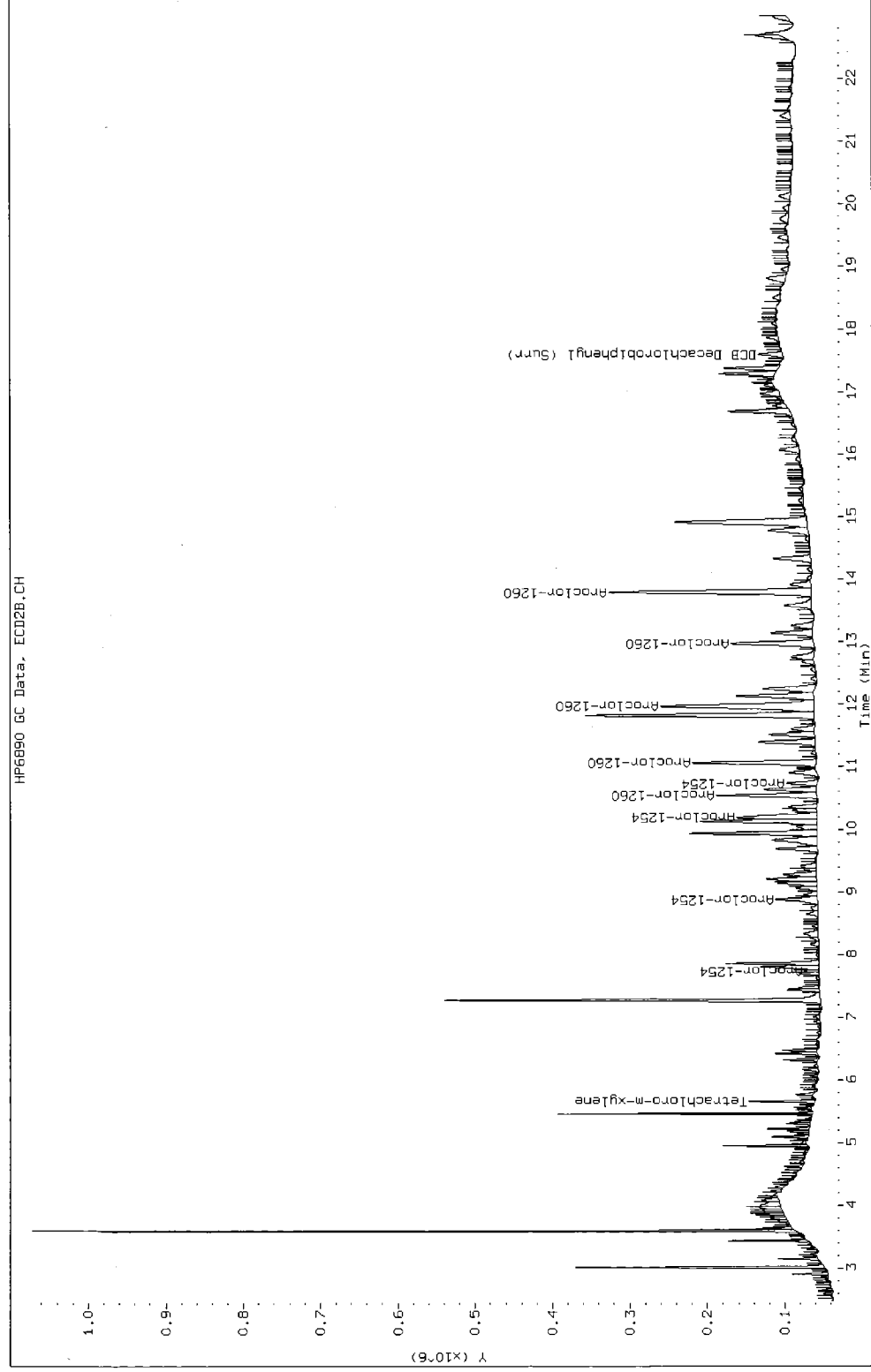
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-176-0-3



Data File: T1230572.D

Date: 27-DEC-2013 16:00

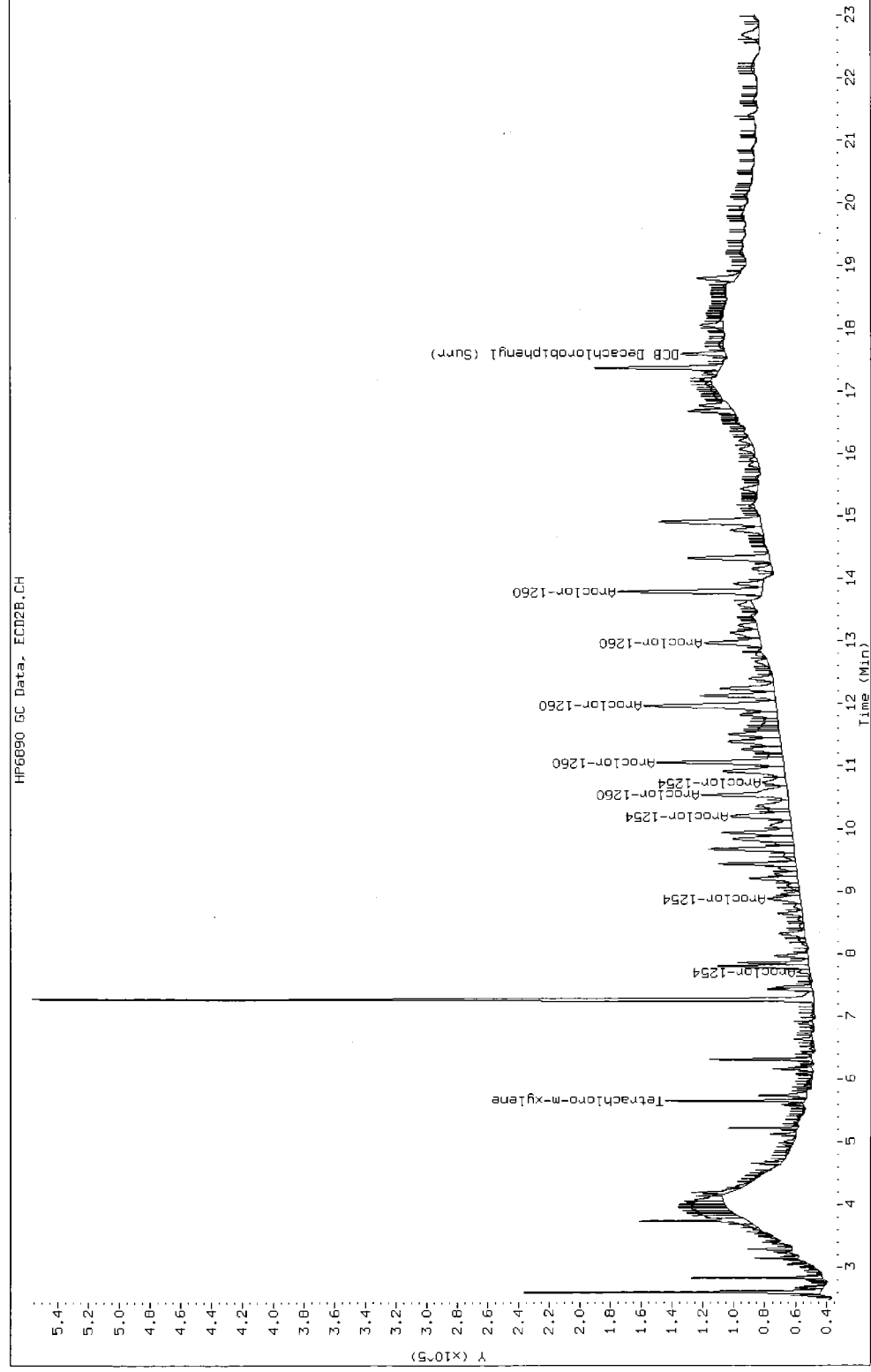
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-177-0-2



Data File: T1230573.D

Date: 27-DEC-2013 16:31

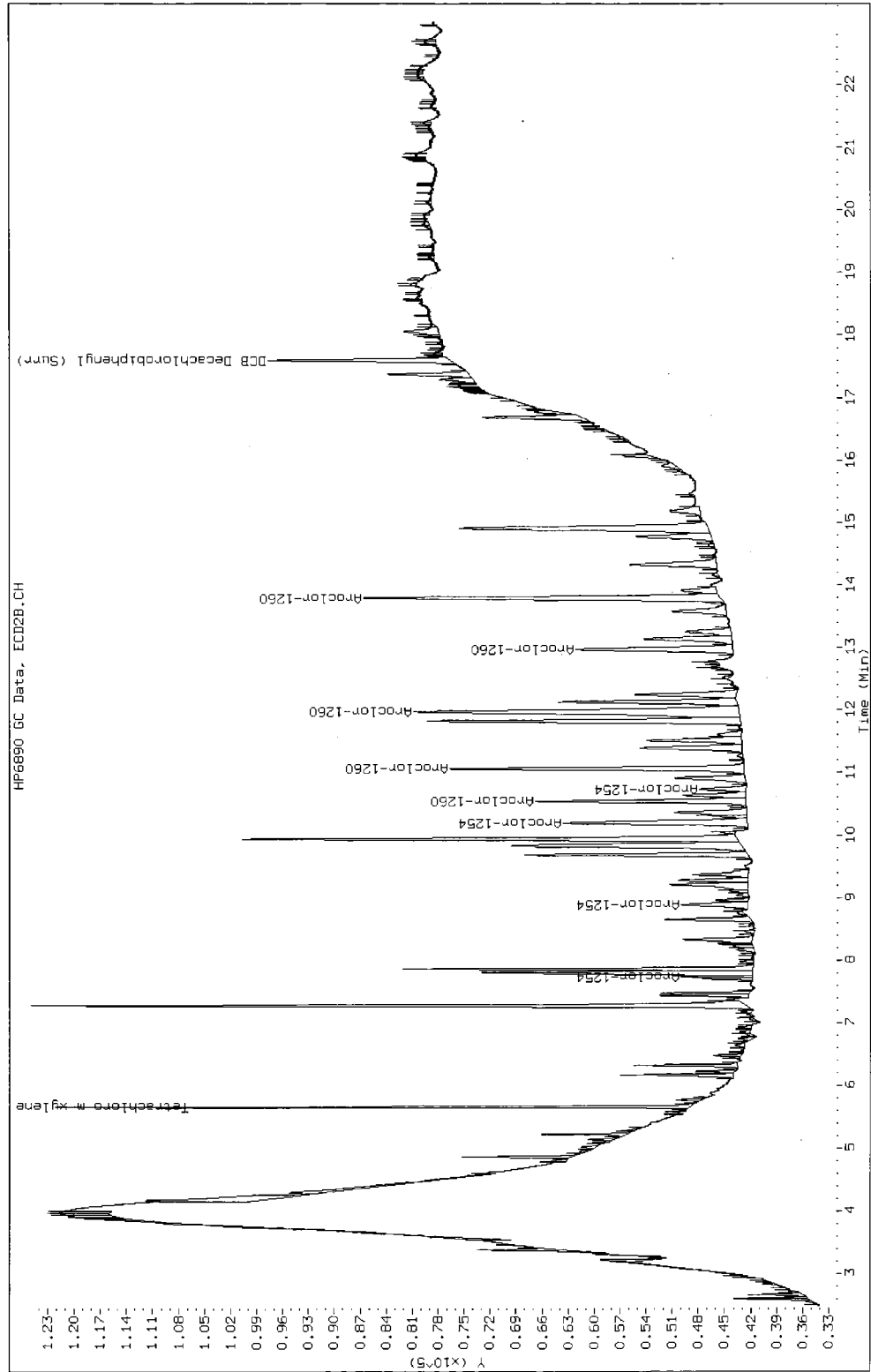
Client ID:

Sample Info: 12273B8082ALL.b

SD-17B-01

Instrument: gc10.i

Operator: 402360



Data File: T1230574.D

Date: 27-DEC-2013 17:03

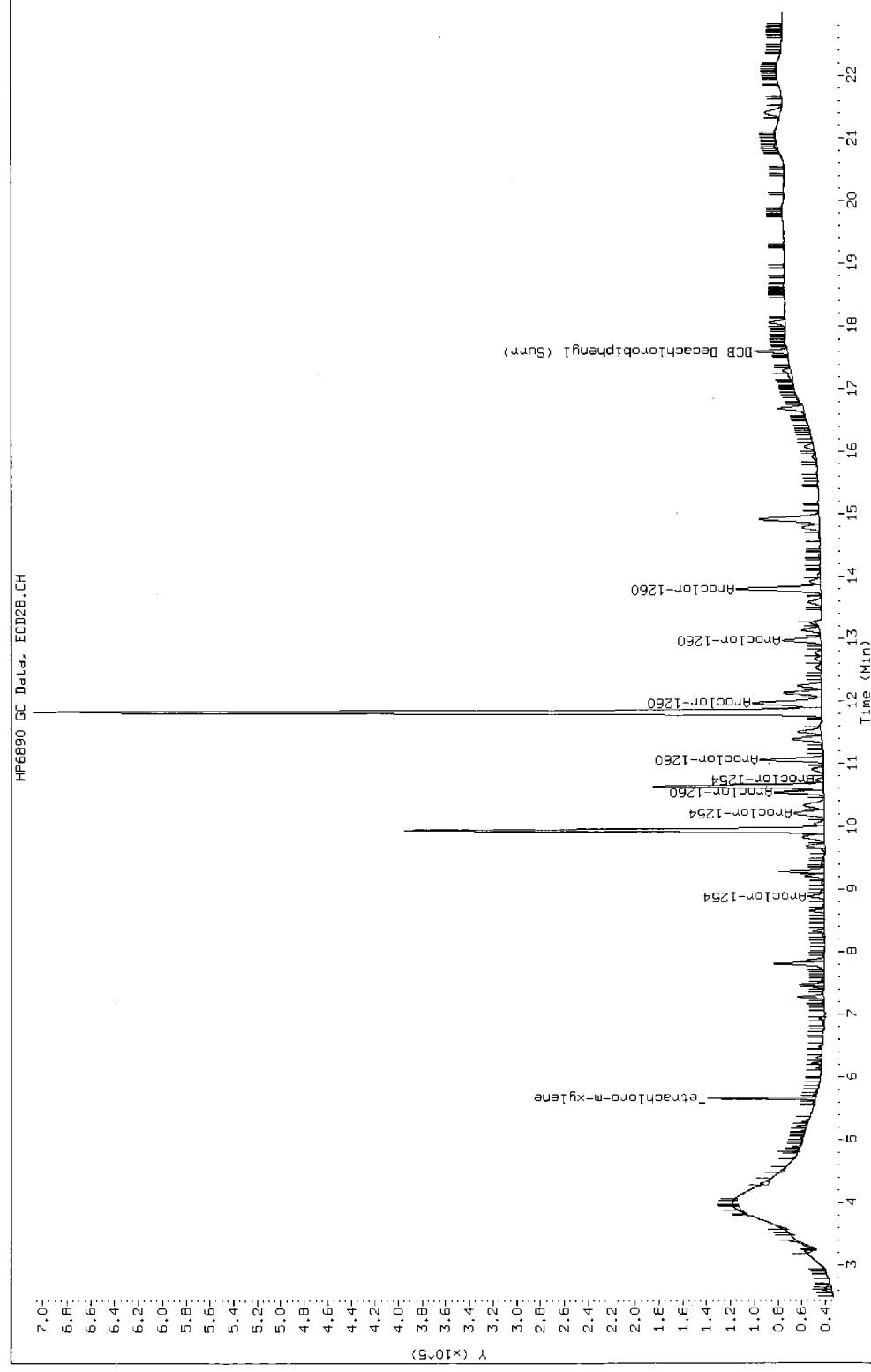
SD-179-0-1

Client ID:

Instrument: gcl0.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230604.D

Date: 28-DEC-2013 08:48

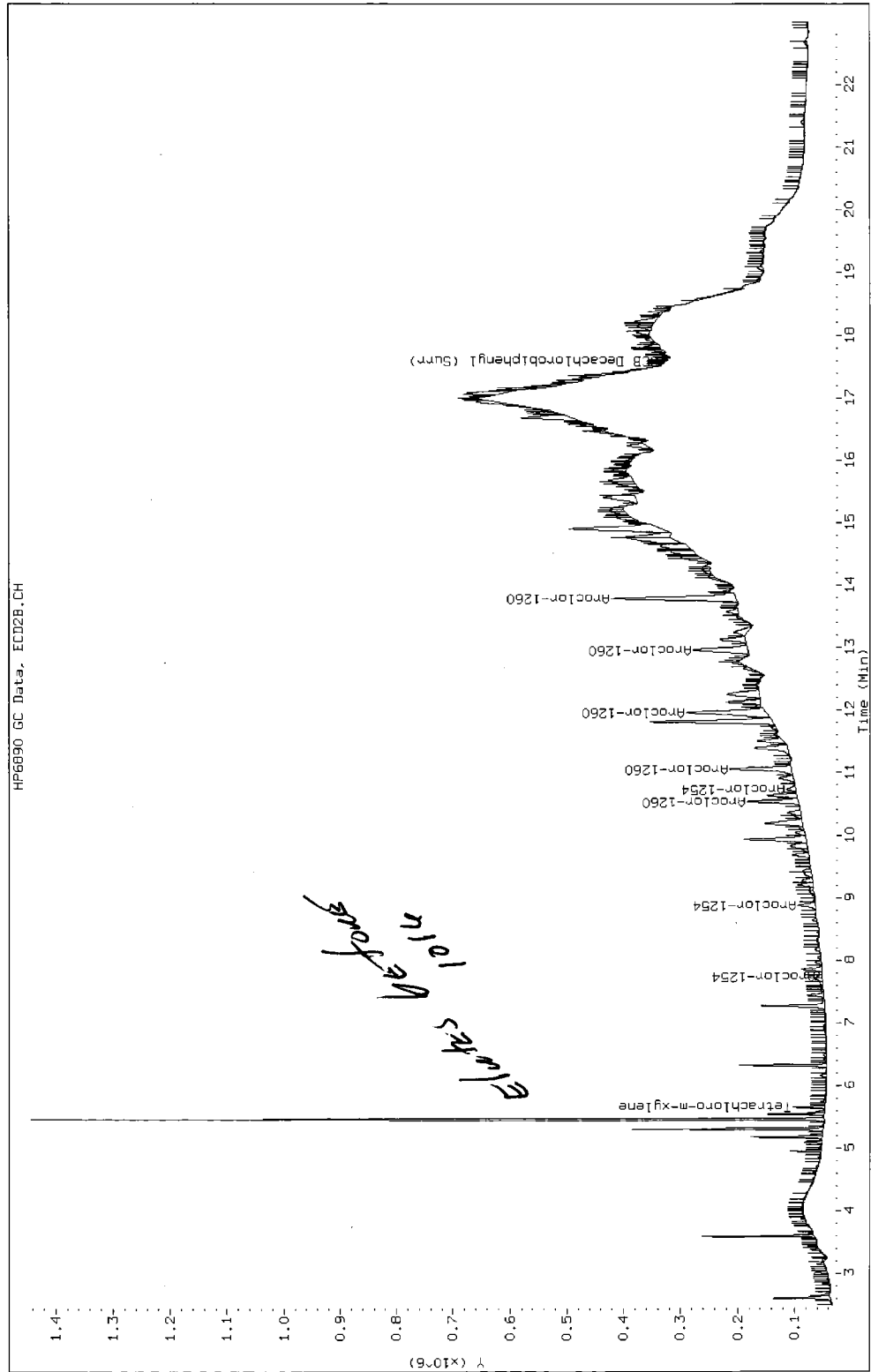
Client ID:

Sample Info: 12273B8082ALL.b

Instrument: gc10.i

Operator: 402360

SD-180-0-1



Data File: T1230610.D

Date: 28-DEC-2013 11:58

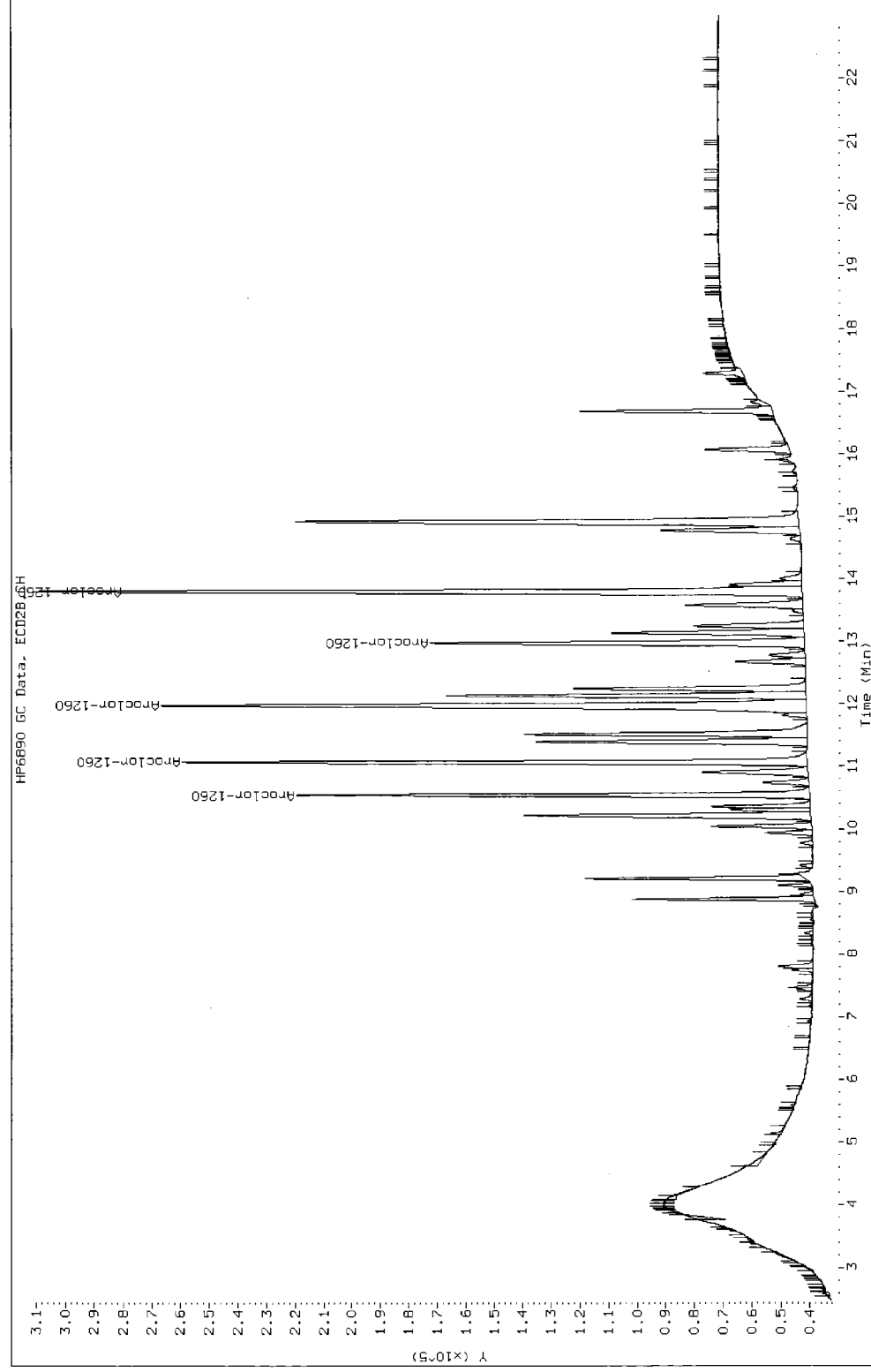
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-181-0-1



Data File: T1230611.D

Date: 28-DEC-2013 12:29

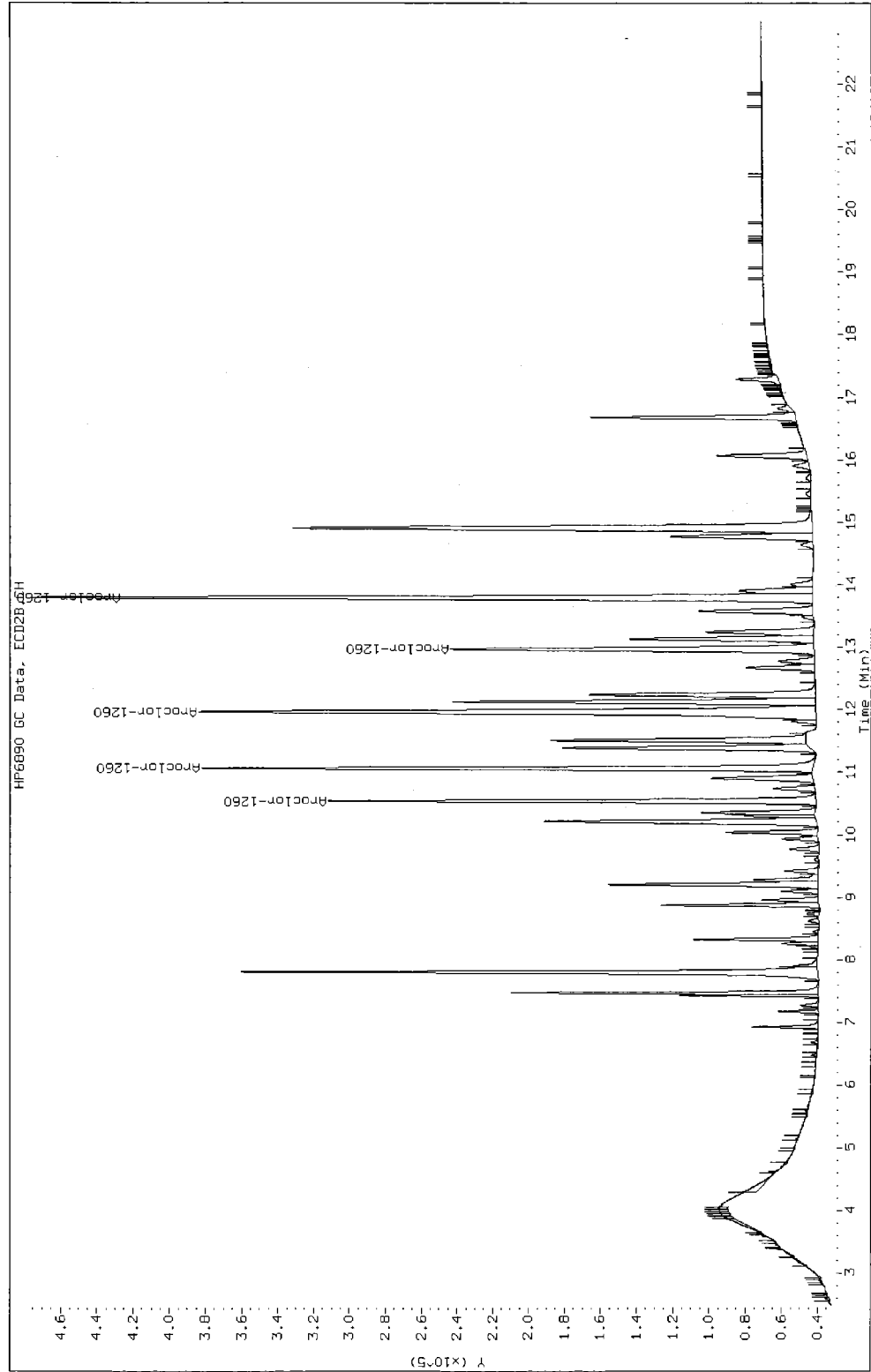
Client ID:

Sample Info: 12273B8082ALL.b

SD-182-0-3

Instrument: gc10.i

Operator: 402360



Data File: T1230607.D

Date: 28-DEC-2013 10:23

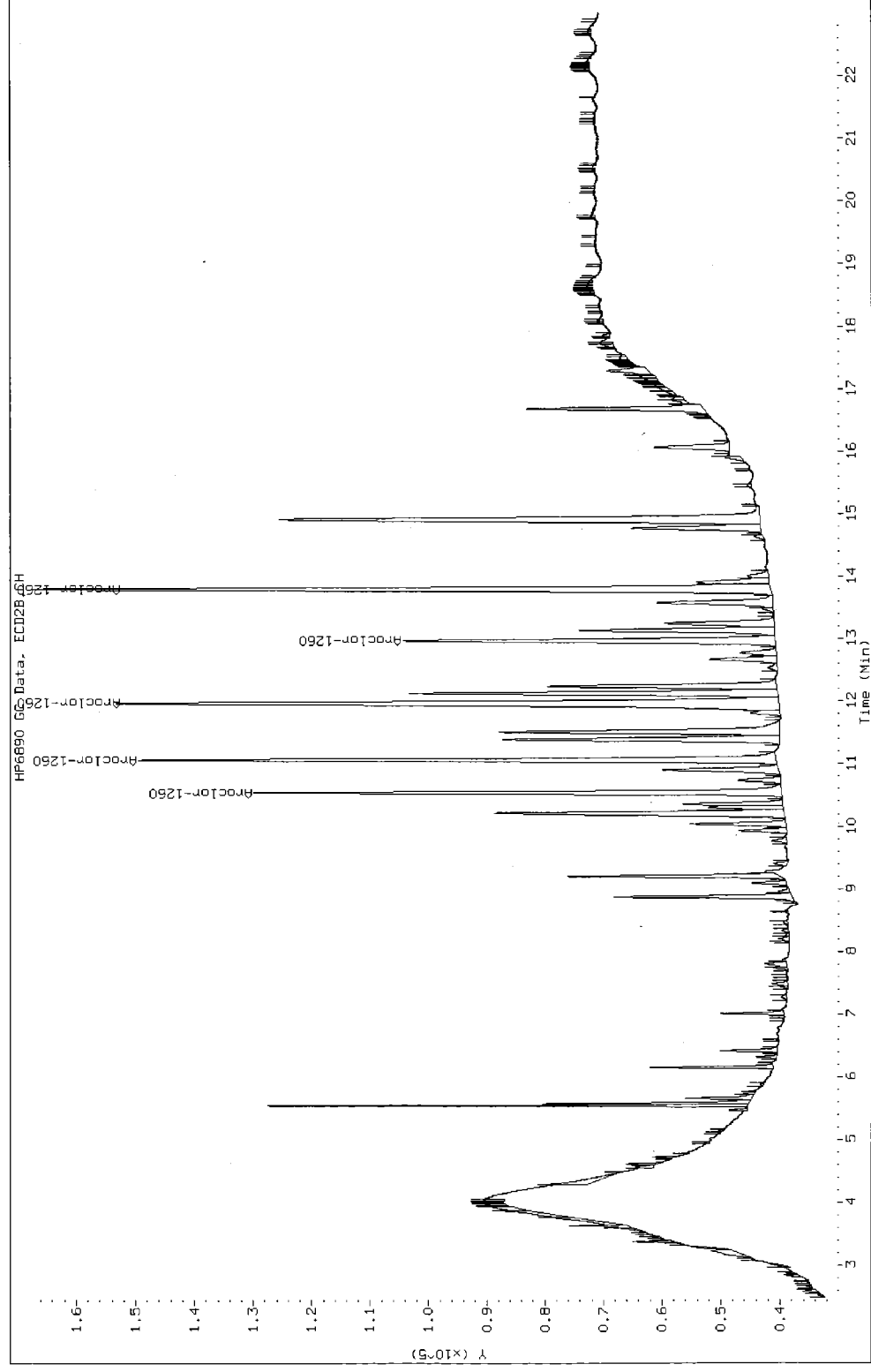
SD-183-0-1

Client ID:

Instrument: gcl0.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230586.D

Date: 27-DEC-2013 23:21

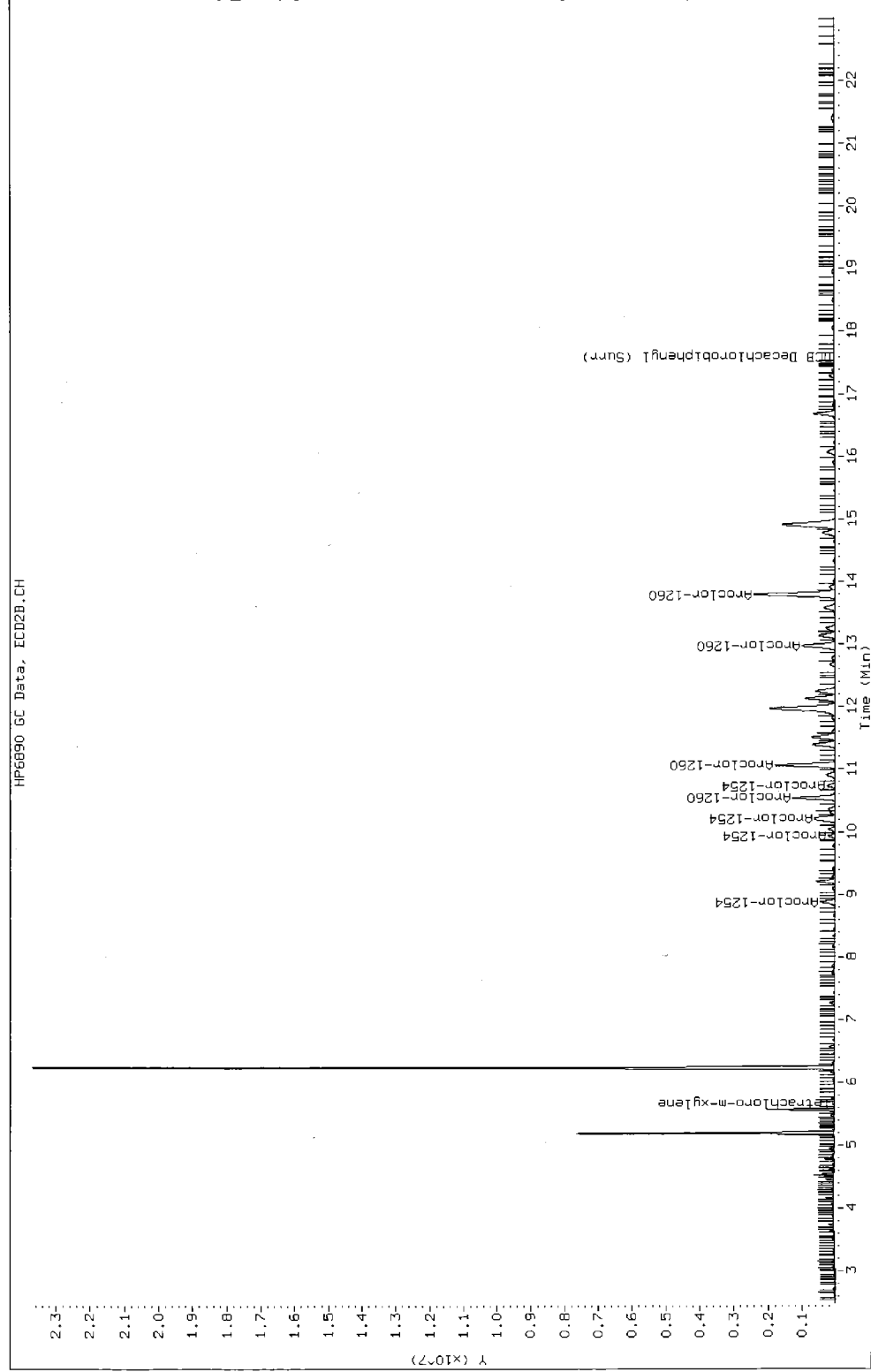
Client ID:

Instrument: gcl0.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-184-D-2



Data File: T1230587.D

Date: 27-DEC-2013 23:52

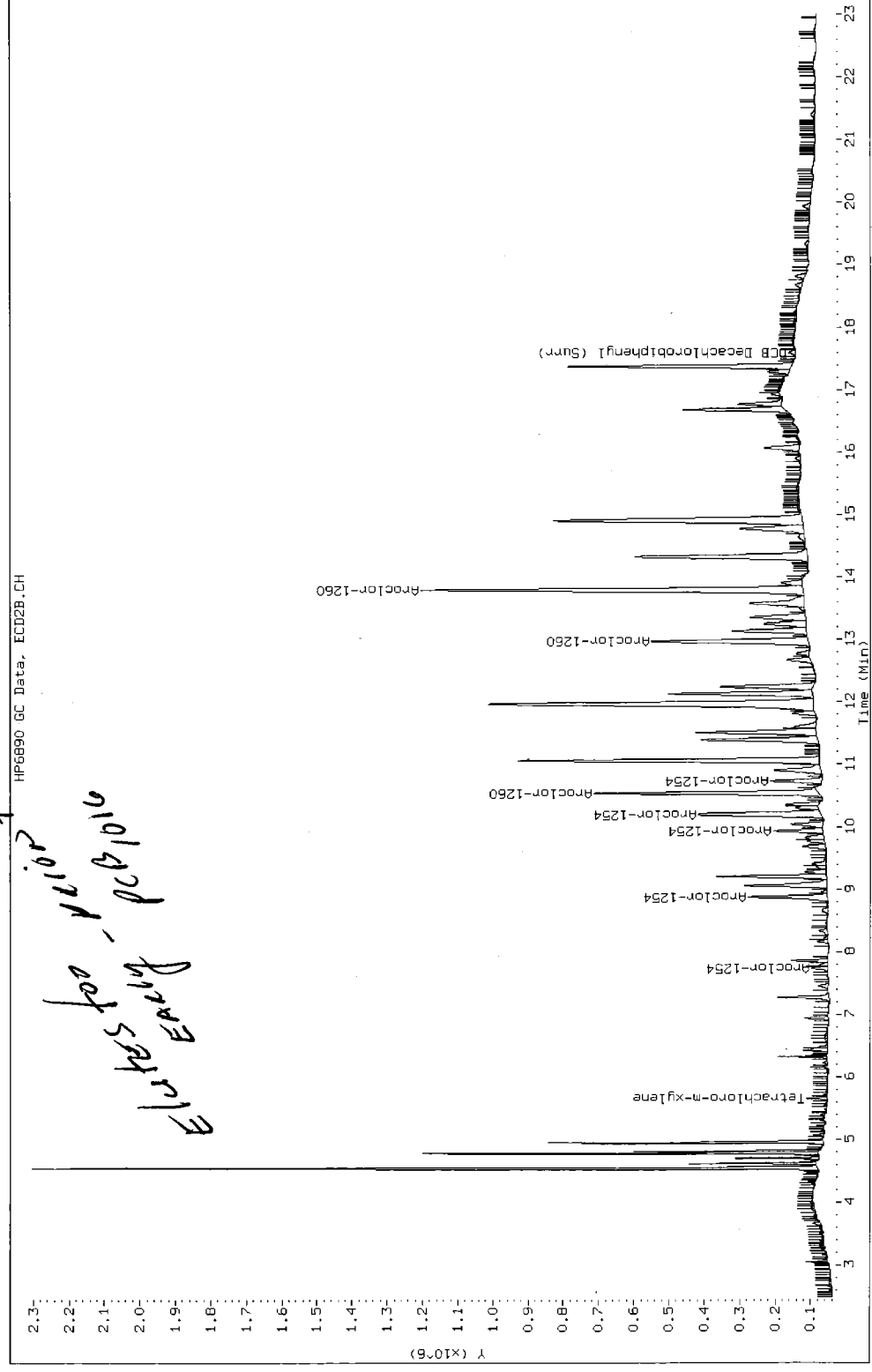
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-185-D-1



Data File: T1230590.D

Date: 28-DEC-2013 01:27

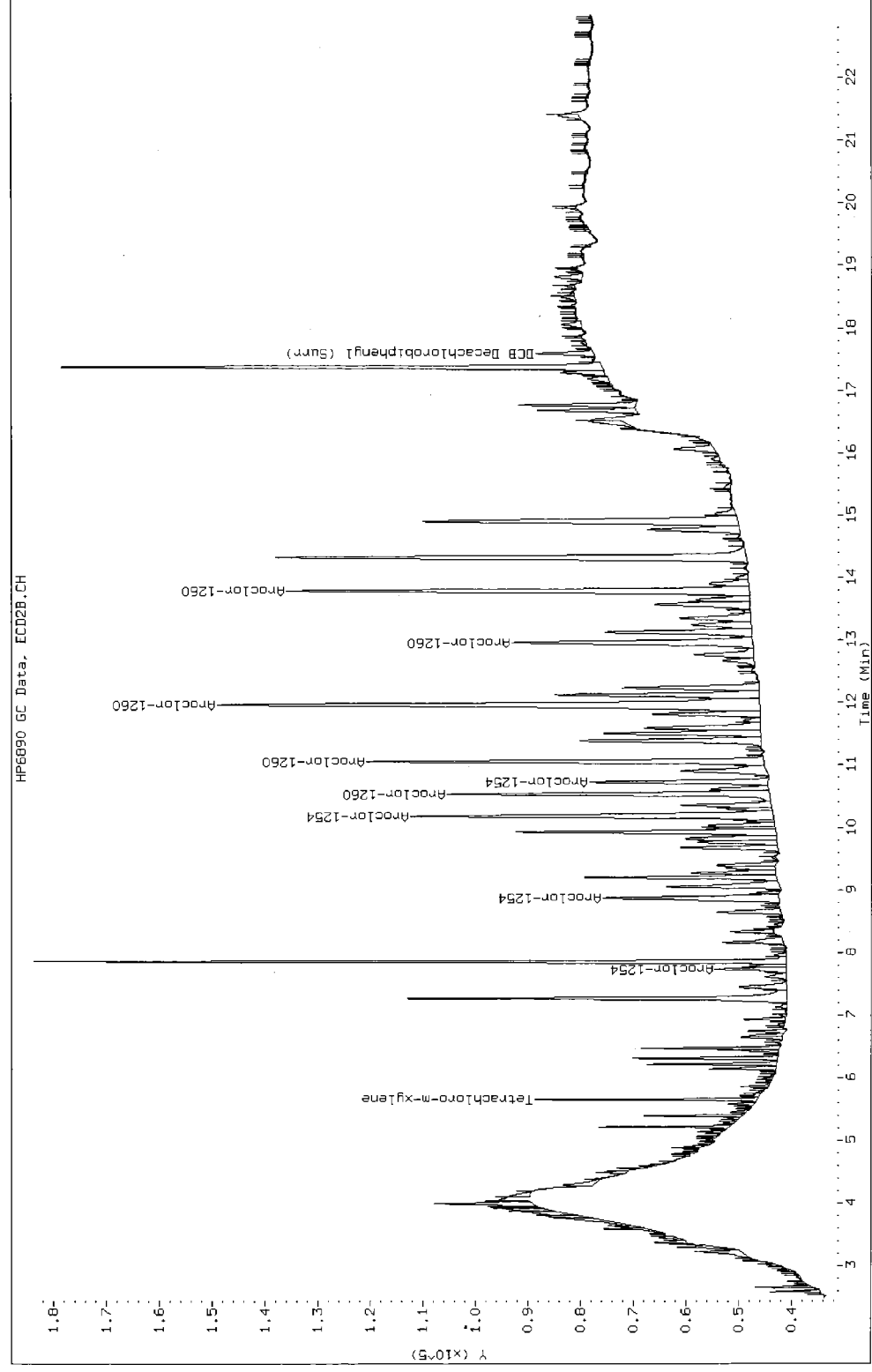
Client ID:

Sample Info: 12273B8082ALL.b

SD-186-D-1

Instrument: gc10.i

Operator: 402360



Data File: T1230591.D

Date: 28-DEC-2013 01:58

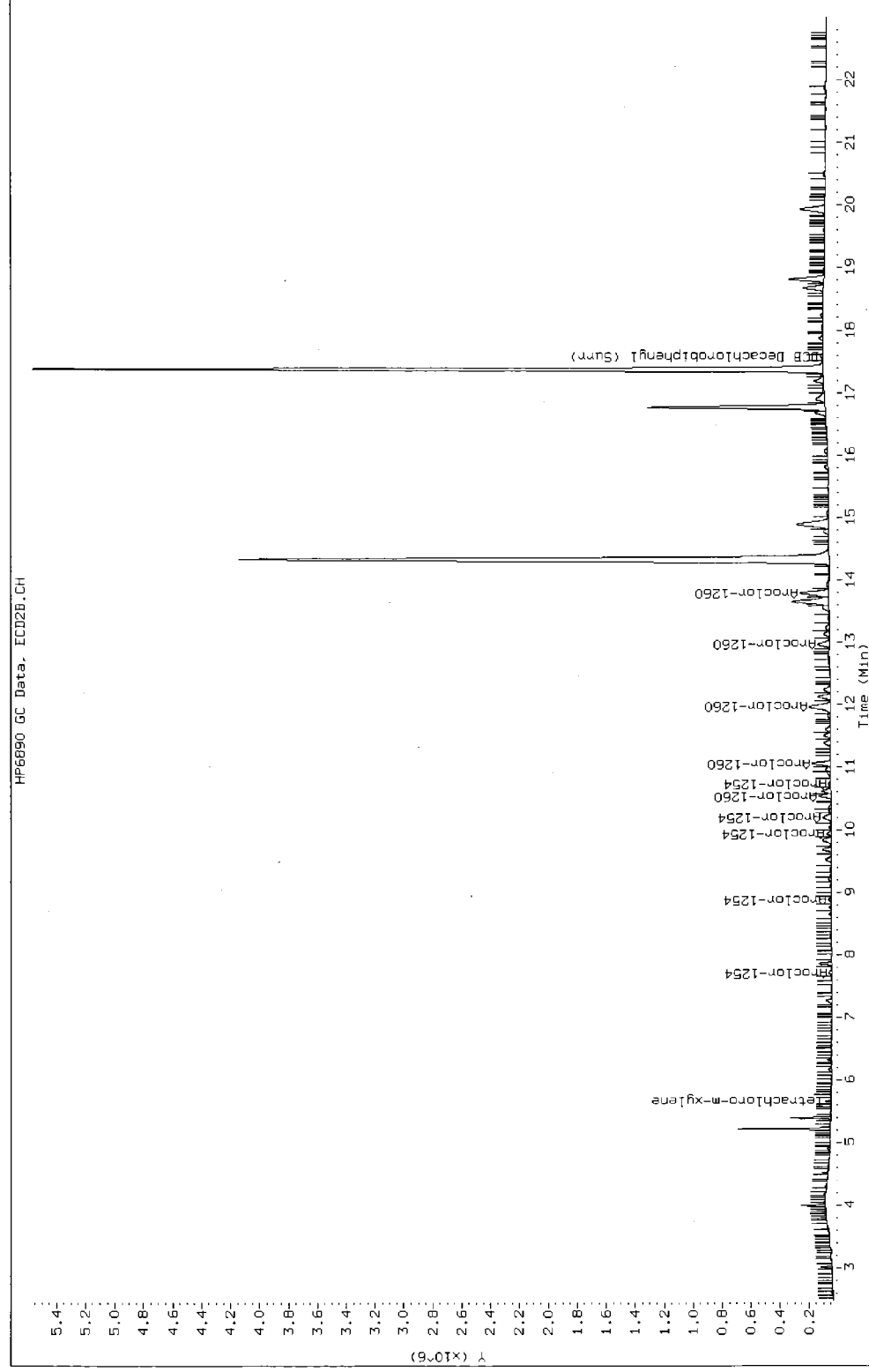
SD-187-0-1

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230592.D

Date: 28-DEC-2013 02:30

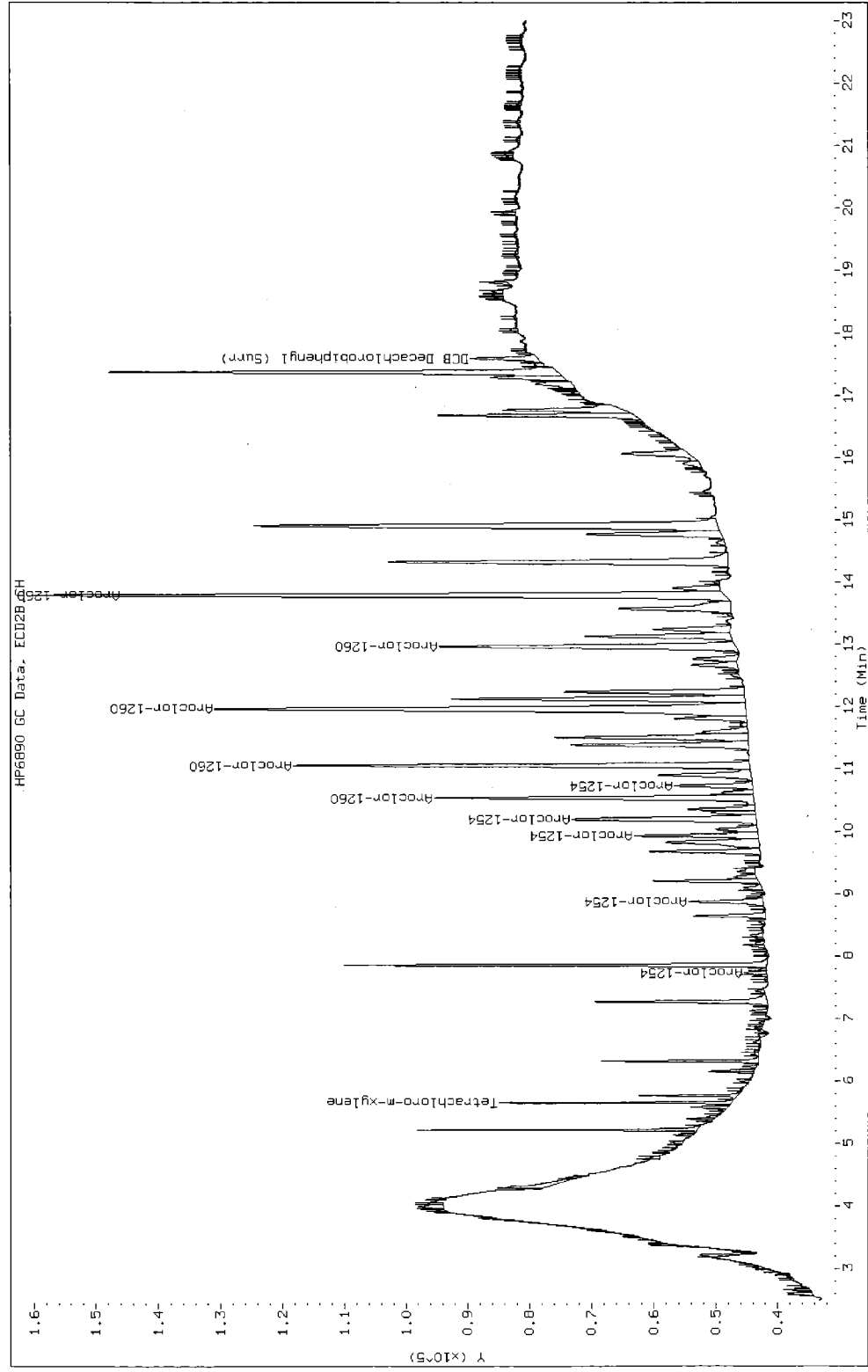
Client ID:

Sample Info: 12273B8082ALL.b

Instrument: gc10.i

Operator: 402360

SD-188-2-1

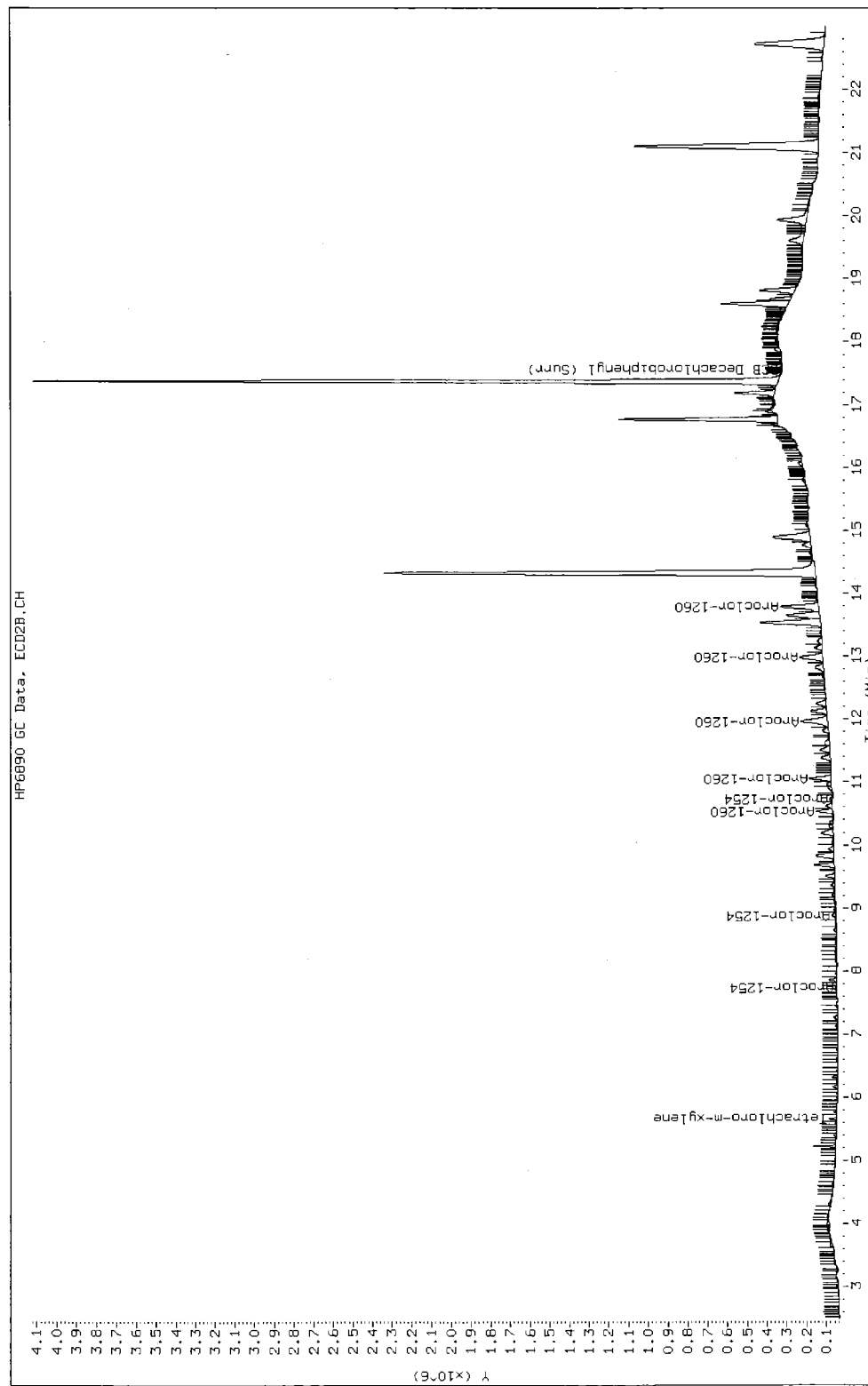


SD-189-0-1

SD-189-0-1

Instrument: gc10.i

Operator: 402360



Data File: T1230594.D

Date: 28-DEC-2013 03:33

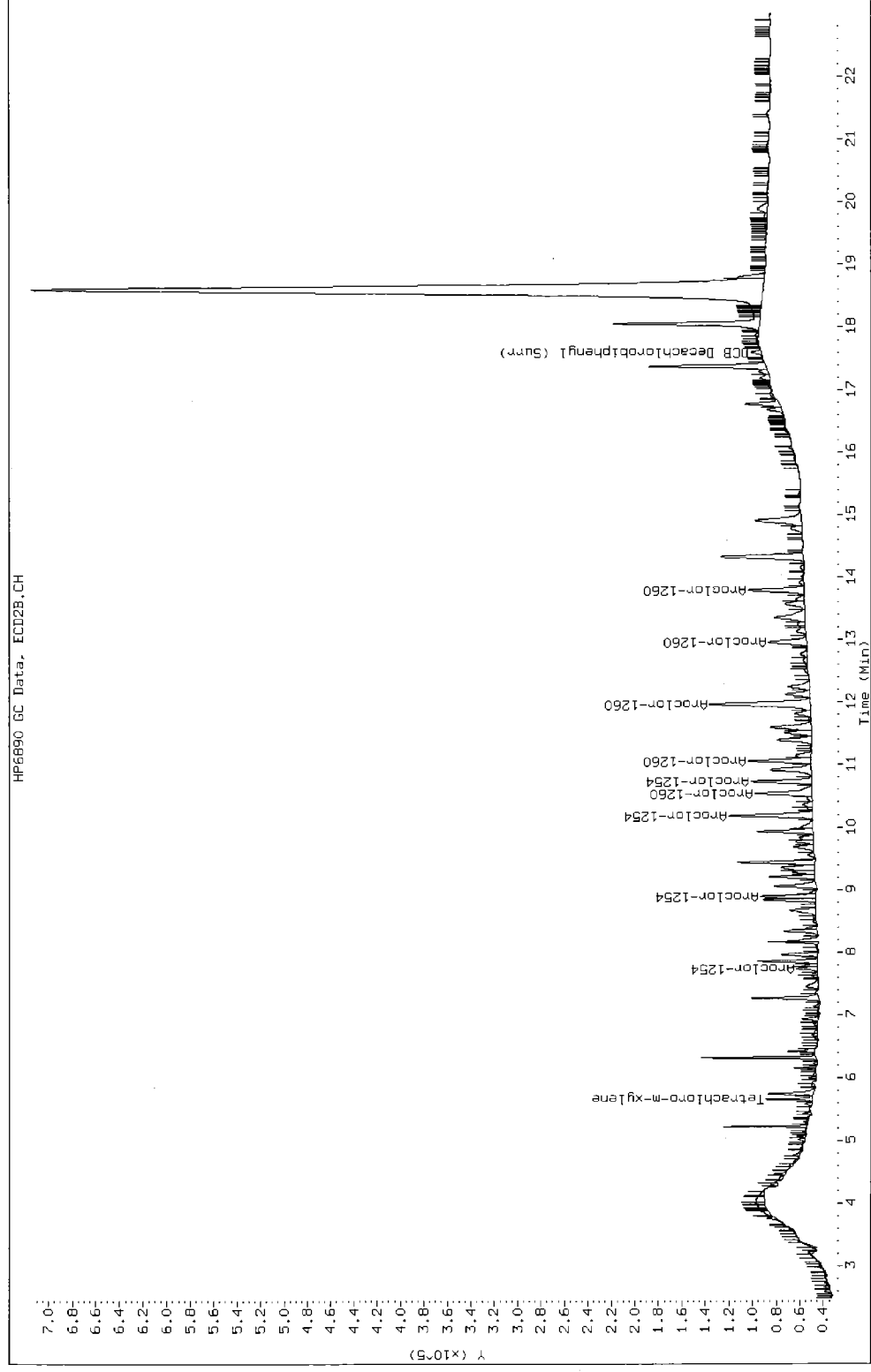
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-190-D-1



Data File: T1230596.D

Date: 28-DEC-2013 04:36

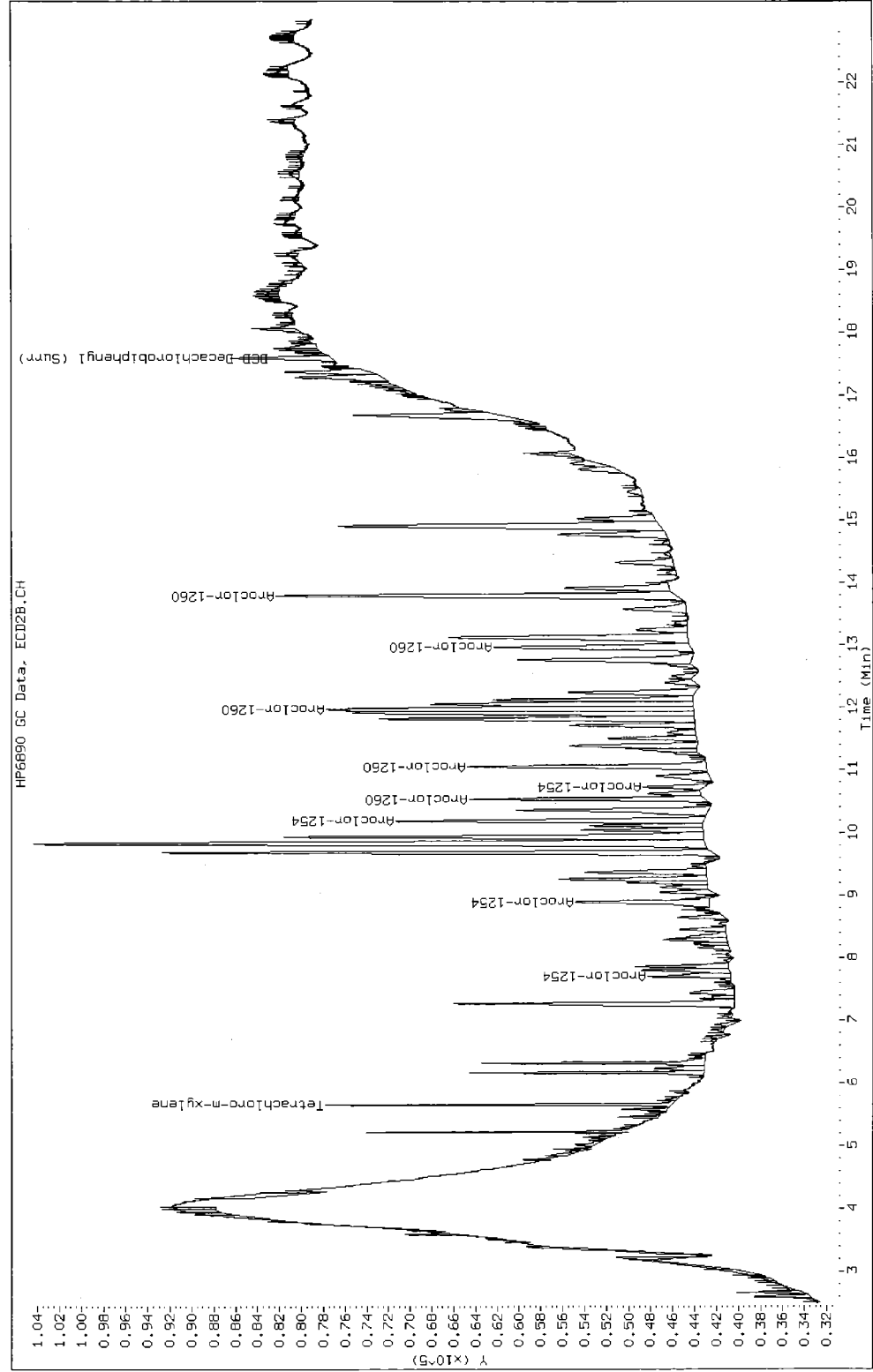
Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360

SD-192-0-1



Data File: T1230597.D

Date: 28-DEC-2013 05:07

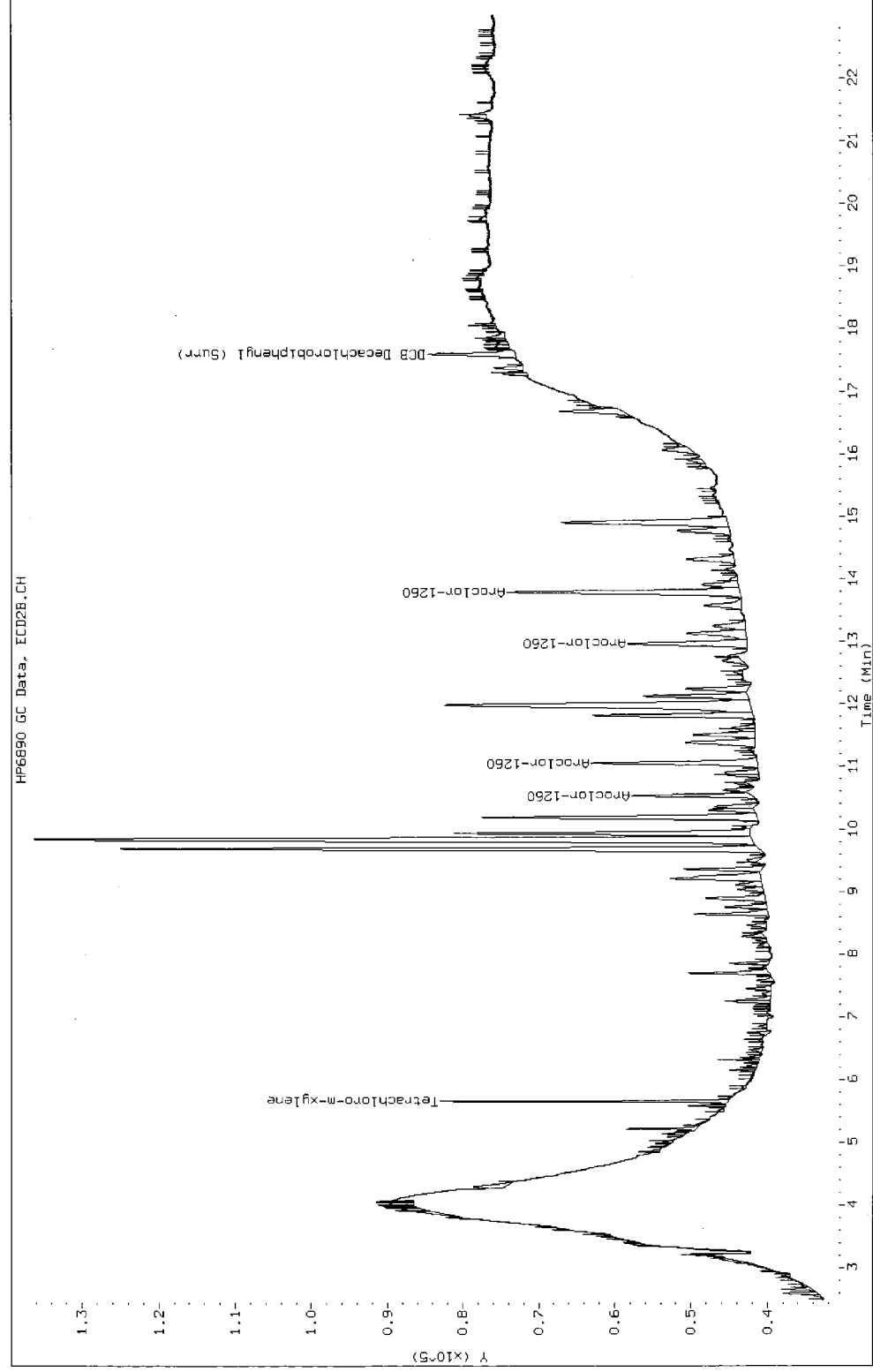
Client ID:

Sample Info: 12273B8082ALL.b

Instrument: gc10.i

Operator: 402360

SD-193-0-1



Data File: T1230598.D

Date: 28-DEC-2013 05:39

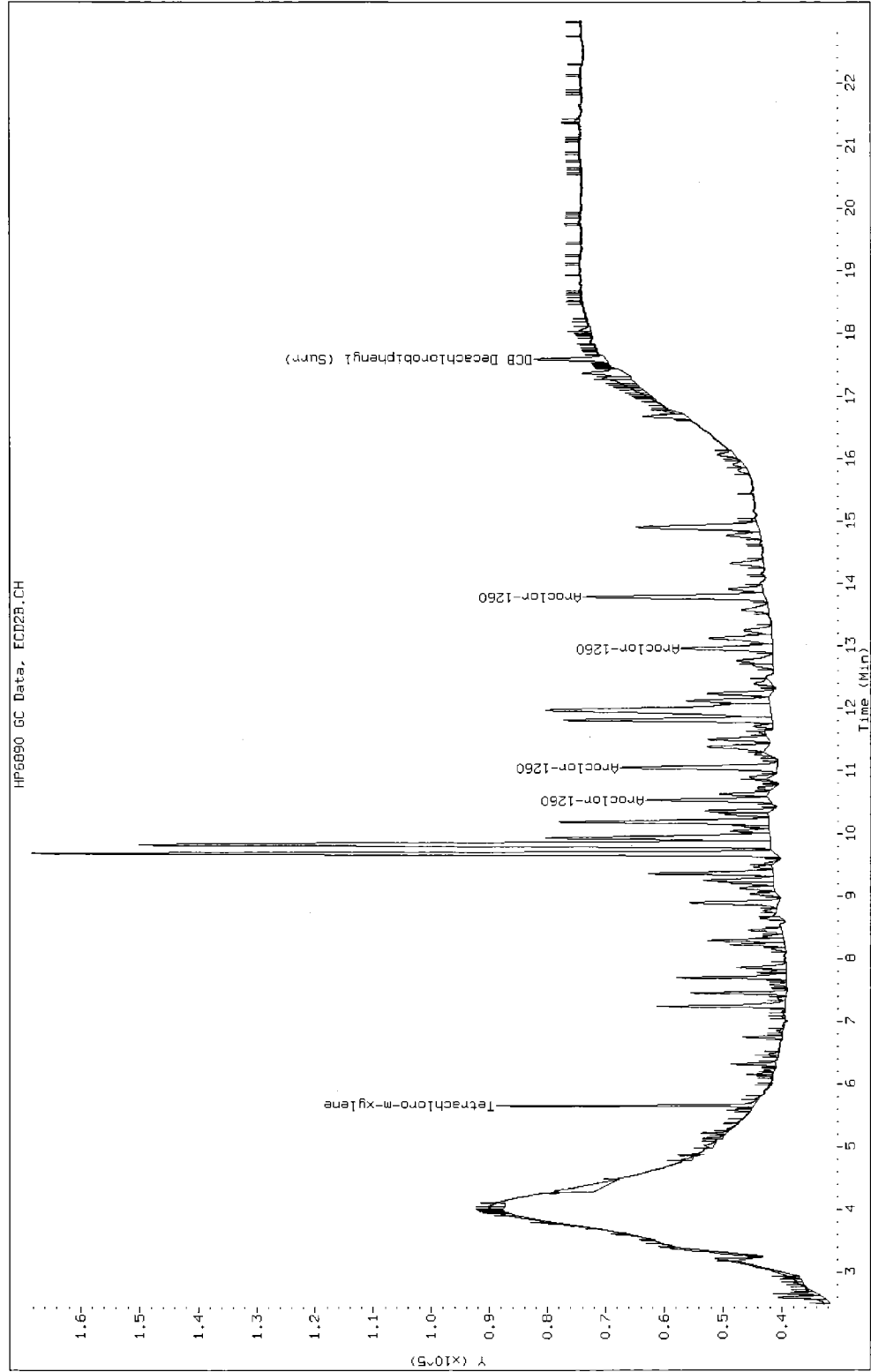
Client ID:

Sample Info: 12273B8082ALL.b

Instrument: gc10.i

Operator: 402360

SD-194-0-1



CV standard

Data File: T1230543.D

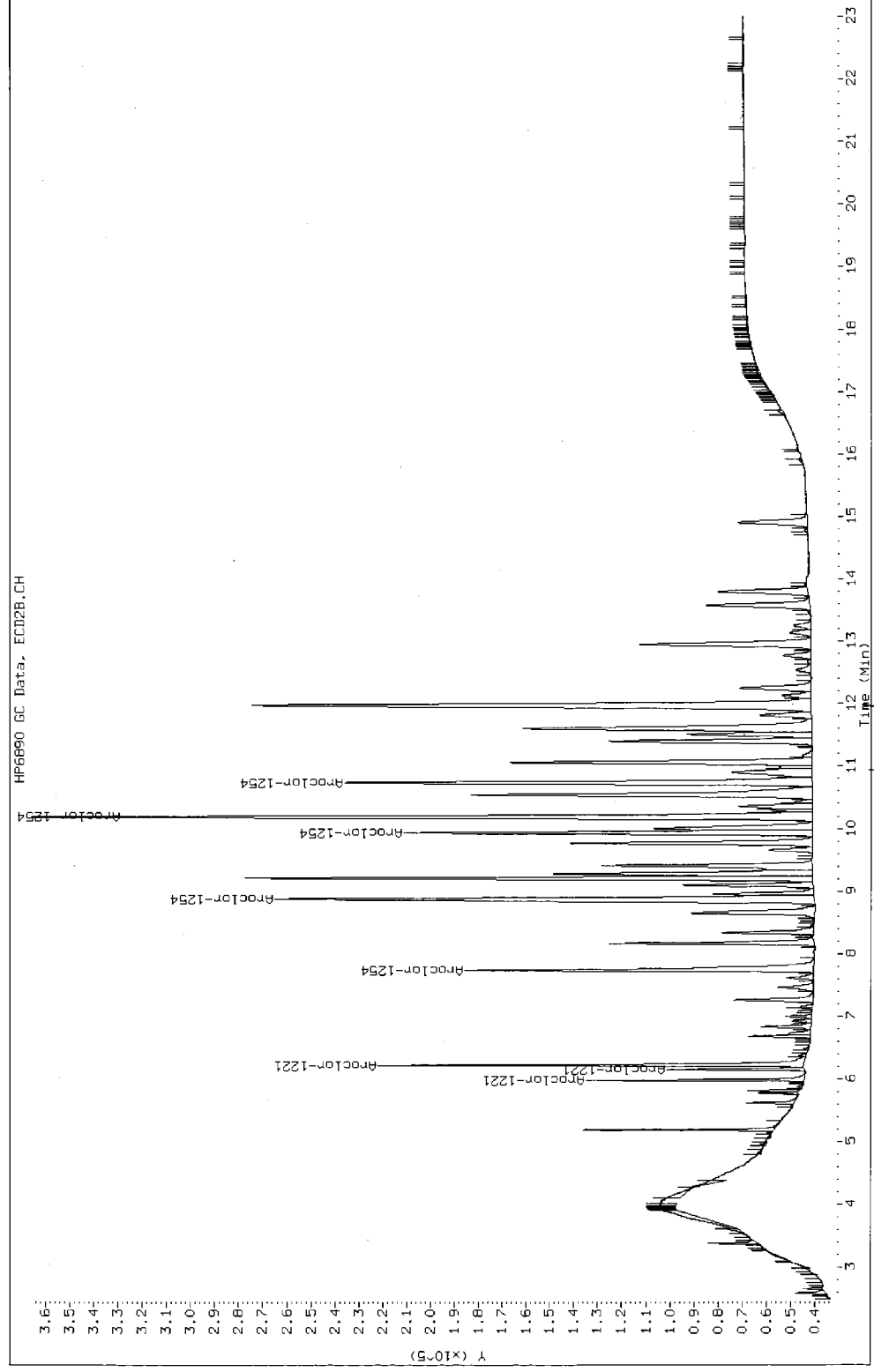
Date: 27-DEC-2013 00:46

Client ID:

Instrument: gcl0.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230567.D

Date: 27-DEC-2013 13:22

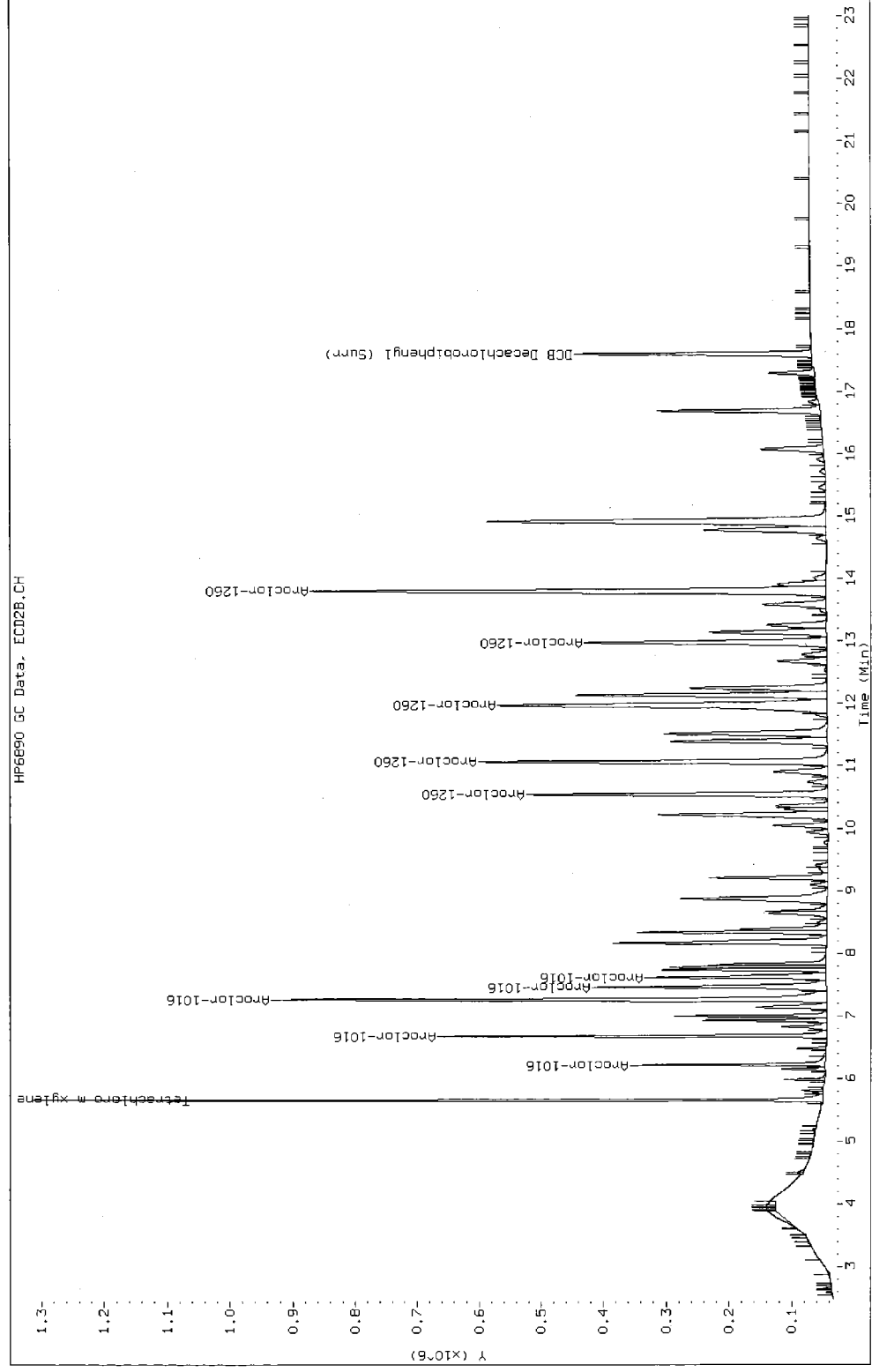
Client ID:

Sample Info: 12273B8082ALL.b

Instrument: gc10.i

Operator: 402360

CCV



Data File: T1230584.D

Date: 27-DEC-2013 22:18

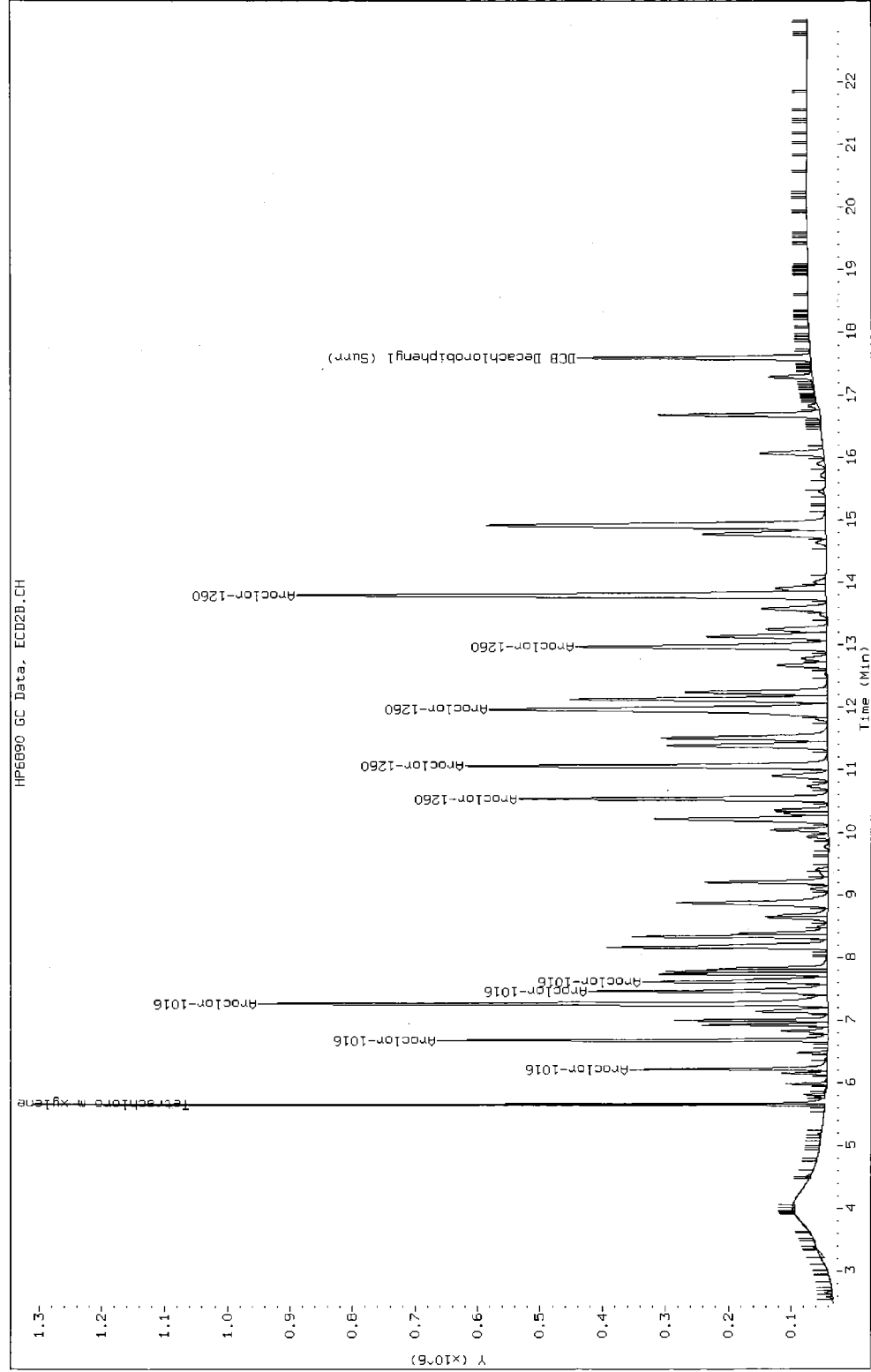
cey

Client ID:

Instrument: gc10.i

Sample Info: 12273B8082ALL.b

Operator: 402360



Data File: T1230602.D

Date: 28-DEC-2013 07:45

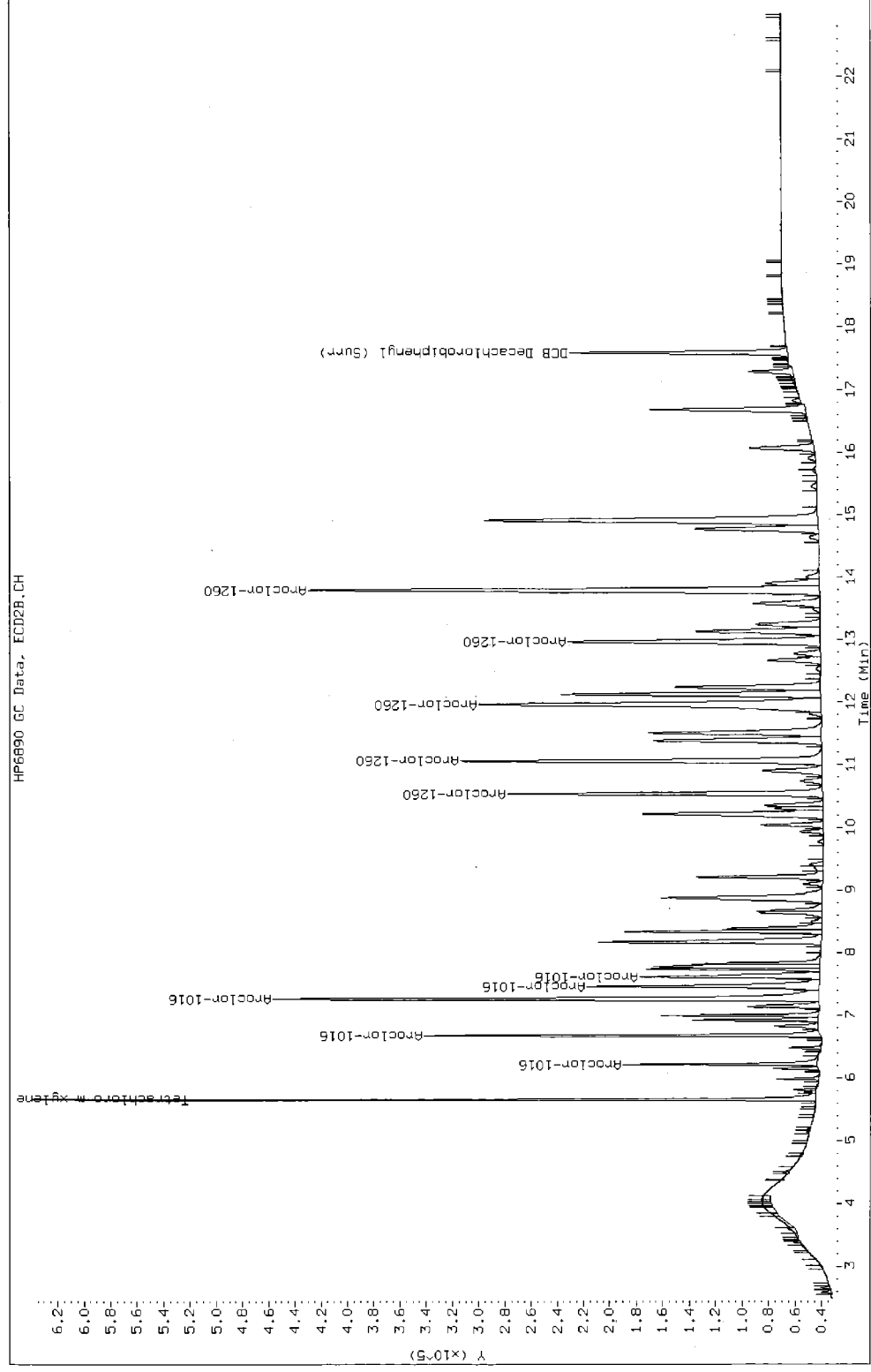
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Sample Info: 12273B8082ALL.b

Operator: 402360



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Date: 28-DEC-2013 15:07

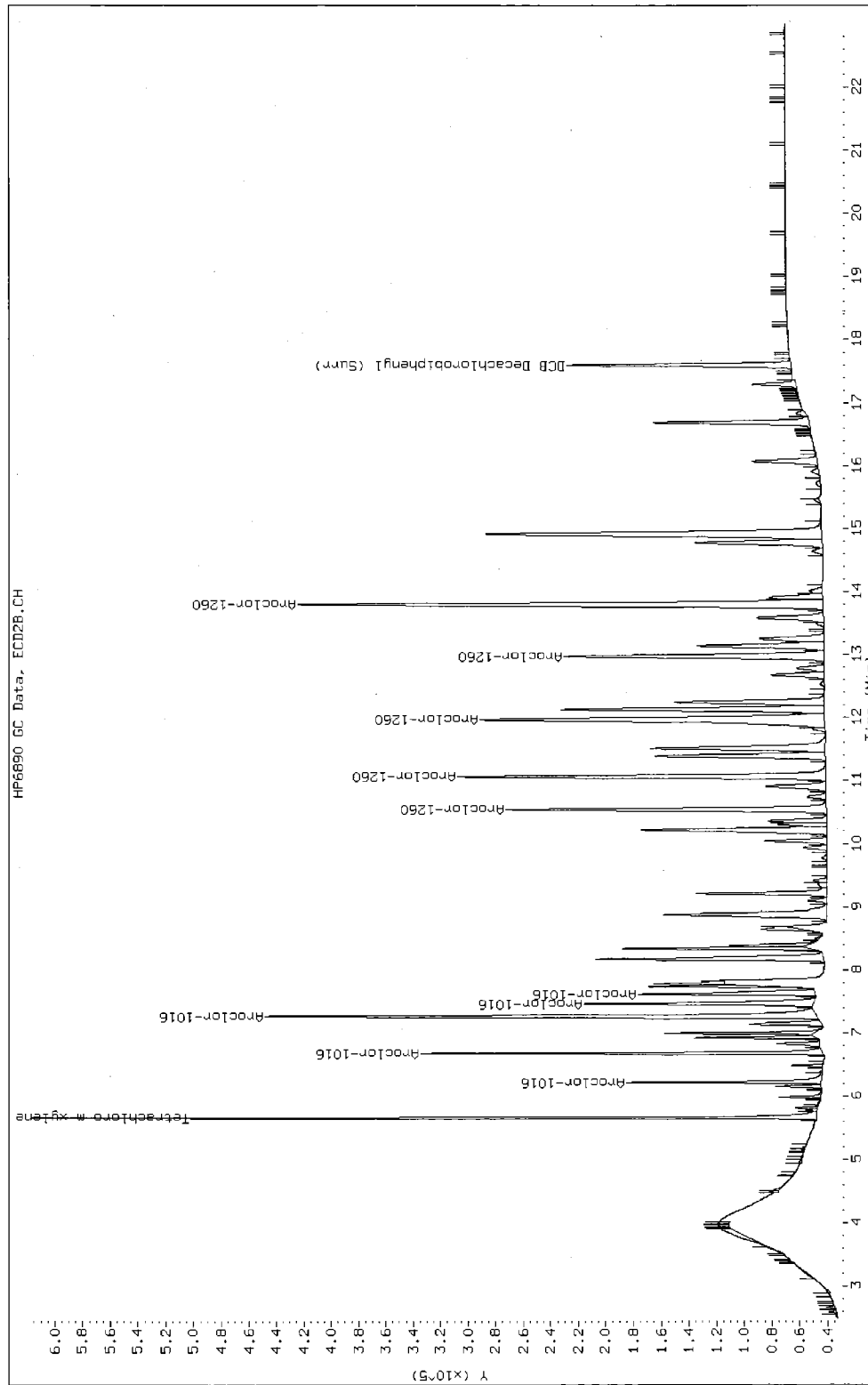
Client ID:

Sample Info: 12273B8082ALL.b

ceV

Instrument: gc10.i

Operator: 402360



APPENDIX C—CHEMICAL DATA TABLE

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-167	SD-168	SD-169	SD-170
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-167-0-1	SD-168-0-1	SD-169-0-1	SD-170-0-1
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/20/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	382.14	592.83	95.75	362.06
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	39 U	38 U	17 U	19 U
ACENAPHTHENE	64 J	25 J	47 J	80 U	41 U	110 J	30 J	20 U
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	49 U	48 U	22 U	58 J
ANTHRACENE	97 J	200 J	110 J	82 U	44 J	180 J	19 U	110 J
BENZO(A)ANTHRACENE	530 J	520	830	130 J	270 J	470	76 J	320
BENZO(A)PYRENE	500 J	660	920	120 J	280 J	390 J	69 J	250 J
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	430	250 J	120 J	320 J
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	340 J	410 J	81 J	170 J
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	170 J	530	43 J	78 J
CHRYSENE	710 J	760	1500	180 J	440	530	120 J	280
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	48 U	88 J	21 UJ	32 J
FLUORANTHENE	1400 J	960	3500	180 J	800	1000	180 J	630
FLUORENE	52 J	52 J	55 J	110 U	57 U	86 J	25 U	28 U
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	300 J	370 J	66 J	150 J
NAPHTHALENE	19 U	34 J	95 J	72 U	37 U	36 J	16 U	18 U
PHENANTHRENE	990 J	370	2800	130 U	340 J	710	47 J	300
PYRENE	1100 J	1100	2500	210 J	590	830	160 J	480
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	0.4 U	0.39 U	0.35 U	0.39 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	0.51 U	0.5 U	0.45 U	0.51 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	0.46 U	0.45 U	0.41 U	0.45 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	0.44 U	0.43 U	0.39 U	0.43 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.22 U	0.25 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	0.38 U	100	29	0.38 U
AROCLOR-1260	25	89	99 J	34	19	84	29	2.1 J
TOTAL AROCLOR	25	89	99	34	19	184	58	2.1

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-171	SD-172	SD-173	SD-174
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-171-0-1	SD-172-0-3	SD-173-0-3	SD-174-0-1
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/19/2013	12/19/2013	12/19/2013	12/19/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	1020.22	6393	2828.3	2870.2
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	14 J	50 J	55 J	47 J
ACENAPHTHENE	64 J	25 J	47 J	80 U	28 J	550	150 J	230
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	71	160 J	430	140 J
ANTHRACENE	97 J	200 J	110 J	82 U	160	1100	580	610
BENZO(A)ANTHRACENE	530 J	520	830	130 J	620	4600	1700	2200
BENZO(A)PYRENE	500 J	660	920	120 J	680 J	4200 J	1900 J	1900 J
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	720 J	5300 J	2100 J	2500 J
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	630 J	3300 J	1800 J	1300 J
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	250 J	1800 J	630 J	780 J
CHRYSENE	710 J	760	1500	180 J	720	5000	2000	2400
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	150 J	870 J	390 J	360 J
FLUORANTHENE	1400 J	960	3500	180 J	910	9600	3000	5800
FLUORENE	52 J	52 J	55 J	110 U	35 J	460	160 J	250
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	530 J	3100 J	1500 J	1300 J
NAPHTHALENE	19 U	34 J	95 J	72 U	24 J	89 J	94 J	160 J
PHENANTHRENE	990 J	370	2800	130 U	430	5000	1100	3800
PYRENE	1100 J	1100	2500	210 J	1100	7400	3400	4000
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	190 U	120 U	500 U	0.37 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	240 U	150 U	640 U	0.48 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	210 U	130 U	580 U	0.43 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	200 U	130 U	550 U	0.41 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	120 U	74 U	320 U	0.24 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	180 U	110 U	480 U	150
AROCLOR-1260	25	89	99 J	34	150000	54000	220000	350
TOTAL AROCLOR	25	89	99	34	150000	54000	220000	500

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-175	SD-176	SD-177	SD-178
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-175-0-1	SD-176-0-3	SD-177-0-2	SD-178-0-1
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/19/2013	12/19/2013	12/19/2013	12/19/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	8061.1	2699.3	30526	258.05
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	210 J	30 J	300 J	19 U
ACENAPHTHENE	64 J	25 J	47 J	80 U	1500	130 J	2200 J	20 U
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	310	200 J	510 J	48 J
ANTHRACENE	97 J	200 J	110 J	82 U	2100	390	3300 J	30 J
BENZO(A)ANTHRACENE	530 J	520	830	130 J	5700	1600	18000 J	140 J
BENZO(A)PYRENE	500 J	660	920	120 J	5400 J	1800 J	21000 J	180 J
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	6000 J	2700 J	27000 J	200 J
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	3700 J	1500 J	15000 J	140 J
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	2500 J	710 J	10000 J	86 J
CHRYSENE	710 J	760	1500	180 J	6100	2200	26000 J	190 J
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	1100 J	320 J	3500 J	32 J
FLUORANTHENE	1400 J	960	3500	180 J	13000	4200	68000 J	260
FLUORENE	52 J	52 J	55 J	110 U	1000	160 J	2200 J	28 U
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	3600 J	1400 J	14000 J	110 J
NAPHTHALENE	19 U	34 J	95 J	72 U	480	51 J	120 J	18 U
PHENANTHRENE	990 J	370	2800	130 U	9000	1700	39000 J	81 J
PYRENE	1100 J	1100	2500	210 J	10000	3000	45000 J	210
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	4.4 U	0.55 U	1.1 UJ	0.39 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	5.7 U	0.7 U	1.4 UJ	0.5 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	5.1 U	0.63 U	1.3 UJ	0.45 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	4.8 U	0.6 U	1.2 UJ	0.43 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	2.8 U	0.35 U	0.69 UJ	0.25 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	410	36	28 J	5.3
AROCLOR-1260	25	89	99 J	34	1300	88	73 J	12
TOTAL AROCLOR	25	89	99	34	1710	124	101	17.3

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-179	SD-180	SD-181	SD-182
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-179-0-1	SD-180-0-1	SD-181-0-1	SD-182-0-3
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/19/2013	12/19/2013	12/20/2013	12/20/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	289.43	4322.7	25508	14776
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	2.5 J	38 U	440 J	240 J
ACENAPHTHENE	64 J	25 J	47 J	80 U	18	70 J	3900	1600
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	14	76 J	350 J	230 J
ANTHRACENE	97 J	200 J	110 J	82 U	41	390 J	7100	3000
BENZO(A)ANTHRACENE	530 J	520	830	130 J	120	2600	20000	10000
BENZO(A)PYRENE	500 J	660	920	120 J	200 J	2900	17000	9500
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	290 J	4300	21000	13000
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	150 J	2600	14000	9200
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	120 J	1900	8800	3500
CHRYSENE	710 J	760	1500	180 J	230	3700	20000	11000
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	32 J	490	3100	2200
FLUORANTHENE	1400 J	960	3500	180 J	410	6200	35000	18000
FLUORENE	52 J	52 J	55 J	110 U	13	110 J	4100	1200
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	150 J	2200	12000	7300
NAPHTHALENE	19 U	34 J	95 J	72 U	4.7 J	36 U	640	450 J
PHENANTHRENE	990 J	370	2800	130 U	150	2600	28000	12000
PYRENE	1100 J	1100	2500	210 J	290	5900	37000	18000
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	0.44 U	0.79 U	2100 U	2600 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	0.57 U	1 U	2800 U	3300 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	0.51 U	0.91 U	2500 U	3000 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	0.49 U	0.86 U	2400 U	2800 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	0.28 U	0.5 U	1400 U	1600 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	7.6	21	2100 U	2500 U
AROCLOR-1260	25	89	99 J	34	22	95	420000	780000
TOTAL AROCLOR	25	89	99	34	29.6	116	420000	780000

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-183	SD-184	SD-185	SD-186
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-183-0-1	SD-184-0-2	SD-185-0-1	SD-186-0-1
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/20/2013	12/20/2013	12/20/2013	12/20/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	20148	5971.9	1857.3	471.02
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	280	170	21 J	32 U
ACENAPHTHENE	64 J	25 J	47 J	80 U	3000	920	53 J	35 U
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	320	560	94 J	50 J
ANTHRACENE	97 J	200 J	110 J	82 U	5600	2200	230	96 J
BENZO(A)ANTHRACENE	530 J	520	830	130 J	15000	4500	1300 J	280 J
BENZO(A)PYRENE	500 J	660	920	120 J	13000	3800	1200 J	290 J
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	15000	4700	1500 J	540
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	11000	3400	1100	350 J
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	6200	1700	570	150 J
CHRYSENE	710 J	760	1500	180 J	16000	4900	1600	520
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	3100	930	270	67 J
FLUORANTHENE	1400 J	960	3500	180 J	33000	11000	3600	1100
FLUORENE	52 J	52 J	55 J	110 U	2400	1100	87 J	47 U
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	9700	3000	1000	300 J
NAPHTHALENE	19 U	34 J	95 J	72 U	480	340	43 J	31 U
PHENANTHRENE	990 J	370	2800	130 U	17000	6400	1100 J	400
PYRENE	1100 J	1100	2500	210 J	19000	6100	1900	590
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	410 U	0.91 U	0.83 U	0.84 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	530 U	1.2 U	1.1 U	1.1 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	470 U	1 U	0.96 U	0.96 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	450 U	0.99 U	0.91 U	0.91 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	260 U	0.58 U	0.53 U	0.53 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	390 U	410	190	38
AROCLOR-1260	25	89	99 J	34	40000	1300	550	60
TOTAL AROCLOR	25	89	99	34	40000	1710	740	98

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-187	SD-188	SD-189	SD-190
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-187-0-1	SD-188-0-1	SD-189-0-1	SD-190-0-1
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/20/2013	12/20/2013	12/20/2013	12/20/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	2168.9	954.21	4948.7	64045
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	48 J	27 U	26 U	530
ACENAPHTHENE	64 J	25 J	47 J	80 U	48 U	29 U	130 J	5600
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	190 J	120 J	160 J	870
ANTHRACENE	97 J	200 J	110 J	82 U	260 J	140 J	590	18000
BENZO(A)ANTHRACENE	530 J	520	830	130 J	1100	470	3000	49000
BENZO(A)PYRENE	500 J	660	920	120 J	1400	620	3300	43000
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	1800	800	3900	47000
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	1600	690	2800	33000
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	720	250 J	1500	19000
CHRYSENE	710 J	760	1500	180 J	1700	710	3700	55000
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	340 J	150 J	680	8200
FLUORANTHENE	1400 J	960	3500	180 J	2900	1000	8100	150000
FLUORENE	52 J	52 J	55 J	110 U	82 J	43 J	180 J	6600
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	1300	540	2600	30000
NAPHTHALENE	19 U	34 J	95 J	72 U	43 U	26 U	66 J	120 J
PHENANTHRENE	990 J	370	2800	130 U	850	260 J	2700	61000
PYRENE	1100 J	1100	2500	210 J	1900	710	4500	74000
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	0.78 U	0.7 U	0.68 U	0.88 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	0.99 U	0.9 U	0.87 U	1.1 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	0.89 U	0.81 U	0.78 U	1 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	0.85 U	0.77 U	0.75 U	0.97 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	0.49 U	0.45 U	0.43 U	0.56 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	29	15	11	53
AROCLOR-1260	25	89	99 J	34	92	49	82	46
TOTAL AROCLOR	25	89	99	34	121	64	93	99

Table C-1

Chemical Results for Storm Drainage System Sediment Samples-2013
Lockheed Martin Middle River Complex and Martin State Airport, Middle River, Maryland
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LOCATION	SD-163	SD-164	SD-165	SD-166	SD-191	SD-192	SD-193	SD-194
SAMPLE ID	SD-163-0-1	SD-164-0-1	SD-165-0-1	SD-166-0-1	SD-191-0-1	SD-192-0-1	SD-193-0-1	SD-194-0-1
SAMPLE DATE	12/18/2013	12/18/2013	12/18/2013	12/18/2013	12/20/2013	12/20/2013	12/20/2013	12/20/2013
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)								
BaPEq-POS	775.31	966.96	1429.4	233.18	19123	219.73	251.07	188.49
2-METHYLNAPHTHALENE	19 U	30 J	25 J	75 U	230	7.8 U	8.4 U	7.1 U
ACENAPHTHENE	64 J	25 J	47 J	80 U	2000	20 J	13 J	9 J
ACENAPHTHYLENE	69 J	150 J	36 J	96 U	440	89	31 J	48 J
ANTHRACENE	97 J	200 J	110 J	82 U	4200	89	54 J	43 J
BENZO(A)ANTHRACENE	530 J	520	830	130 J	13000	130	160	100
BENZO(A)PYRENE	500 J	660	920	120 J	13000	150	170	130
BENZO(B)FLUORANTHENE	700 J	640	1400	130 U	16000	170	200	140
BENZO(G,H,I)PERYLENE	480 J	760	890	130 J	9200	120	130	94
BENZO(K)FLUORANTHENE	260 J	420	590	170 U	5600	64 J	87 J	44 J
CHRYSENE	710 J	760	1500	180 J	17000	190	200	150
DIBENZO(A,H)ANTHRACENE	110 J	130 J	200 J	100 J	2300	29 J	33 J	26 J
FLUORANTHENE	1400 J	960	3500	180 J	67000	360	440	240
FLUORENE	52 J	52 J	55 J	110 U	2400	34 J	23 J	15 J
INDENO(1,2,3-CD)PYRENE	390 J	560	790	86 U	8500	99	110	79 J
NAPHTHALENE	19 U	34 J	95 J	72 U	87 J	7.5 U	8.1 U	6.8 U
PHENANTHRENE	990 J	370	2800	130 U	42000	170	160	81
PYRENE	1100 J	1100	2500	210 J	49000	240	230	160
PCBS (UG/KG)								
AROCLOR-1016	0.4 U	0.39 U	0.41 U	0.39 U	0.89 U	0.81 U	0.88 U	0.73 U
AROCLOR-1221	0.52 U	0.5 U	0.52 U	0.5 U	1.1 U	1 U	1.1 U	0.94 U
AROCLOR-1232	0.46 U	0.45 U	0.47 U	0.45 U	1 U	0.94 U	1 U	0.84 U
AROCLOR-1242	0.44 U	0.43 U	0.44 U	0.42 U	0.97 U	0.89 U	0.96 U	0.8 U
AROCLOR-1248	0.26 U	0.25 U	0.26 U	0.25 U	0.56 U	0.52 U	0.56 U	0.47 U
AROCLOR-1254	0.38 U	0.38 U	0.39 U	0.37 U	350	13	0.84 U	0.7 U
AROCLOR-1260	25	89	99 J	34	530	20	17	16
TOTAL AROCLOR	25	89	99	34	880	33	17	16

BaPEq - benzo(a)pyrene equivalent

J - estimated concentration

PCBs - polychlorinated biphenyls

POS - only detected polycyclic aromatic hydrocarbons are used for this calculation

U - not detected at the concentration shown left of the letter.

UG/KG - micrograms per kilogram (i.e., parts per billion)

-- not analyzed

