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1195 Sarasota Center Boulevard
Sarasota, Florida 34240
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March 28, 2017 **VIA OVERNIGHT CARRIER**

Ms. Kelly Bunker
United States Environmental Protection Agency Region 3
1650 Arch Street
Mail Code 3LC61
Philadelphia, PA 19103-2029

Re: Transmittal of the Frog Mortar Creek PCB Investigation Report,
701 Wilson Point Road
Martin State Airport, Middle River, Maryland

Dear Ms. Bunker:

For your reference, please find enclosed two hard copies with CDs of the above-referenced revised document. This report describes the field methods and analytical results used to delineate the extent of polychlorinated biphenyl-contaminated sediment in the upper region of Frog Mortar Creek known as Gar Gut, in response to United States Environmental Protection Agency comments received in April 2015 for Martin State Airport. Specifically, this investigation sought to investigate and delineate polychlorinated biphenyl contamination in sediment near historical sampling location FMC-27 in Frog Mortar Creek. This sampling location was selected with a bias toward areas that receive stormwater runoff north (upstream) of Gar Gut, and areas of observed creek bank erosion. If possible, we respectfully request to receive comment comments by May 10, 2017.

If you have any questions or require any additional information please contact me by phone at Telephone 240-687-1813, or via e-mail at paul.e.calligan@lmco.com.

Sincerely,

Paul E. Calligan

Paul E. Calligan, P.G.
Project Lead, Environmental Remediation
Lockheed Martin Corporation

Enclosures

cc: (via email without enclosure)
Anuradha Mohanty, MDE
Christine Kline, Lockheed Martin
Norm Varney, Lockheed Martin
Michael Martin, Tetra Tech
Peter Shilland, CDM Smith

cc: (via shipping courier; with enclosures)
James Carroll, MDE
Mark Williams, Maryland Aviation Administration
Al Pollard, Martin State Airport

cc: (via mail with CD enclosure)
Jann Richardson, Lockheed Martin
Pete Lekas, EA Environmental

Frog Mortar Creek
PCB Investigation Report
Martin State Airport
701 Wilson Point Road
Middle River, Maryland

Prepared for:

Lockheed Martin Corporation

Prepared by:

Tetra Tech, Inc.

March 2017

Michael Martin, P.G.
Regional Manager

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ACRONYMS

COC	chain of custody
DRA	Dump Road Area
EESH	energy, environment, safety, and health
EGIS	environmental geographic information system
FAA	Federal Aviation Administration
FMC	Frog Mortar Creek
GPS	global positioning system
HASP	health and safety plan
IDW	investigation-derived waste
Lockheed Martin	Lockheed Martin Corporation
MAA	Maryland Aviation Administration
MDANG	Maryland Air National Guard
MDE	Maryland Department of the Environment
mg/kg	milligram(s) per kilogram
MSA	Martin State Airport
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PDF	portable document format
PM	project manager
PPE	personal protective equipment
ppm	part(s) per million
QA	quality assurance
QC	quality control
RCRA	Resource Conservation Recovery Act
SVOC	semivolatile organic compound
TCLP	toxicity characteristic leaching procedure
Tetra Tech	Tetra Tech, Inc.
TSCA	Toxic Substances Control Act
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

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Section 1
Introduction

On behalf of Lockheed Martin Corporation (Lockheed Martin), Tetra Tech, Inc. (Tetra Tech) has prepared the following report describing field methods and analytical results used to delineate the extent of polychlorinated biphenyl (PCB)-contaminated sediment in the upper region of Frog Mortar Creek (FMC) known as Gar Gut, in response to United States Environmental Protection Agency (USEPA) comments received in April 2015 for Martin State Airport (MSA) in Middle River, Maryland (Figure 1-1). Specifically, this investigation sought to investigate and delineate polychlorinated biphenyl contamination in sediment near historical sampling location FMC-27 in Frog Mortar Creek. This sampling location was selected with a bias toward areas that receive stormwater runoff north (upstream) of Gar Gut, and areas of observed creek bank erosion.

During a July 2008 investigation, no polychlorinated biphenyl concentrations in this area exceeded United States Environmental Protection Agency Region 3 freshwater and marine-sediment criteria. The results of the 2008 investigation were not initially sent to the United States Environmental Protection Agency, as the study was under the jurisdiction of the Maryland Department of the Environment (MDE). However, because a few elevated concentrations of polychlorinated biphenyls detected in Dump Road Area (DRA) soils exceeded federal Toxic Substances Control Act (TSCA) limits, the United States Environmental Protection Agency requested that all polychlorinated biphenyl data collected from studies at the Martin State Airport be submitted for their review.

Tetra Tech prepared a work plan entitled *Dump Road Area Polychlorinated Biphenyl Soil Investigation and Removal Work Plan* (Tetra Tech, 2015) to characterize and delineate polychlorinated biphenyl contamination in soil to be removed from historical test-pit DR-TP-A80, located in the Dump Road Area of Martin State Airport. The United States Environmental Protection Agency reviewed this work plan, noted that two additional areas had historically shown elevated polychlorinated biphenyl levels, and decided that these areas must also be investigated.

Areas to be investigated include the area adjacent to Taxiway Tango around historical test-pit location DR-TP-A64 (reported under separate cover) and the area around former sediment-sampling location FMC-27 in Frog Mortar Creek. Polychlorinated biphenyl concentrations in sediment samples FMC-27A, B, and C (1,470, 1,040, and 2,670 micrograms per kilogram [µg/kg], respectively) collected during the 2008 Phase II Frog Mortar Creek investigation exceeded the polychlorinated biphenyl cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level also applies to Frog Mortar Creek; therefore, further characterization of polychlorinated biphenyl concentrations in sediment, both vertically and horizontally, was required near sampling location FMC-27.

This report is organized as follows:

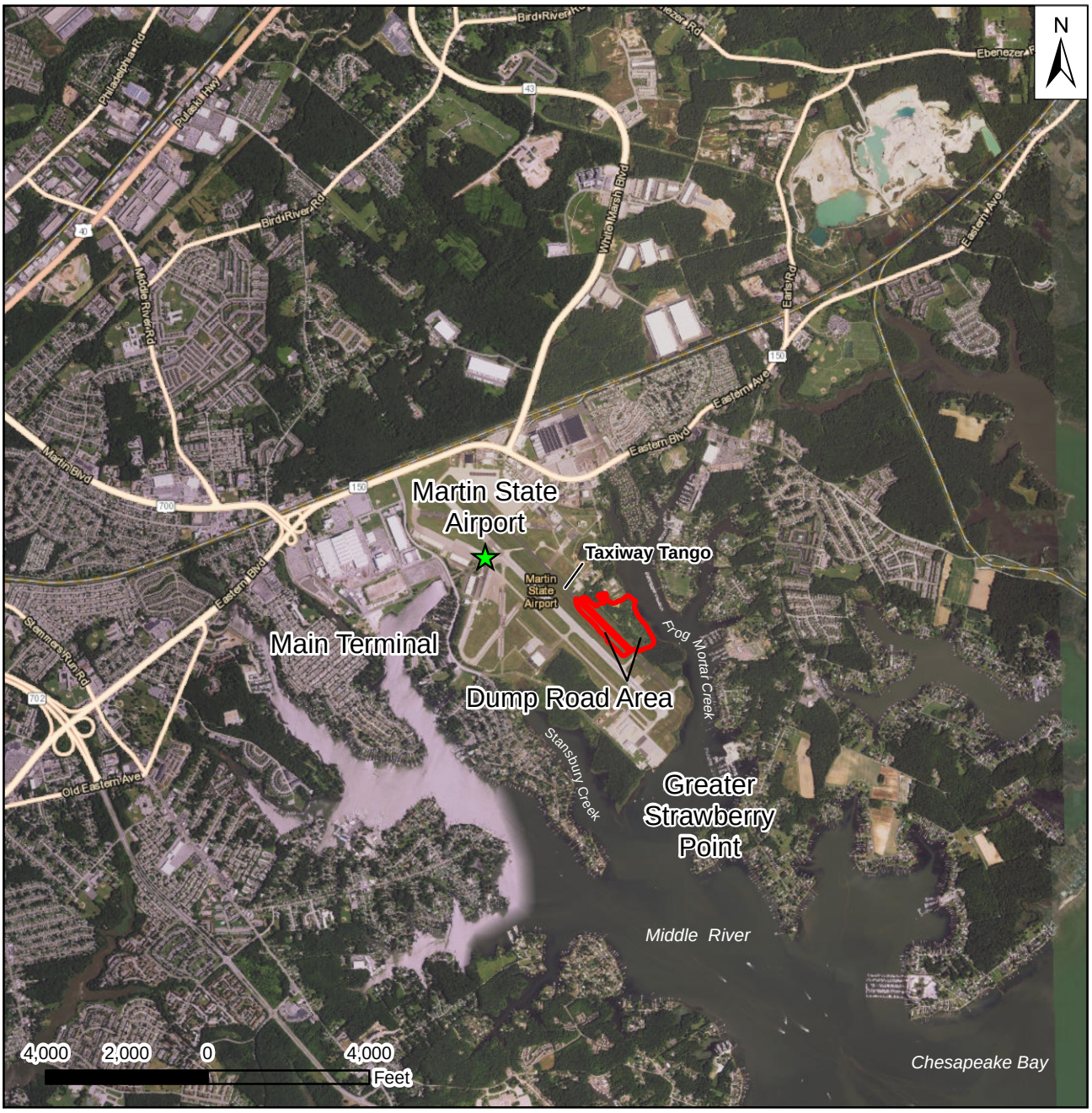
Section 2—Site Background: Briefly describes site location, previous investigations, purpose, and rationale for the FMC-27 polychlorinated biphenyl sediment investigation.

Section 3—Investigation Program and Methodology: Presents the technical approach used for the FMC-27 polychlorinated biphenyl sediment investigation, and describes the field methodology used.

Section 4—Investigation Results: Describes the results of the FMC-27 polychlorinated biphenyl sediment investigation.

Section 5—Summary and Conclusions: Summarizes the investigation findings and presents conclusions.

Section 6—References: Cites references used to compile this report.



Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2015 ESRI and its data suppliers).

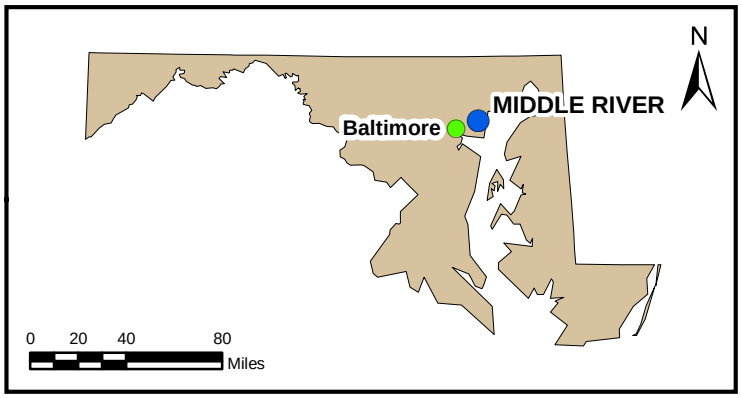


FIGURE 1-1

MARTIN STATE AIRPORT SITE LOCATION MAP

Lockheed Martin, Martin State Airport
Middle River, Maryland

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TETRA TECH

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Section 2
Site Background

2.1 SITE DESCRIPTION

Martin State Airport (MSA) is at 701 Wilson Point Road in Middle River, Maryland, and is bounded by Frog Mortar Creek (FMC) to the east and Stansbury Creek to the west (Figure 2-1). Both creeks are tidal tributaries of the Chesapeake Bay, joining at the south side of the airport. The Dump Road Area (DRA) is in the southeastern portion of MSA and is bounded by FMC to the east and the airport runway to the west. The site consists mostly of open meadows, mowed grass, heavily wooded areas, and portions of Taxiway Tango and the airport runway. Although the area has been investigated since the 1990s, Lockheed Martin Corporation (Lockheed Martin) recently designated the site as the DRA to distinguish it from other MSA areas under investigation (e.g., FMC, Strawberry Point, Greater Strawberry Point, and the Main Terminal Area).

2.2 PREVIOUS INVESTIGATION HISTORY

Tetra Tech personnel collected six sediment and nine surface water samples from FMC in December 1997. Data from these samples could not be used for risk assessment, because the analytical data did not undergo validation. Volatile organic compounds (VOCs) were not detected in these samples, but inorganic constituents were, at reportable levels.

In July 2004, additional sediment and surface water samples from FMC were collected to provide validated data for a risk assessment. Two sediment and two surface water samples were collected within 50 feet of the MSA shoreline. These locations were selected based on extensive groundwater sampling and modeling that indicated the direction of the on-site VOC plume was to the creek. These samples were analyzed for inorganic constituents, VOCs, semivolatile organic compounds (SVOCs), and polychlorinated biphenyls (PCBs)/pesticides.

Low concentrations of VOCs and reportable concentrations of various metals were detected in surface water and sediment samples. These data were used to assess risk to recreational users of

FMC. The results of the human-health risk assessment indicate that direct contact with sediment and surface water in FMC during recreation did not pose a significant cancer risk or health hazard to adults, youths, and children (Tetra Tech, 2006).

Additional sampling continued during the Phase I investigation in March 2007 (Tetra Tech, 2007), and was completed during the Phase III investigation completed in October 2008 (Tetra Tech, 2008a). Phase I (March 2007) identified locations where groundwater seeps into FMC surface water by means of a Trident™ probe investigation; Phase II (October–November 2007) included surface water and shallow-sediment sampling; and Phase III (July 2008) sampled deeper sediment. These phased investigations sought to evaluate the possible off-site migration of contaminants from a portion of the MSA property to the adjacent surface water in FMC.

The three-phased FMC investigation (2007–2008) was conducted east of the MSA property, adjacent to the approximately 50-acre area that has been subject to extensive characterization because of historical dumping. The investigation combined field-screening methods and off-site laboratory analysis of site-related contaminants. The results of each phase of the investigation were used to determine the scope of the next phase. The analytical suite for surface water and sediment samples included all known site contaminants and emerging chemicals of concern previously identified for the MSA site.

The three-phased investigation sought to identify and sample areas where groundwater seeped into the creek, to assess its possible impacts to creek sediment and surface water, and to assess whether contaminants may have historically migrated from the site into the creek via erosion. The Phase I investigation identified possible groundwater discharge zones by detecting temperature and conductivity differences between creek surface water and groundwater using a Trident probe, and by collecting pore-water samples from these areas. The Phase II program characterized the areas where groundwater seeped into FMC surface water to obtain analytical data to quantify levels of possible contaminants in the creek that might be related to groundwater transport or erosion of soil from the MSA site. The Phase III investigation sampled deeper sediment in possible areas of concern identified during the first two phases of the study, and provided a more “regional” indication of chemical concentrations in FMC sediment along the eastern side of the entire MSA property.

The Phase I trident study identified the likely presence of groundwater discharge at the southern end of the MSA groundwater plume. The Phase II investigation indicated that groundwater discharge appeared to be impacting FMC surface water and sediment east of MSA. The Phase III investigation confirmed the Phase II results, and indicated that metals and polycyclic aromatic hydrocarbon impacts were widespread in the FMC system, including at upstream locations. Surface water and deep sediment were sampled during the Phase III investigation (Tetra Tech, 2008b) at FMC areas that had been indicated by the results of the Phase I (Tetra Tech, 2007) and Phase II (Tetra Tech, 2008a) investigations, and based on evaluation of historical tidal conditions and erosion characteristics of the MSA site.

All existing data from previous and ongoing investigations were considered to identify appropriate sampling locations for the Phase III investigation. Sediment was sampled at depths of 0–1 feet and 1–2 feet below the sediment/surface water interface, at locations that the Phase II investigation had identified as possibly being impacted by site contamination. Sediment and surface water samples were also collected to evaluate contaminant concentrations within the broader FMC watershed east of the MSA property. Figure 2-2 illustrates the Phase III sampling locations.

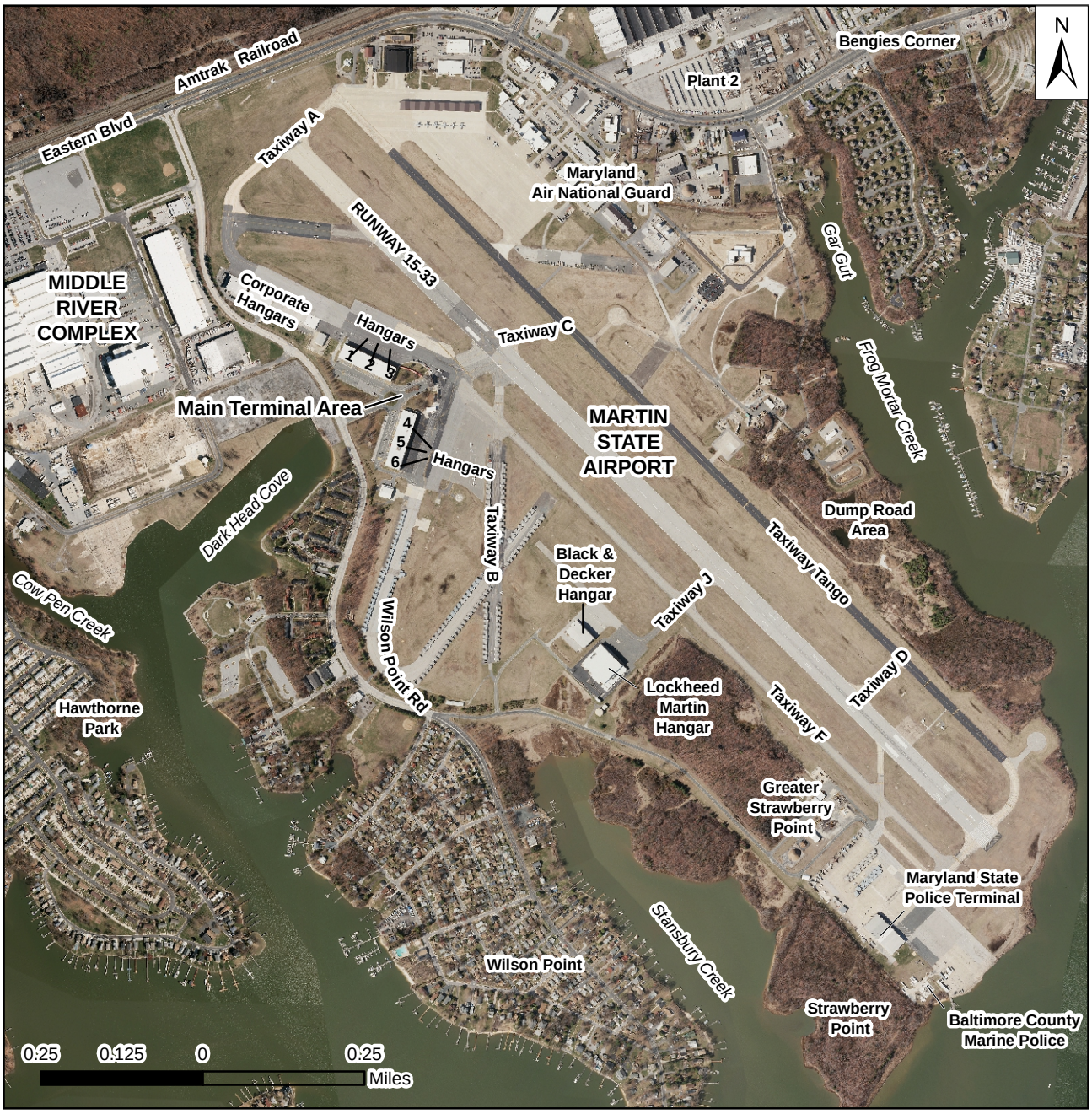
Phase III sampling began on July 29, 2008 and was completed on July 31, 2008. Samples were collected during periods of both rising and falling tides. All sampling locations were accessed via a small drilling barge. Figure 2-2 identifies the 10 locations adjacent to MSA (FMC-9, FMC-10, FMC-12, FMC-13, FMC-15, FMC-16, FMC-18, FMC-19, FMC-21, and FMC-22) where sediment samples were collected. Each location was cored, and sediment was collected from depths of 0–1 foot (“B” sample) and 1–2 feet (“C” sample) below the sediment/surface water interface.

Additional sediment samples were collected from seven locations in upper FMC (FMC-27, FMC-28, FMC-29, FMC-30, FMC-31, FMC-32, and FMC-33), and from three locations south and east of the MSA (FMC-34, FMC-35, and FMC-36). Six locations were used to establish background: three from the northeastern reach of FMC (FMC-30, FMC-31, and FMC-32), one east of MSA (FMC-34), and two south of MSA (FMC-35 and FMC-36). The remaining four locations (FMC-27, FMC-28, FMC-29, and FMC-33) were sampled along the upper reaches of the creek known as Gar Gut. These sampling locations were selected with a bias toward areas that receive stormwater runoff north (upstream) of Gar Gut, and areas of observed bank erosion.

Thirty sediment samples (three samples each from locations FMC-27 through FMC-36) were collected and submitted for analysis during Phase III from these upper FMC and reference locations. Surficial sediment samples ("A" samples) were collected at each location. Surficial sediment was too loose to be held in a coring tube at locations FMC-27, FMC-28, FMC-30, FMC-32, FMC-33, and FMC-35, so samples were collected using a stainless-steel ponar dredge. Deeper sediment samples were collected from each location at depths of 0–1 foot ("B" samples) and 1–2 feet ("C" samples) below the sediment/surface water interface.

Sediment sampling results indicated an area of sediment impact within the northern reaches of Gar Gut. Concentrations of polycyclic aromatic compounds and PCBs, specifically at sampling location FMC-27, indicated that these chemicals might have entered Gar Gut via stormwater runoff. Higher concentrations found at depth at location FMC-27 possibly indicate that this area has historically received these compounds over a longer period, as compared to more southern locations. However, elevated concentrations could also have resulted from greater deposition rates closer to a discharge point.

PCBs were detected at generally low concentrations in most sediment samples collected during Phase III, with Arcolor-1254 detected in 20 of 50 samples and Aroclor-1260 detected in 30 of 50 samples. Aroclor-1016 was only detected in sample FMC-27B. PCB concentrations were higher at FMC-27 than at other sampling locations: 40 µg/kg (Aroclor 1016) in FMC-27B; and 1,700 µg/kg (Aroclor 1254) and 970 µg/kg (Aroclor 1260), for a total PCB concentration of 2,710 µg/kg in FMC-27C (Figure 2-3). The mean of the concentrations detected in the remaining samples throughout the FMC system were six to seven times lower, on average, than the Aroclor-1254 and Aroclor-1260 concentrations at FMC-27, indicating a possible localized impact. The PCB concentration at location FMC-27 in the "C" interval did exceed the consensus-based probable-effects concentration for freshwater systems (676 µg/kg) (MacDonald et al., 2000), which were established as the surface-PCB cleanup level for sediment remediation in Dark Head Cove adjacent to the Lockheed Martin Middle River Complex. USEPA then required further delineation of PCB concentrations in sediment, both vertically and horizontally near sampling location FMC-27, as described in the following sections.



2014 aerial photograph provided by U.S. Geological Survey.

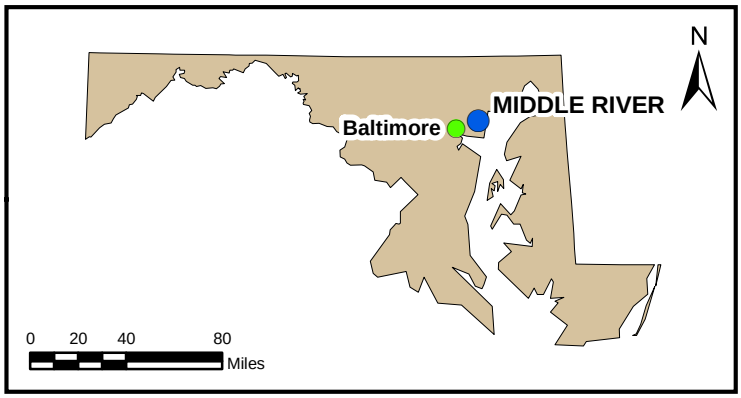


FIGURE 2-1

MARTIN STATE AIRPORT AND SURROUNDING FEATURES

Lockheed Martin, Martin State Airport
Middle River, Maryland

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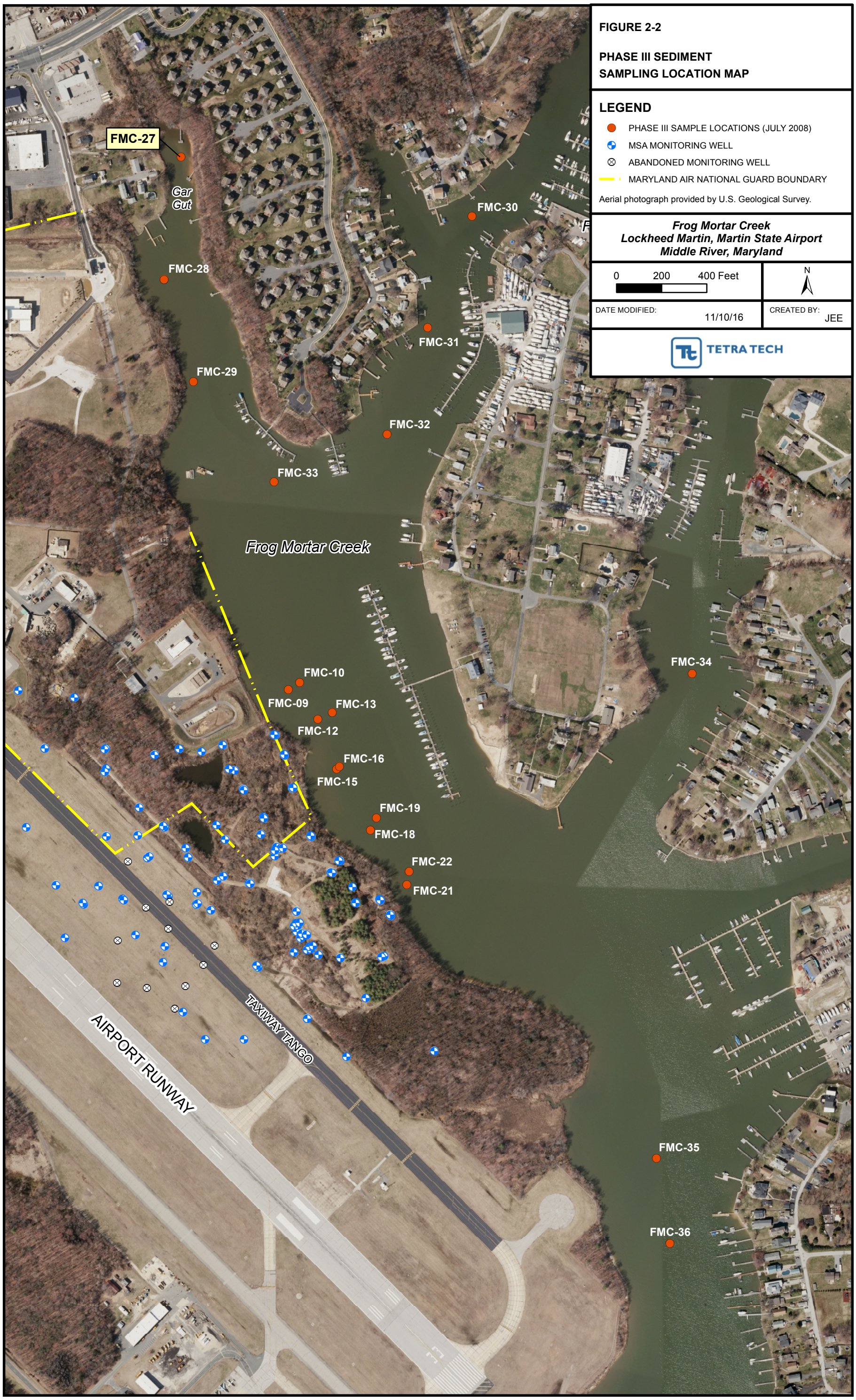

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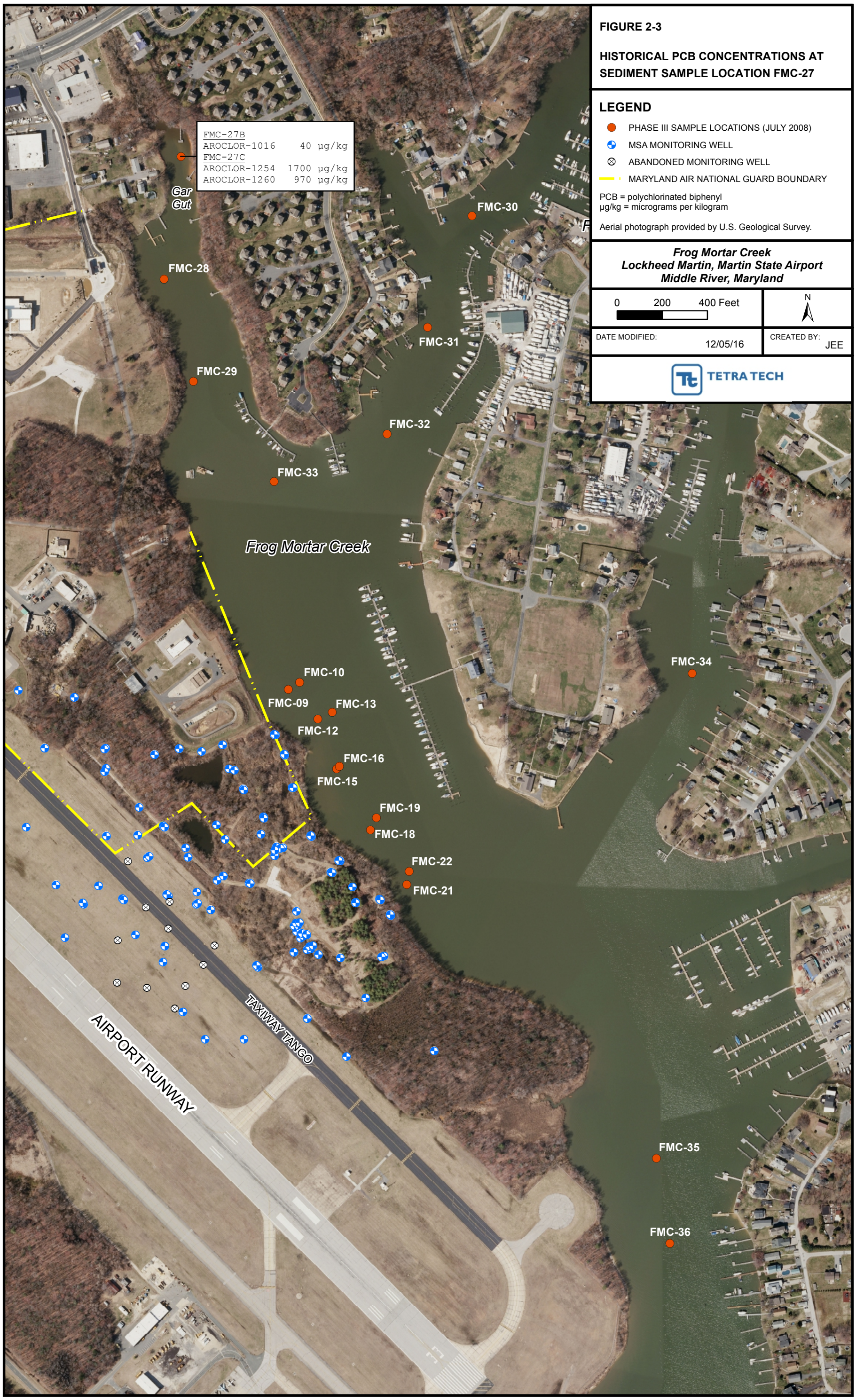

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Section 3
Investigation Program and Methodology

This section summarizes the field program and sampling methods used in the August 2016 Frog Mortar Creek (FMC) polychlorinated biphenyl (PCB) sediment investigation. Previous sediment sampling results had indicated PCB impacts to sediment in the northern reaches of FMC known as Gar Gut. This investigation is in response to comments received from the United States Environmental Protection Agency (USEPA) regarding the *Dump Road Area Polychlorinated Biphenyl Soil Investigation and Removal Work Plan* (Tetra Tech, 2015) which focused on previous test-pit location DR-TP-A80. USEPA noted two additional areas that had historically shown elevated PCB levels, and decided that they must also be investigated. These include historical test-pit location DR-TP-A64 (adjacent to Taxiway Tango) (detailed in a separate report), and the area around former sediment-sampling location FMC-27 in FMC. The investigation objectives were to delineate PCB contamination in sediment near FMC sampling location FMC-27. Primary field activities included sampling sediment using a vibracore sampler, followed by analyzing the samples for PCBs at an off-site laboratory. To achieve the project objectives described in Section 1, the 2016 investigation included the following:

- obtained utility clearances
- notified Martin State Airport (MSA), Maryland Aviation Administration (MAA), Maryland Air National Guard (MDANG), the United States Coast Guard, and the Baltimore County Marine Police before field activities
- collected sediment samples using a vibracore sampler to delineate the extent of PCBs in sediment around former sediment-sampling location FMC-27
- performed laboratory chemical analyses on the sediment samples
- collected, characterized, profiled, and removed all investigation-derived waste (IDW)

Normandeau and Associates of Stowe, Pennsylvania conducted the investigation offshore using a shallow-water pontoon-style boat equipped with a Rossfelder P-3 underwater-vibracore unit. The investigation area was accessed by launching the watercraft from a local marina (Maryland Marina, Middle River, Maryland). A sample-preparation station was established at the marina to process sediment-core samples after they had been collected and brought back to shore.

3.1 FIELD METHODOLOGY

Field activities for this investigation include: mobilization/demobilization, vibracore sediment-sampling, and IDW management. Health and safety requirements and procedures were in accordance with the project-approved site-specific health and safety plan (HASP) in Appendix C of the work plan (Tetra Tech, 2016).

3.1.1 Mobilization/Demobilization

Tetra Tech procured the required subcontractors (Normandeau and Associates and TestAmerica Laboratories, Inc. of North Canton, Ohio) and mobilized to the field in August 2016. The Tetra Tech field operations leader coordinated mobilization and demobilization, including locating the appropriate equipment required for all field tasks, purchasing and leasing equipment as required, and staging equipment for efficient loading and transportation to the site for all field activities. Mobilization included:

- coordinating with Lockheed Martin, MSA, and MDANG
- obtaining utility clearance for the sediment borings from the “Miss Utility” clearinghouse, as described in Section 3.1.2
- mobilizing subcontractors, equipment, and materials to the site
- implementing the following:
    - 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 January 12, 2015)

- quality assurance/quality control (QA/QC) plan
- data management plan

- arranging a decontamination area for sampling equipment

Demobilization included:

- demobilizing equipment and materials from the site
- general site cleanup and trash removal
- managing IDW as described in Section 3.1.8

Before beginning field operations, Tetra Tech site personnel became familiar with the "Safe Work" permits in the HASP. Tetra Tech conducted a mandatory daily health and safety tailgate meeting before all field events. Subcontractors present for that day's field activities were included in the meeting. The Tetra Tech field operations leader documented the topics covered, personnel in attendance, and conducted the safety audit, in accordance with the Lockheed Martin contractor handbook (Lockheed Martin, 2016). Safety requirements were addressed in detail in the site-specific Tetra Tech HASP included as Appendix C in the work plan (Tetra Tech, 2016).

3.1.2 Site Access, Notifications, Permits, and Utility Clearance

Tetra Tech mobilized to support the field investigation, including providing clearance for the subsurface investigations. Access agreements and the standard permits from MSA and MAA (building, airport zoning, and digging permits) were not required because the investigation area was off airport property. Tetra Tech informed MAA about the proposed field activities through meetings at MSA. Tetra Tech also notified the Maryland Department of the Environment (MDE), the United States Coast Guard, the Baltimore County Marine Police, and MSA operations about the sediment investigation offshore.

Tetra Tech obtained all required clearances before beginning any intrusive field activities related to the investigation, including:

- notification of the "Miss Utility" underground-utility location center (1-800-257-7777; http://www.missutility.net)
- review of facility and site utility maps

- following all Lockheed Martin procedures for intrusive fieldwork

The project team's experience suggested that utility clearance from "Miss Utility" would not be possible in waters of the state of Maryland. "Miss Utility" representatives were consulted to help identify utilities running toward and along creek shorelines, to locate any utilities beneath the creek bed. A private utility-locating service was not used for this project, since sediment-sampling locations around former sampling location FMC-27 were offshore. No standard MAA permits were required, as the sample and survey locations are not on MAA property. A copy of the "Miss Utility" ticket is in Appendix A.

3.1.3 Sediment Investigation

Tetra Tech collected 53 sediment samples on August 22–23, 2016 to delineate the vertical and spatial extent of PCBs near previous FMC sampling location FMC-27. Sediment coring was advanced using a vibracore sampler on a pontoon-style watercraft. Samples were collected on a grid spacing of 20 feet surrounding FMC-27; overall grid dimensions were 40-by-40-square feet (Figure 3-1). Sediment cores were completed to a target depth of five feet below the sediment surface.

Six sediment samples were collected from eight of the nine locations, at depth intervals of 0-3 inches, 12–15 inches, 24–27 inches, 36–39 inches, 48–51 inches, and 60–63 inches below the sediment surface. Dense sand prevented the collection of samples from FMC-27-3-60–63 and FMC-27-6-60–63; the deepest sample (FMC-27-6-56–59) in boring FMC-27-6 was collected from 56–59 inches, instead of from 60–63 inches. A photographic log containing broad and close-up views of each sediment core is in Appendix B. The global positioning system (GPS) coordinates and the sampling depth (below the mud line) were recorded for each individual sampling location.

The entire sample was enclosed and captured within the clear, 3.5-inch-diameter, chemically inert liners during sample collection. Excess surface water was decanted from the liner before capping each end for shipment to the land-based sample-processing station. Once the sample cores had been brought ashore, the cores were opened using a circular saw, and a geologic description of the core was recorded. A field data sheet and boring log was completed for each sample/boring. Field forms for each core include a geological description; the depth of water at the boring location; weather conditions; penetration depth and core recovery; and GPS coordinates. Following the

logging of each core, samples were collected for laboratory analysis. Sediment samples were transferred directly from the liners into the appropriate glassware for submittal to the laboratory to be analyzed for PCB homologs via USEPA Method 680. The sediment was allowed to settle in the sample jar, and surface water was decanted from the sampling container before it was sealed, taking care to retain the fine-sediment fraction.

3.1.4 Laboratory Analysis

All sediment samples were analyzed by an off-site state-accredited laboratory for the compounds prescribed in the work plan. All analytical results were thoroughly checked for quality and usability by qualified chemists. Results of data-usability reviews (data validation) were transmitted to the project personnel as they were received. Tetra Tech arranged for the collection and delivery of the samples for laboratory analysis in accordance with the work plan. A summary of sampling procedure and rationale is in Table 3-1, and is discussed below:

As stated earlier, 53 soil samples were analyzed for PCB homolog analysis by USEPA Method 680. Characterization samples for waste disposal included one decontamination water sample and one solid sample from the residual sediment cores. Each waste-characterization sample was analyzed for VOCs, PCBs, toxicity characteristic leaching procedure (TCLP) metals, and ignitability.

Nonhazardous profiles for off-site disposal were generated based on the analytical results. The analytical laboratory for the project was TestAmerica, Inc. of North Canton, Ohio, a laboratory accredited by the United States Department of Defense Environmental Laboratory Accreditation Program, the United States Department of Agriculture, the National Environmental Laboratory Accreditation Program (10 states), and seven state programs. All data provided by the laboratory were validated for all quality assurance/quality control (QA/QC) parameters, including accuracy, precision, completeness, and comparability, in accordance with USEPA Region 3 Level M2 protocol (USEPA, 1994). In addition, oversight of the laboratory QA/QC was as proactive as possible to ensure that valid data were produced during sampling. Therefore, the methodology, method compliance, and any corrective actions were also evaluated.

One trip blank was provided by the laboratory and placed in the cooler containing the IDW sample (the only VOC sample collected during this investigation); no other quality assurance/quality

control (QA/QC) samples were collected. All samples were analyzed on a standard turnaround time of 15 calendar days.

3.1.5 General Sampling Procedures, Nomenclature, and Handling

Each PCB-sediment sample collected during this investigation was identified with a unique sample identification tag. The sample identification tag consisted of the designation “FMC” (for Frog Mortar Creek sediment boring) followed by “27” (identifying previous sampling location FMC-27), the boring number, followed by the sampling depth. For example, a sample identified as FMC-27-1-12–15 was a sediment sample collected from sediment boring location 1 at 12-15 inches below the sediment/water interface.

Sample handling includes field-related considerations concerning the selection of sample containers, preservatives, allowable holding times, and the analyses requested. Proper custody procedures were followed throughout all phases of sample collection and handling. Chain of custody protocols were used throughout sample handling to establish the evidentiary integrity of sample containers (i.e., to demonstrate that the samples had been handled and transferred in a manner that would eliminate [or detect] possible tampering). Sample containers were released under signature from the laboratory (TestAmerica, North Canton, Ohio) and accepted under signature by the individual responsible for maintaining custody, until the sample containers were transferred to the sampling team.

Each sample container was placed in a cooler with ice immediately after each container had been filled. The trip blank (for the IDW sample only) was placed in the cooler with ice before collecting the IDW sample, and remained in the cooler along with the volatile sample at all times. The coolers returning to the laboratory 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.

3.1.6 Documentation

A master site logbook was maintained as an overall record of field activities. Sediment cores were described on a sediment-boring log. Field data sheets were completed for each sediment core. Additional information on the field forms includes: water depth at the boring location; weather

conditions; core penetration-depth and recovery; and GPS coordinates. Field data sheets and boring logs are in Appendix C.

Sample documentation consists of completed chain-of-custody (COC) reports and matrix-specific sample log sheets. The COC report is a standardized form summarizing and documenting pertinent sample information, such as sample identification and type, matrix, date and time of collection, preservation, and requested analyses. Sample-custody procedures document sample acquisition and integrity.

3.1.7 Equipment Decontamination

Reusable equipment used during sediment sampling was decontaminated between sampling locations. Decontamination was as follows:

- Alconox™ and potable water wash
- potable water rinse
- analyte-free water rinse
- air drying

Decontamination rinsate was collected in a United States Department of Transportation (USDOT)-approved, properly labeled, 55-gallon drum for waste characterization and disposal.

3.1.8 Waste Management

All miscellaneous IDW material (e.g., decontamination water and residual sediment-cores) was collected in new USDOT-approved 55-gallon steel drums. Decontamination water was generated from decontaminating the reusable sediment sampling equipment. IDW consisting of personal protective equipment and the core liners was brushed off, placed in trash bags, and disposed of in a facility trash receptacle.

One drum of decontamination water and sediment was generated during the sediment investigation; it was properly labeled with relevant site information and a description of its contents. The drum was moved to a central staging area on the MSA site for chemical/physical characterization and proper disposal. A sample of the IDW was collected and submitted for VOCs,

PCBs, TCLP metals, and ignitability, in accordance with the receiving facility's requirements. The drum was properly labeled with relevant site information and description of contents.

All waste was managed, transported, and disposed of in accordance with all applicable state/federal regulations. Clean Harbors of Baltimore, Maryland will transport drums of any nonhazardous waste to a Lockheed Martin-approved disposal facility in accordance with the chemical profile. IDW documentation is presented in Appendix D.

3.2 DATA MANAGEMENT

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

3.2.1 Data Tracking and Control

A sample-tracking system was used throughout the investigation. Before field mobilization, the field operations leader coordinated and initiated sample tracking. Sample labels were handwritten in the field. Labels were reviewed for their adherence to work plan requirements and for accuracy. The project manager (PM) coordinated with the analytical laboratory 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/designee and to the laboratory for each day of sampling. The PM/designee confirmed that the chain of custody forms provided the information required by the work plan. After successful completion of all requested analyses, the laboratory submitted an electronic deliverable for every sample delivery group. When all electronic deliverables had been received from the laboratory, the PM/designee ensured that the laboratory had performed all requested analyses.

3.2.2 Sampling Information

Data from field measurements were recorded using the appropriate log sheets. Reduction of field data entailed summarizing and presenting these data in tabular form. Raw data (i.e., observations of the sediment core) were interpreted into reportable results. Reducing laboratory data entailed manipulating raw data-instrument output into reportable results. Field data were verified daily by

the field operations leader. Laboratory data were verified by the group supervisor and then by the laboratory's quality control/documentation department.

3.2.3 Project Data Compilation

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

3.2.4 Environmental Geographical Information System

The data management system in use consists of a relational database and EGIS to manage environmental information pertaining to MSA. The relational database stores chemical, geological, hydrogeologic, and other environmental data collected during environmental investigations. The EGIS is built from the relational database and contains subsets of the larger data pool. Using the EGIS, environmental data can be posted onto base maps to represent information graphically. Sample, chemical, and positional data will be compiled and incorporated into the MSA EGIS. Using the EGIS, environmental data were posted onto base maps to represent the information graphically for this report.

3.2.5 Data Validation

The investigation sought to delineate PCB contamination in sediment near historical sampling location FMC-27 in FMC. The 53 sediment samples collected were analyzed by a state-accredited laboratory (TestAmerica, Inc. of North Canton, Ohio) using the methodologies prescribed in the sampling and analysis and QA plans. Analytical results from the IDW samples were not checked for quality and usability, as they were for waste characterization only. Results of the data-usability reviews (data validation) were transmitted to the project personnel as they were received. All analytical results provided by the laboratory as electronic data deliverables were validated for all QA/QC parameters, including accuracy, precision, completeness, and comparability, in accordance

with United States Environmental Protection Agency (USEPA) Region 3 Level M2 (organics) protocols (USEPA, 1994).

Sediment chemical-data were validated by Tetra Tech's data-validation group in Pittsburgh, Pennsylvania. Data validation (consisting of data completeness, holding time, calibrations, laboratory and field-blank contamination, field-duplicate precision, and detection limits) was completed concurrent with the data evaluation. This review was based on the USEPA Region 3 *Modifications to the National Functional Guidelines for Data Review* (USEPA, 1993 and 1994) and the specifics of the analytical method used. Oversight of the laboratory QA/QC was as proactive as possible, to ensure that valid data were produced during sampling. To that end, the methodology, method compliance, and any corrective actions were also evaluated.

Tetra Tech closely monitored the laboratory analysis via electronic data deliverables and data validation of the samples to ensure that the analysis and reporting were generated as per the procedures prescribed in the work plan. Samples were analyzed on a standard turnaround time of 15 calendar days. Data-validation reports, with chains of custody and data tables that include all sampling results (including nondetects), are in Appendix E.

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

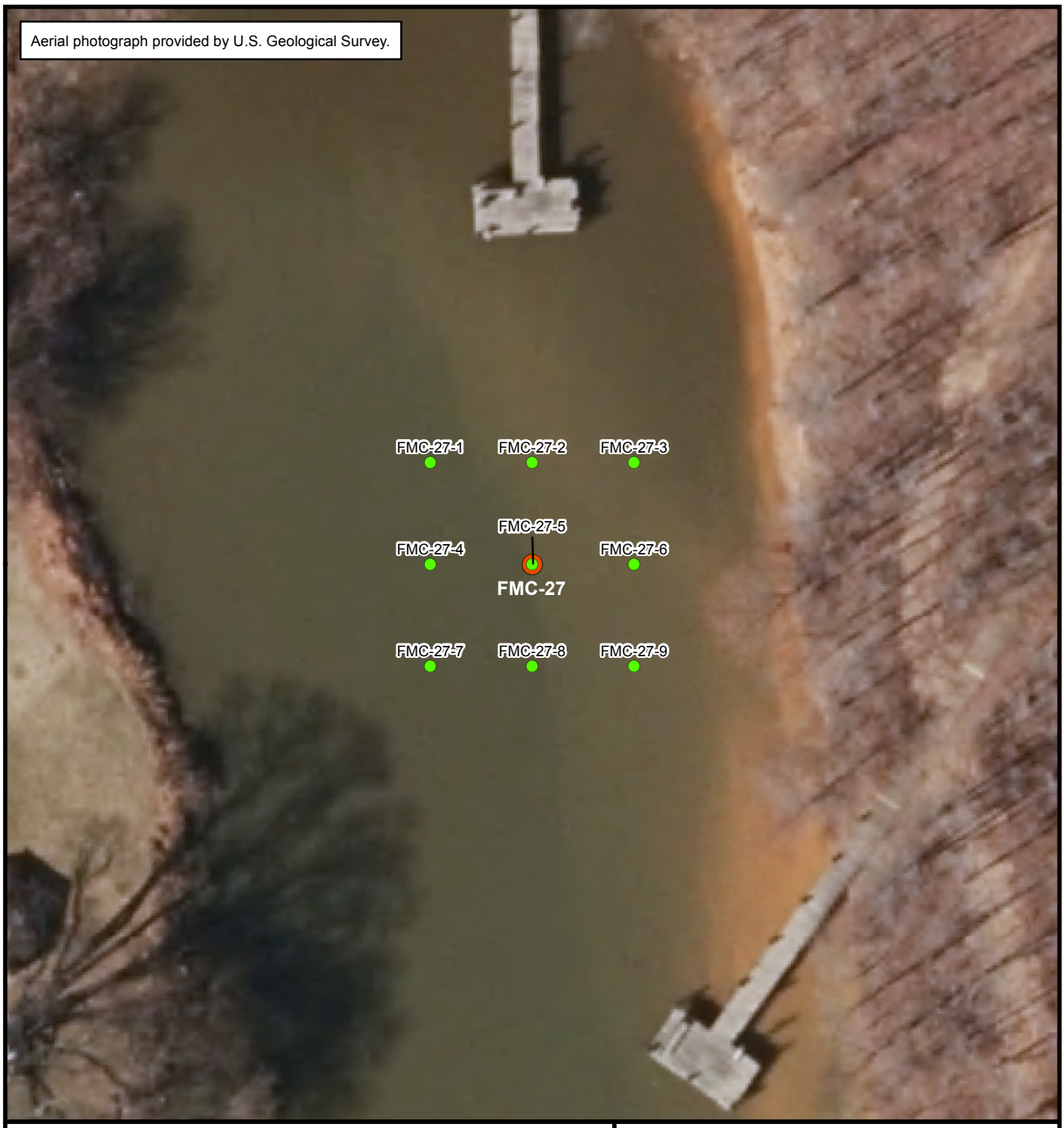
U Not detected. The analyte is considered not detected at the reported value.

UJ The analyte was not detected. However, the quantitation or detection limit may be inaccurate or imprecise

Table 3-1
Summary of Soil Sampling and Chemical Analyses and Rationale
Frog Mortar Creek PCB Investigation—2016
Lockheed Martin, Martin State Airport, Middle River, Maryland

Sample ID	Sampling location	Analysis (method)	Rationale/purpose
FMC-27-1 through FMC-27–9	Sediment borings in a 20-foot-spacing grid around former sediment-sampling location FMC-27	PCB homologs (USEPA Method 680)	Fifty-three sediment samples for PCBs were collected to delineate the vertical and spatial extent near previous sampling location FMC-27 in Frog Mortar Creek. Six sediment samples were collected from eight of the nine locations, at depths of the 0–3 inches, 12–15 inches, 24–27 inches, 36–39 inches, 48–51 inches, and 60–63 inches below the sediment surface. Sample FMC-27-3-60–63 was not collected because of dense sand at that depth. The deepest sample (FMC-27-6-56–59) in boring FMC-27-6 was collected from 56–59 inches, instead of from 60–63 inches, due to dense sand.
FMC-SD-WC-090716	Investigation-derived waste (decontamination water and residual sediment cores)	VOCs (USEPA SW-846 8260C) PCBs (USEPA SW-846 8082A) TCLP metals (USEPA SW-846 6010B/7470/7471A) RCRA ignitability (USEPA SW-846 1010A or 1030 or equivalent)	To provide a chemical profile of waste to determine waste transportation and disposal requirements.

FMC Frog Mortar Creek
PCBs polychlorinated biphenyls
RCRA Resource Conservation Recovery Act
TCLP toxicity characteristic leaching procedure
USEPA United States Environmental Protection Agency
VOC volatile organic compound



LEGEND

- PROPOSED SEDIMENT SAMPLE LOCATION
- PHASE III SAMPLE LOCATIONS (JULY 2008)

FIGURE 3-1

FMC-27 SEDIMENT SAMPLING LOCATIONS, AUGUST 2016

Frog Mortar Creek
Lockheed Martin, Martin State Airport
Middle River, Maryland

DATE MODIFIED: 11/15/16

CREATED BY: KM

0 30 60 Feet

N

TETRA TECH

Map Document: (P:\GIS\Lockheed_MSA\MapDocs\MXD\frog_mortar_creek_sed_proplocs_dec2015.mxd)
11/15/16 -- JEE

Section 4
Investigation Results

This section presents the results of the August 2016 Frog Mortar Creek (FMC) polychlorinated biphenyl (PCB) investigation. The field program sought to characterize PCB concentrations in sediment, both vertically and horizontally, near historical sampling location FMC-27. Validated chemical data from 53 sediment samples were used to generate a data summary table (Table 4-1), a table summarizing positive detections of chemical analytes (Table 4-2), and a statistical summary table (Table 4-3). Samples were analyzed for PCBs homologs by United States Environmental Protection Agency (USEPA) Method 680.

The laboratory analytical sediment data were compared to the biota-based surface PCB cleanup level of 676 micrograms per kilogram (µg/kg) established for the Middle River Complex (MRC) sediment project. Figure 4-1 shows concentrations of total PCB homologs detected at each depth-interval sampled at each boring. Of the 53 samples collected, PCBs in only one sample (FMC-27-6-56–59) exceeded the screening level, with a concentration of 1,403 µg/kg collected from 56–59 inches below the sediment/surface-water interface.

Surficial PCB concentrations in the nine borings range from 7.9 µg/kg (in FMC-27-8) to 343 µg/kg (in FMC-27-6), with seven of the nine surficial samples having PCB concentrations below 50 µg/kg. The highest PCB concentrations detected were in borings FMC-27-3 (ranging from 41.2 µg/kg to 281 µg/kg) and FMC-27-6 (ranging from 30 µg/kg to 1,403 µg/kg). The highest PCB concentrations in both of these borings were detected in the deepest samples, collected from 48–51 inches in FMC-27-3, and from 56–59 inches in FMC-27-6. At FMC-27-3, the surficial PCB concentration (41.2 µg/kg), collected from 0–3 inches, was the lowest PCB concentration detected in the boring; however, the surficial PCB concentration in FMC-27-6 (343 µg/kg) was the second highest in that boring. No sediment discoloration was noted in any sample, but a slight hydrocarbon odor was noticed in samples collected from sediment borings FMC-27-2, FMC-27-3, and FMC-27-6.

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-01					
SAMPLE ID	FMC-27-1-0-3	FMC-27-1-12-15	FMC-27-1-24-27	FMC-27-1-36-39	FMC-27-1-48-51	FMC-27-1-60-63
SAMPLE DATE	20160822	20160822	20160822	20160822	20160822	20160822
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	1.8 U	1.6 U	1.7 U	1.7 U	4.4 J	1.5 U
DICHLOROBIPHENYLS	0.75 U	0.69 U	0.74 U	0.73 U	0.68 U	0.64 U
HEPTACHLOROBIPHENYLS	1.1 U	0.99 U	1.7 J	1.1 J	30	1.4 J
HEXACHLOROBIPHENYLS	16	5.4 J	11 J	7.2 J	19	8.1 J
MONOCHLOROBIPHENYLS	0.4 U	0.38 U	0.4 U	0.4 U	0.37 U	0.35 U
NONACHLOROBIPHENYLS	7 U	6.5 U	6.9 U	6.9 U	53 J	6 U
OCTACHLOROBIPHENYLS	1.1 U	1.1 U	1.1 U	1.1 U	62	0.97 U
PENTACHLOROBIPHENYLS	26	5.8 J	14	13 J	21	18
TETRACHLOROBIPHENYLS	0.79 U	0.73 U	0.78 U	5.5 J	0.72 U	0.77 J
TRICHLOROBIPHENYLS	0.36 U	0.34 U	0.36 U	0.35 U	0.33 U	0.31 U
TOTAL PCB HOMOLOGS	42	11.2	26.7	26.8	189.4	28.27
TOTAL PCB HOMOLOGS-HALFND	48.65	17.365	32.69	32.39	190.45	33.155

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-02					
SAMPLE ID	FMC-27-2-0-3	FMC-27-2-12-15	FMC-27-2-24-27	FMC-27-2-36-39	FMC-27-2-48-51	FMC-27-2-60-63
SAMPLE DATE	20160822	20160822	20160822	20160822	20160822	20160822
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	1.7 U	1.7 U	9.1 UJ	1.8 U	1.7 U	1.6 U
DICHLOROBIPHENYLS	0.74 U	0.74 U	3.8 U	0.74 U	0.72 U	0.67 U
HEPTACHLOROBIPHENYLS	3.1 J	1.1 U	5.5 U	3.5 J	3.8 J	0.96 U
HEXACHLOROBIPHENYLS	5.7 J	5.8 J	25 J	14	6 J	5.1 J
MONOCHLOROBIPHENYLS	0.4 U	0.4 U	2.1 U	0.4 U	0.39 U	0.36 U
NONACHLOROBIPHENYLS	7 U	7 U	36 U	7 U	6.8 U	6.3 U
OCTACHLOROBIPHENYLS	1.1 U	1.1 U	5.8 U	1.1 U	1.1 U	1 U
PENTACHLOROBIPHENYLS	8.2 J	8.3 J	5.9 J	19	17	4.6 J
TETRACHLOROBIPHENYLS	0.78 U	0.78 U	4.1 U	0.79 U	1.7 J	2.7 J
TRICHLOROBIPHENYLS	0.36 U	0.36 U	1.9 U	0.36 U	0.35 U	0.33 U
TOTAL PCB HOMOLOGS	17	14.1	30.9	36.5	28.5	12.4
TOTAL PCB HOMOLOGS-HALFND	23.04	20.69	65.05	42.595	34.03	18.01

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-03				
SAMPLE ID	FMC-27-3-0-3	FMC-27-3-12-15	FMC-27-3-24-27	FMC-27-3-36-39	FMC-27-3-48-51
SAMPLE DATE	20160822	20160822	20160822	20160822	20160822
TOP DEPTH	0	12	24	36	48
BOTTOM DEPTH	3	15	27	39	51
Polychlorinated biphenyls (µg/kg)					
DECACHLOROBIPHENYL	1.3 U	1.2 U	1.1 U	1.2 UJ	6.7 U
DICHLOROBIPHENYLS	0.56 U	0.52 U	0.48 U	0.49 UJ	2.8 U
HEPTACHLOROBIPHENYLS	3.2 J	2.7 J	8.5 J	35	17 J
HEXACHLOROBIPHENYLS	16	13	31	66 J	88
MONOCHLOROBIPHENYLS	0.3 U	0.28 U	0.68 J	0.27 UJ	1.5 U
NONACHLOROBIPHENYLS	5.2 U	4.9 U	4.6 U	4.6 UJ	27 UJ
OCTACHLOROBIPHENYLS	0.84 U	0.79 U	0.73 U	1.9 J	4.3 U
PENTACHLOROBIPHENYLS	22	26	41	53 J	95
TETRACHLOROBIPHENYLS	0.59 U	2.7 J	4.5 J	20 J	81
TRICHLOROBIPHENYLS	0.27 U	0.25 U	0.23 U	2.3 J	1.4 U
TOTAL PCB HOMOLOGS	41.2	44.4	85.68	178.2	281
TOTAL PCB HOMOLOGS-HALFND	45.73	48.37	89.25	181.48	302.85

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-04					
SAMPLE ID	FMC-27-4-0-3	FMC-27-4-12-15	FMC-27-4-24-27	FMC-27-4-36-39	FMC-27-4-48-51	FMC-27-4-60-63
SAMPLE DATE	20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	1.7 UJ	1.7 UJ	1.4 UJ	1.6 UJ	1.6 UJ	1.5 UJ
DICHLOROBIPHENYLS	0.73 U	0.73 U	0.57 U	0.69 U	0.68 U	0.63 U
HEPTACHLOROBIPHENYLS	23	2.7 J	1.2 J	0.98 U	2.9 J	3.4 J
HEXACHLOROBIPHENYLS	50	11 J	6.5 J	5.8 J	15	18
MONOCHLOROBIPHENYLS	0.4 U	0.4 U	0.31 U	0.37 U	0.37 U	0.34 U
NONACHLOROBIPHENYLS	6.9 U	6.9 U	5.4 U	6.5 U	6.4 U	6 U
OCTACHLOROBIPHENYLS	1.8 J	1.1 U	0.86 U	1 U	1 U	0.96 U
PENTACHLOROBIPHENYLS	36	10 J	10 J	7 J	15	25
TETRACHLOROBIPHENYLS	2.2 J	2.8 J	0.6 U	0.73 U	1.7 J	9 J
TRICHLOROBIPHENYLS	0.35 U	0.35 U	0.28 U	0.33 U	0.33 U	0.31 U
TOTAL PCB HOMOLOGS	113	26.5	17.7	12.8	34.6	55.4
TOTAL PCB HOMOLOGS-HALFND	118.04	32.09	22.41	18.9	39.79	60.27

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-05					
SAMPLE ID	FMC-27-5-0-3	FMC-27-5-12-15	FMC-27-5-24-27	FMC-27-5-36-39	FMC-27-5-48-51	FMC-27-5-60-63
SAMPLE DATE	20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	2 UJ	2 UJ	1.9 UJ	2 UJ	1.7 UJ	1.6 UJ
DICHLOROBIPHENYLS	0.83 UJ	0.83 UJ	0.82 UJ	0.84 UJ	0.73 UJ	0.66 UJ
HEPTACHLOROBIPHENYLS	4.1 J	1.2 U	1.2 U	1.3 J	1.3 J	3 J
HEXACHLOROBIPHENYLS	19 J	6.2 J	6.6 J	14 J	14 J	14 J
MONOCHLOROBIPHENYLS	0.45 UJ	0.45 UJ	0.45 UJ	0.46 UJ	0.4 UJ	0.36 UJ
NONACHLOROBIPHENYLS	7.8 UJ	7.8 UJ	7.7 UJ	7.9 UJ	6.9 UJ	6.2 UJ
OCTACHLOROBIPHENYLS	1.3 U	1.3 U	1.2 U	1.3 U	1.1 U	1 U
PENTACHLOROBIPHENYLS	22 J	4.1 J	6.7 J	22 J	18 J	26 J
TETRACHLOROBIPHENYLS	1.2 J	0.88 UJ	0.87 UJ	0.89 UJ	0.77 UJ	6.2 J
TRICHLOROBIPHENYLS	0.4 UJ	0.4 UJ	0.4 UJ	0.41 UJ	0.35 UJ	0.32 UJ
TOTAL PCB HOMOLOGS	46.3	10.3	13.3	37.3	33.3	49.2
TOTAL PCB HOMOLOGS-HALFND	52.69	17.73	20.57	44.2	39.275	54.27

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-06					
SAMPLE ID	FMC-27-6-0-3	FMC-27-6-12-15	FMC-27-6-24-27	FMC-27-6-36-39	FMC-27-6-48-51	FMC-27-6-56-59
SAMPLE DATE	20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	1.4 UJ	1.3 UJ	6.7 U	1.4 UJ	1.1 UJ	5.4 UJ
DICHLOROBIPHENYLS	0.59 UJ	0.54 UJ	2.8 U	0.57 UJ	0.48 UJ	2.3 U
HEPTACHLOROBIPHENYLS	91	0.77 U	26 J	10 J	14	210
HEXACHLOROBIPHENYLS	140 J	12 J	47 J	48 J	31 J	350
MONOCHLOROBIPHENYLS	0.32 UJ	0.29 UJ	1.5 U	0.31 UJ	0.26 UJ	1.2 U
NONACHLOROBIPHENYLS	5.5 UJ	5.1 UJ	27 UJ	5.4 UJ	4.5 UJ	21 U
OCTACHLOROBIPHENYLS	8.4 J	0.81 U	4.3 U	0.87 U	0.72 U	14 J
PENTACHLOROBIPHENYLS	120 J	18 J	48 J	59 J	21 J	340
TETRACHLOROBIPHENYLS	14 J	0.57 UJ	39 J	25 J	130 J	480
TRICHLOROBIPHENYLS	0.29 UJ	0.26 UJ	1.4 U	3.9 J	0.23 UJ	8.9 J
TOTAL PCB HOMOLOGS	373.4	30	160	145.9	196	1402.9
TOTAL PCB HOMOLOGS-HALFND	377.45	34.82	181.85	150.175	199.645	1417.85

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-07					
SAMPLE ID	FMC-27-7-0-3	FMC-27-7-12-15	FMC-27-7-24-27	FMC-27-7-36-39	FMC-27-7-48-51	FMC-27-7-60-63
SAMPLE DATE	20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	1.3 UJ	1.9 UJ	1.8 UJ	1.7 UJ	1.4 UJ	1.5 UJ
DICHLOROBIPHENYLS	0.57 U	0.79 U	0.74 U	0.71 U	0.58 U	0.64 U
HEPTACHLOROBIPHENYLS	0.81 U	1.1 U	1.1 U	1 U	16 J	0.92 U
HEXACHLOROBIPHENYLS	9.9 J	2.9 J	3.6 J	4.2 J	58	0.61 U
MONOCHLOROBIPHENYLS	0.31 U	0.43 U	0.4 U	0.39 U	0.31 U	0.35 U
NONACHLOROBIPHENYLS	5.4 U	7.5 U	7 U	6.7 U	5.5 U	6.1 U
OCTACHLOROBIPHENYLS	0.86 U	1.2 U	1.1 U	1.1 U	1.1 J	0.97 U
PENTACHLOROBIPHENYLS	16	4.1 J	7.2 J	4.4 J	65	0.62 U
TETRACHLOROBIPHENYLS	0.6 U	0.84 U	0.78 U	1.3 J	48	0.68 U
TRICHLOROBIPHENYLS	0.28 U	0.39 U	0.36 U	0.35 U	8	0.31 U
TOTAL PCB HOMOLOGS	25.9	7	10.8	9.9	196.1	0 U
TOTAL PCB HOMOLOGS-HALFND	30.965	14.075	17.44	15.875	199.995	6.35

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-08					
SAMPLE ID	FMC-27-8-0-3	FMC-27-8-12-15	FMC-27-8-24-27	FMC-27-8-36-39	FMC-27-8-48-51	FMC-27-8-60-63
SAMPLE DATE	20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	2.1 UJ	2.3 UJ	2.1 UJ	1.9 UJ	1.7 U	1.6 UJ
DICHLOROBIPHENYLS	0.87 U	0.95 U	0.89 U	0.81 U	0.71 U	0.69 U
HEPTACHLOROBIPHENYLS	1.2 U	1.5 J	1.3 U	1.2 J	3 J	1.9 J
HEXACHLOROBIPHENYLS	2.3 J	13 J	11 J	9.1 J	14	10 J
MONOCHLOROBIPHENYLS	0.47 U	0.52 U	0.49 U	0.44 U	0.89 J	0.38 U
NONACHLOROBIPHENYLS	8.2 U	9 U	8.4 U	7.7 U	6.7 UJ	6.5 U
OCTACHLOROBIPHENYLS	1.3 U	1.4 U	1.4 U	1.2 U	1.1 U	1 U
PENTACHLOROBIPHENYLS	5.6 J	16 J	16 J	13 J	13 J	18 J-
TETRACHLOROBIPHENYLS	0.92 U	1 U	0.95 U	4.3 J	0.75 U	5.5 J
TRICHLOROBIPHENYLS	0.42 U	1.1 J	0.43 U	0.39 U	0.34 U	0.34 U
TOTAL PCB HOMOLOGS	7.9	31.6	27	27.6	30.89	35.4
TOTAL PCB HOMOLOGS-HALFND	15.64	39.185	34.98	33.82	36.54	40.655

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-1
Summary of Analytical Chemical Results for
FMC-27 PCB Sediment Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	FMC-27-09					
SAMPLE ID	FMC-27-9-0-3	FMC-27-9-12-15	FMC-27-9-24-27	FMC-27-9-36-39	FMC-27-9-48-51	FMC-27-9-60-63
SAMPLE DATE	20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH	0	12	24	36	48	60
BOTTOM DEPTH	3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	9.5 UJ	2 UJ	1.8 UJ	1.8 UJ	8.4 U	1.5 UJ
DICHLOROBIPHENYLS	4 U	0.85 U	0.77 U	0.75 U	3.6 U	0.64 U
HEPTACHLOROBIPHENYLS	5.7 U	1.2 U	1.3 J	1.1 U	5.1 U	6.6 J
HEXACHLOROBIPHENYLS	3.8 U	9.4 J	13 J	16	13 J	15
MONOCHLOROBIPHENYLS	2.2 U	0.46 U	0.42 U	0.41 U	1.9 U	0.34 U
NONACHLOROBIPHENYLS	38 U	8 U	7.2 U	7.1 U	34 UJ	6 U
OCTACHLOROBIPHENYLS	6 U	1.3 U	1.2 U	1.1 U	5.4 U	0.96 U
PENTACHLOROBIPHENYLS	20 J	18 J-	18 J-	16	31 J	32
TETRACHLOROBIPHENYLS	4.2 U	2.1 J	0.81 U	5.4 J	14 J	37
TRICHLOROBIPHENYLS	1.9 U	0.41 U	0.37 U	0.36 U	1.7 U	0.31 U
TOTAL PCB HOMOLOGS	20	29.5	32.3	37.4	58	90.6
TOTAL PCB HOMOLOGS-HALFND	57.65	36.61	38.585	43.71	88.05	95.475

Cell shaded in Black indicates an exceedance
-- - not detected
µg/kg-micrograms per kilogram
FMC- Frog Mortar Creek
HALFND - Concentration is calculated using one-half the detection limit for non-detect samples
J - chemical detected, concentration is estimated
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated
PCB - polychlorinated biphenyl

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-01					
SAMPLE ID		FMC-27-1-0-3	FMC-27-1-12-15	FMC-27-1-24-27	FMC-27-1-36-39	FMC-27-1-48-51	FMC-27-1-60-63
SAMPLE DATE		20160822	20160822	20160822	20160822	20160822	20160822
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	4.4 J	--
HEPTACHLOROBIPHENYLS	676	--	--	1.7 J	1.1 J	30	1.4 J
HEXACHLOROBIPHENYLS	676	16	5.4 J	11 J	7.2 J	19	8.1 J
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	53 J	--
OCTACHLOROBIPHENYLS	676	--	--	--	--	62	--
PENTACHLOROBIPHENYLS	676	26	5.8 J	14	13 J	21	18
TETRACHLOROBIPHENYLS	676	--	--	--	5.5 J	--	0.77 J
TRICHLOROBIPHENYLS	676	--	--	--	--	--	--
TOTAL PCB HOMOLOG	676	42	11.2	26.7	26.8	189.4	28.27

Cell shaded gray indicates value exceeds one screening level only

[1] Cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level is also applicable to Frog Mortar Creek.

-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-02					
SAMPLE ID		FMC-27-2-0-3	FMC-27-2-12-15	FMC-27-2-24-27	FMC-27-2-36-39	FMC-27-2-48-51	FMC-27-2-60-63
SAMPLE DATE		20160822	20160822	20160822	20160822	20160822	20160822
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	3.1 J	--	--	3.5 J	3.8 J	--
HEXACHLOROBIPHENYLS	676	5.7 J	5.8 J	25 J	14	6 J	5.1 J
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	--	--	--	--	--	--
PENTACHLOROBIPHENYLS	676	8.2 J	8.3 J	5.9 J	19	17	4.6 J
TETRACHLOROBIPHENYLS	676	--	--	--	--	1.7 J	2.7 J
TRICHLOROBIPHENYLS	676	--	--	--	--	--	--
TOTAL PCB HOMOLOG	676	17	14.1	30.9	36.5	28.5	12.4

Cell shaded gray indicates value exceeds one screening level only

[1] Cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level is also applicable to Frog Mortar Creek.

-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-03				
SAMPLE ID		FMC-27-3-0-3	FMC-27-3-12-15	FMC-27-3-24-27	FMC-27-3-36-39	FMC-27-3-48-51
SAMPLE DATE		20160822	20160822	20160822	20160822	20160822
TOP DEPTH (in)		0	12	24	36	48
BOTTOM DEPTH (in)		3	15	27	39	51
Polychlorinated biphenyls (µg/kg)						
DECACHLOROBIPHENYL	676	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	3.2 J	2.7 J	8.5 J	35	17 J
HEXACHLOROBIPHENYLS	676	16	13	31	66 J	88
MONOCHLOROBIPHENYLS	676	--	--	0.68 J	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	--	--	--	1.9 J	--
PENTACHLOROBIPHENYLS	676	22	26	41	53 J	95
TETRACHLOROBIPHENYLS	676	--	2.7 J	4.5 J	20 J	81
TRICHLOROBIPHENYLS	676	--	--	--	2.3 J	--
TOTAL PCB HOMOLOG	676	41.2	44.4	85.68	178.2	281

Cell shaded gray indicates value exceeds one screening level only

[1] Cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level is also applicable to Frog Mortar Creek.

-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-04					
SAMPLE ID		FMC-27-4-0-3	FMC-27-4-12-15	FMC-27-4-24-27	FMC-27-4-36-39	FMC-27-4-48-51	FMC-27-4-60-63
SAMPLE DATE		20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	23	2.7 J	1.2 J	--	2.9 J	3.4 J
HEXACHLOROBIPHENYLS	676	50	11 J	6.5 J	5.8 J	15	18
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	1.8 J	--	--	--	--	--
PENTACHLOROBIPHENYLS	676	36	10 J	10 J	7 J	15	25
TETRACHLOROBIPHENYLS	676	2.2 J	2.8 J	--	--	1.7 J	9 J
TRICHLOROBIPHENYLS	676	--	--	--	--	--	--
TOTAL PCB HOMOLOG	676	113	26.5	17.7	12.8	34.6	55.4

Cell shaded gray indicates value exceeds one screening level only

[1] Cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level is also applicable to Frog Mortar Creek.

-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-05					
SAMPLE ID		FMC-27-5-0-3	FMC-27-5-12-15	FMC-27-5-24-27	FMC-27-5-36-39	FMC-27-5-48-51	FMC-27-5-60-63
SAMPLE DATE		20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	4.1 J	--	--	1.3 J	1.3 J	3 J
HEXACHLOROBIPHENYLS	676	19 J	6.2 J	6.6 J	14 J	14 J	14 J
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	--	--	--	--	--	--
PENTACHLOROBIPHENYLS	676	22 J	4.1 J	6.7 J	22 J	18 J	26 J
TETRACHLOROBIPHENYLS	676	1.2 J	--	--	--	--	6.2 J
TRICHLOROBIPHENYLS	676	--	--	--	--	--	--
TOTAL PCB HOMOLOG	676	46.3	10.3	13.3	37.3	33.3	49.2

Cell shaded gray indicates value exceeds one screening level only

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-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-06					
SAMPLE ID		FMC-27-6-0-3	FMC-27-6-12-15	FMC-27-6-24-27	FMC-27-6-36-39	FMC-27-6-48-51	FMC-27-6-56-59
SAMPLE DATE		20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	91	--	26 J	10 J	14	210
HEXACHLOROBIPHENYLS	676	140 J	12 J	47 J	48 J	31 J	350
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	8.4 J	--	--	--	--	14 J
PENTACHLOROBIPHENYLS	676	120 J	18 J	48 J	59 J	21 J	340
TETRACHLOROBIPHENYLS	676	14 J	--	39 J	25 J	130 J	480
TRICHLOROBIPHENYLS	676	--	--	--	3.9 J	--	8.9 J
TOTAL PCB HOMOLOG	676	373.4	30	160	145.9	196	1402.9

Cell shaded gray indicates value exceeds one screening level only

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-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-07					
SAMPLE ID		FMC-27-7-0-3	FMC-27-7-12-15	FMC-27-7-24-27	FMC-27-7-36-39	FMC-27-7-48-51	FMC-27-7-60-63
SAMPLE DATE		20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	--	--	--	--	16 J	--
HEXACHLOROBIPHENYLS	676	9.9 J	2.9 J	3.6 J	4.2 J	58	--
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	--	--	--	--	1.1 J	--
PENTACHLOROBIPHENYLS	676	16	4.1 J	7.2 J	4.4 J	65	--
TETRACHLOROBIPHENYLS	676	--	--	--	1.3 J	48	--
TRICHLOROBIPHENYLS	676	--	--	--	--	8	--
TOTAL PCB HOMOLOG	676	25.9	7	10.8	9.9	196.1	0

Cell shaded gray indicates value exceeds one screening level only

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-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-08					
SAMPLE ID		FMC-27-8-0-3	FMC-27-8-12-15	FMC-27-8-24-27	FMC-27-8-36-39	FMC-27-8-48-51	FMC-27-8-60-63
SAMPLE DATE		20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	--	1.5 J	--	1.2 J	3 J	1.9 J
HEXACHLOROBIPHENYLS	676	2.3 J	13 J	11 J	9.1 J	14	10 J
MONOCHLOROBIPHENYLS	676	--	--	--	--	0.89 J	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	--	--	--	--	--	--
PENTACHLOROBIPHENYLS	676	5.6 J	16 J	16 J	13 J	13 J	18 J-
TETRACHLOROBIPHENYLS	676	--	--	--	4.3 J	--	5.5 J
TRICHLOROBIPHENYLS	676	--	1.1 J	--	--	--	--
TOTAL PCB HOMOLOG	676	7.9	31.6	27	27.6	30.89	35.4

Cell shaded gray indicates value exceeds one screening level only

[1] Cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level is also applicable to Frog Mortar Creek.

-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-2
Detected Analytes and Screening Level Exceedances for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

LOCATION	Site screening level for PCBs in sediment[1]	FMC-27-09					
SAMPLE ID		FMC-27-9-0-3	FMC-27-9-12-15	FMC-27-9-24-27	FMC-27-9-36-39	FMC-27-9-48-51	FMC-27-9-60-63
SAMPLE DATE		20160823	20160823	20160823	20160823	20160823	20160823
TOP DEPTH (in)		0	12	24	36	48	60
BOTTOM DEPTH (in)		3	15	27	39	51	63
Polychlorinated biphenyls (µg/kg)							
DECACHLOROBIPHENYL	676	--	--	--	--	--	--
HEPTACHLOROBIPHENYLS	676	--	--	1.3 J	--	--	6.6 J
HEXACHLOROBIPHENYLS	676	--	9.4 J	13 J	16	13 J	15
MONOCHLOROBIPHENYLS	676	--	--	--	--	--	--
NONACHLOROBIPHENYLS	676	--	--	--	--	--	--
OCTACHLOROBIPHENYLS	676	--	--	--	--	--	--
PENTACHLOROBIPHENYLS	676	20 J	18 J-	18 J-	16	31 J	32
TETRACHLOROBIPHENYLS	676	--	2.1 J	--	5.4 J	14 J	37
TRICHLOROBIPHENYLS	676	--	--	--	--	--	--
TOTAL PCB HOMOLOG	676	20	29.5	32.3	37.4	58	90.6

Cell shaded gray indicates value exceeds one screening level only

[1] Cleanup level of 676 µg/kg established for Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency stated that this sediment cleanup level is also applicable to Frog Mortar Creek.

-- - not detected
µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
J - chemical detected, concentration is estimated
PCB - polychlorinated biphenyl
U - not detected at the concentration shown left of the letter
UJ - not detected, detection limit is estimated

Table 4-3
Statistical Summary of Chemical Results for
FMC-27 PCB Investigation, Frog Mortar Creek
Martin State Airport, Middle River, Maryland

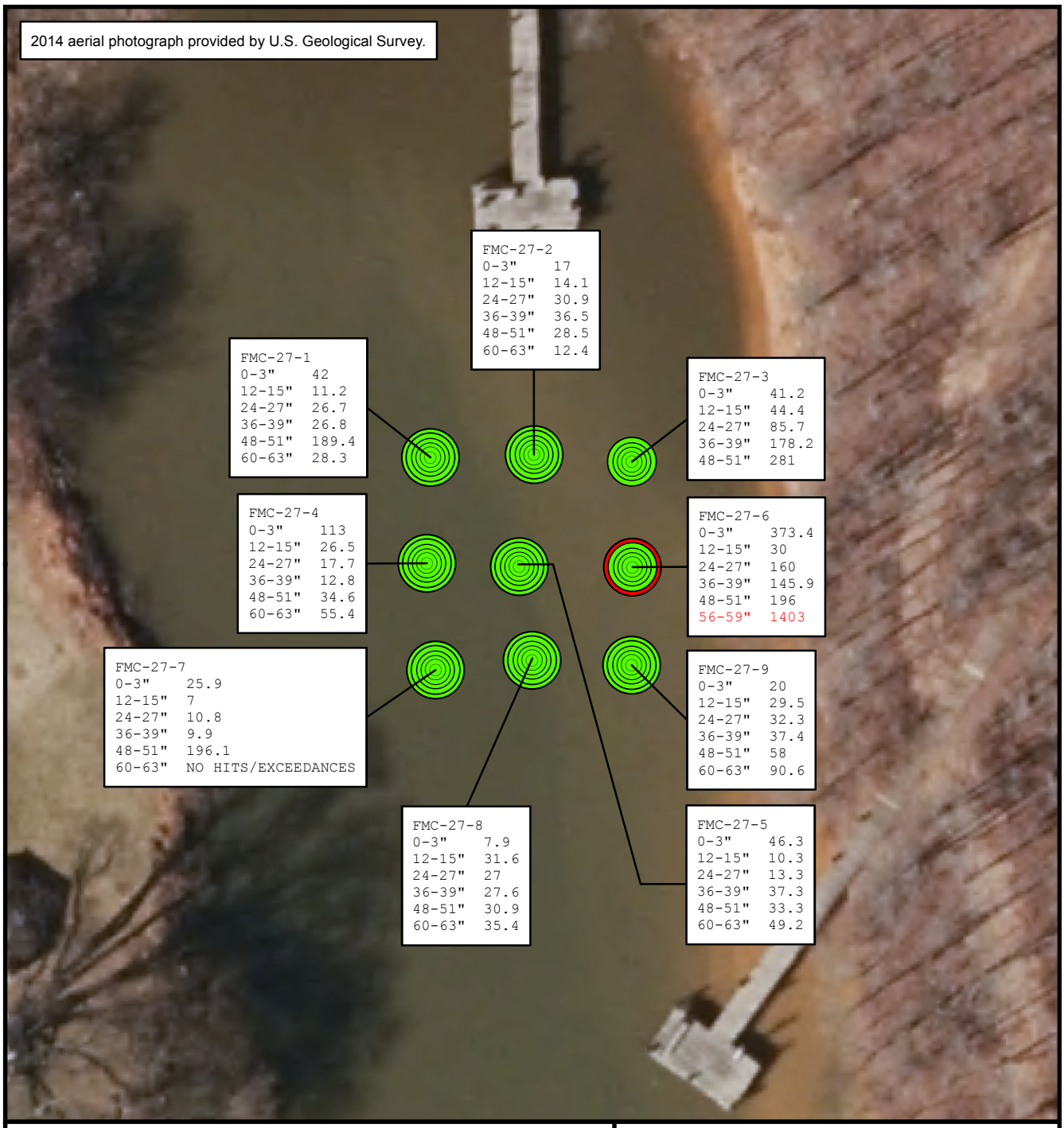
Chemical	Frequency of Detection		Minimum Non-Detect Concentration	Maximum Non-Detect Concentration	Minimum Detected Concentration		Maximum Detected Concentration		Location of Maximum Detected Sample	Sample of Maximum Detected Sample	Mean of Positive Detects	Mean of All Samples	Standard Deviation	Sample Date
	Number	Percent												
DECACHLOROBIPHENYL	1/53	2	1.1	9.5	4.4	J	4.4	J	FMC-27-01	FMC-27-1-48-51	4.400	1.231	1.090	20160822
HEPTACHLOROBIPHENYLS	33/53	62	0.77	5.7	1.1	J	210		FMC-27-06	FMC-27-6-56-59	16.255	10.445	31.332	20160823
HEXACHLOROBIPHENYLS	51/53	96	0.61	3.8	2.3	J	350		FMC-27-06	FMC-27-6-56-59	26.565	25.604	51.451	20160823
MONOCHLOROBIPHENYLS	2/53	4	0.26	2.2	0.68	J	0.89	J	FMC-27-08	FMC-27-8-48-51	0.785	0.290	0.247	20160823
NONACHLOROBIPHENYLS	1/53	2	4.5	38	53	J	53	J	FMC-27-01	FMC-27-1-48-51	53.000	5.581	7.743	20160822
OCTACHLOROBIPHENYLS	6/53	11	0.72	6	1.1	J	62		FMC-27-01	FMC-27-1-48-51	14.867	2.349	8.629	20160822
PENTACHLOROBIPHENYLS	52/53	98	0.62	0.62	4.1	J	340		FMC-27-06	FMC-27-6-56-59	29.210	28.664	48.803	20160823
TETRACHLOROBIPHENYLS	27/53	51	0.57	4.2	0.77	J	480		FMC-27-06	FMC-27-6-56-59	35.095	18.132	68.409	20160823
TRICHLOROBIPHENYLS	5/53	9	0.23	1.9	1.1	J	8.9	J	FMC-27-06	FMC-27-6-56-59	4.840	0.673	1.674	20160823
TOTAL PCB HOMOLOGS	52/53	98	0	0	7		1402.9		FMC-27-06	FMC-27-6-56-59	87.116	85.472	198.892	20160823
TOTAL PCB HOMOLOGS-HALFND	53/53	100			6.35		1417.85		FMC-27-06	FMC-27-6-56-59	93.461	93.461	199.953	20160823

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration to calculate statistics.

µg/kg - micrograms per kilogram
FMC - Frog Mortar Creek
HALFND-calculated using one-half he detection limit for non-detects
J - result is estimated
PCB - polychlorinated biphenyls

Associated Samples:

FMC-27-1-0-3	FMC-27-2-36-39	FMC-27-4-12-15	FMC-27-5-48-51	FMC-27-7-12-15	FMC-27-8-48-51
FMC-27-1-12-15	FMC-27-2-48-51	FMC-27-4-24-27	FMC-27-5-60-63	FMC-27-7-24-27	FMC-27-8-60-63
FMC-27-1-24-27	FMC-27-2-60-63	FMC-27-4-36-39	FMC-27-6-0-3	FMC-27-7-36-39	FMC-27-9-0-3
FMC-27-1-36-39	FMC-27-3-0-3	FMC-27-4-48-51	FMC-27-6-12-15	FMC-27-7-48-51	FMC-27-9-12-15
FMC-27-1-48-51	FMC-27-3-12-15	FMC-27-4-60-63	FMC-27-6-24-27	FMC-27-7-60-63	FMC-27-9-24-27
FMC-27-1-60-63	FMC-27-3-24-27	FMC-27-5-0-3	FMC-27-6-36-39	FMC-27-8-0-3	FMC-27-9-36-39
FMC-27-2-0-3	FMC-27-3-36-39	FMC-27-5-12-15	FMC-27-6-48-51	FMC-27-8-12-15	FMC-27-9-48-51
FMC-27-2-12-15	FMC-27-3-48-51	FMC-27-5-24-27	FMC-27-6-56-59	FMC-27-8-24-27	FMC-27-9-60-63
FMC-27-2-24-27	FMC-27-4-0-3	FMC-27-5-36-39	FMC-27-7-0-3	FMC-27-8-36-39	



LEGEND

SEDIMENT SAMPLE PROFILE

- 0-3 INCHES
- 12-15 INCHES
- 24-27 INCHES
- 36-39 INCHES
- 48-51 INCHES
- 60-63 INCHES

SEDIMENT SAMPLE WITH EXCEEDANCE

SEDIMENT SAMPLE WITH NO EXCEEDANCE

All polychlorinated biphenyl (PCB) homolog results are in micrograms per kilogram (µg/kg).

0 30 60 Feet

N

FIGURE 4-1

TOTAL PCB HOMOLOG CONCENTRATIONS IN SEDIMENT AT FMC-27, AUGUST 2016

Frog Mortar Creek
Lockheed Martin, Martin State Airport
Middle River, Maryland

DATE MODIFIED: 11/15/16

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Lockheed_MSA\MapDocs\MXD\frog_mortar_creek_sediment_tags_aug2016.mxd)
11/15/16 -- JEE

Section 5
Summary and Conclusions

5.1 SUMMARY

The primary objective of this work is to delineate polychlorinated biphenyl (PCB) contamination in sediment near historical sampling location FMC-27 in Frog Mortar Creek (FMC). The 2016 Frog Mortar Creek polychlorinated biphenyl investigation included the following:

- obtained utility clearances
- notified Martin State Airport (MSA), Maryland Aviation Administration (MAA), Maryland Air National Guard (MDANG), the United States Coast Guard, and the Baltimore County Marine Police before field activities
- collected sediment samples using a vibracore sampler to delineate the extent of polychlorinated biphenyls in sediment around former sediment sampling location FMC-27
- submitted sediment samples for laboratory chemical analyses and validated the sampling analytical data
- collected, characterized, profiled, and removed all investigation-derived waste (IDW)

Significant findings from the polychlorinated biphenyl investigation using the vibracore sampler are as follows:

- Of the 53 samples collected, only one sample (FMC-27-6-56–59) exceeded the consensus-based probable-effects screening level (676 micrograms per kilogram [µg/kg]) with a concentration of 1,403 µg/kg at a depth of 56–59 inches below the sediment and surface water interface.
- No surface samples exceeded the 676 µg/kg screening level.
- The highest polychlorinated biphenyl concentrations were detected in borings FMC-27-3 and FMC-27-6.
- No sediment discoloration was detected.
- A slight hydrocarbon odor was detected in borings FMC-27-2, FMC-27-3, and FMC-27-6.

5.2 CONCLUSIONS

Following review of the *Dump Road Area Polychlorinated Biphenyl Soil Investigation and Removal Work Plan* (Tetra Tech, 2015), the United States Environmental Protection Agency noted two additional areas that had historically shown elevated polychlorinated biphenyl levels, and decided that those areas must also be investigated. These include the area adjacent to Taxiway Tango around historical test-pit location DR-TP-A64 (reported under a separate cover) and the area around former sediment-sampling location FMC-27 in Frog Mortar Creek. Polychlorinated biphenyl concentrations in sediment samples FMC-27A, B, and C (1,470, 1,040, and 2,670 µg/kg, respectively) collected during the 2008 Phase II Frog Mortar Creek investigation exceeded the polychlorinated biphenyl cleanup level of 676 µg/kg established for surface sediment at Dark Head Cove adjacent to Lockheed Martin's Middle River Complex. The United States Environmental Protection Agency required further characterization of polychlorinated biphenyl concentrations in sediment, both vertically and horizontally, near sampling location FMC-27. Sampling location FMC-27 in Frog Mortar Creek was originally selected with a bias weighted toward being more likely affected, as it was in an area that received stormwater runoff north (upstream) of Gar Gut.

In a previous Dump Road Area study (Tetra Tech, 2006), concentrations of polycyclic aromatic compounds and polychlorinated biphenyls in sediment, including concentrations detected at sampling location FMC-27, were used to evaluate human health and ecological risks. That study resulted in a determination by Maryland Department of the Environment that no remediation associated with activities at Dump Road Area would be necessary. The source(s) of the contaminants at sampling location FMC-27 are unknown. Higher concentrations at depth at sampling location FMC-27 possibly indicate that this area has had a long history of receiving these compounds, or possibly that this area of the creek is undergoing additional deposition and natural recovery.

The 2016 data indicate that most polychlorinated biphenyl concentrations in sediment around what is now former sampling location FMC-27 are low, and the lateral extent of contamination is negligible. Of the 53 samples collected, only one sample exceeded the screening level, with a concentration of 1,403 µg/kg at a depth of 56–59 inches below the sediment and surface water interface. This one exceedance of the screening concentration was detected at a significant depth, well below the biologically active zone for ecological receptors, at a depth considered inaccessible

for human exposure. No surficial samples exceeded the consensus-based probable-effects concentration of 676 µg/kg. Surficial concentrations in the nine borings range from 7.9 µg/kg in FMC-27-8 to 343 µg/kg in FMC-27-6, with seven of nine surficial samples having polychlorinated biphenyl concentrations below 50 µg/kg.

The 2016 data confirm that the presence of polychlorinated biphenyl near FMC-27 is not widespread. Although slightly elevated concentrations were detected during both the 2008 and the 2016 sampling, significant quantities of contaminated sediment were not found in Frog Mortar Creek. The data show that the weighted-average concentration over this area is spread over an area sufficiently large to not pose a threat to human health. The data also show that no ***surface concentrations*** exceed the consensus-based probable-effects concentration (676 µg/kg) over an area sufficiently large to affect a ***population*** of benthic (sediment dwelling) organisms. Considering the limited areal extent of concentrations just above the consensus-based probable-effect concentration, the generally low concentrations detected throughout the FMC-27 area, and the documented ongoing accumulation of cleaner sediment, additional characterization and/or remedial action is not warranted.

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Section 6
References

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9. United States Environmental Protection Agency (USEPA), Region 3, 1993. *Region III Modifications to the Laboratory Data-Validation Functional Guidelines for Evaluating Inorganics Analyses*. April.

10. United States Environmental Protection Agency (USEPA), Region 3, 1994. *Region III Modifications to the National Functional Guidelines for Organic Data Review.* September.

APPENDIX A—UTILITY-CLEARANCE DOCUMENTATION

Miss Utility

Ticket No:	16544182
	STANDARD
Original Call Date:	08/16/16 12:39 pm
Op / Rev Op:	mdjagger / mdjagger
Response Due By:	08/18/16 11:59 pm
Release Time:	08/16/16 12:46 pm
Expiration Date:	09/01/16 23:59 pm

CALLER INFORMATION

Company Name:	TETRA TECH
Fax Phone:	301-528-3000
Contact Name:	ANTHONY APANAVAGE
Phone:	301-528-3021
Caller Address:	20251 CENTURY BLVD SUITE# 200 GERMANTOWN,MD 20874
Email Address:	tony.apanavage@tetratech.com
Job Site Contact:	ANTHONY CELL
Phone:	301-233-8230

DIG SITE INFORMATION

Type of Work:	ENVIRONMENTAL SAMPLING
Work Being Done For:	LOCKHEED MARTIN
Explosives:	N
Permit:	
MDOT Permit:	
Job Number:	

DIG SITE LOCATION

State:	MD
County:	BALTIMORE
Place:	MIDDLE RIVER
Subdivision:	FROG MORTOR CREEK
Address:	
Street:	LYNBROOK RD
Intersecting Street:	EASTERN BLVD
Extent of Work:	LOCATE APPROX 500FT S INTO FROG MORTOR CREEK FROM THE ABOVE INTER DIR: CREEK IS LOCATED APPROX 700FT S FROM THE ABOVE INTER ON THE LEFT SIDE OF THE ROAD.
Remarks:	
Map Coord NW Lat:	39.3366667
Lon:	-76.4133333
SE Lat:	39.3300000
Lon:	-76.4066667

MEMBERS NOTIFIED

District	Company Name	Marking Concerns	Damage	Customer Service	Status
BCGOIT	BALT CO GOVT/KCI TECHNOLOGIES	410-785-4900	434-942-8192	434-942-8192	Clear/No conflict
BGEBA	BGE ELECTRIC-USIC	800-778-9140	410-685-0123	410-685-0123	Incorrect work site mapping, insufficient information, and/or wrong address
BGEBAG	BGE GAS-USIC	800-778-9140	410-685-0123	410-685-0123	Incorrect work site mapping, insufficient information, and/or wrong address
CBW04	BALTIMORE CITY DPW-OCCLS	410-712-0202			Marked
CTV01	COMCAST - UTILIQUEST	410-536-0070	877-359-1821	888-739-1379	Clear/No conflict (Response by Utiliquest)
HTV02	COMCAST-FIBER/UTILIQUEST	410-536-0070	877-359-1821	888-739-1379	Clear/No conflict (Response by Utiliquest)
QWESTM01	QWEST COMMUNICATIONS	800-283-4237	800-283-4237	800-283-4237	Clear/No conflict
VBT	VERIZON	410-536-0070	888-496-1588	800-837-4966	Clear/No conflict (Response by Utiliquest)

Legend: Locate Polygon

Lat/Lon

39.345467 -76.414907

Commons at
White Marsh
Eastern
Regional Park
Bengies Rd
Dahlia Ln
150
Carroll Island Rd
Bengies Drive
atre
Keeners Rd
dle River
Edwards Ln
Bowleys Quarters Rd
Carrollwood Rd
Cristield Rd
Nollmeyer Rd
Carroll
Martin Blvd
Wilson Point Rd
Cole Ln
Kingston Rd
Martin State
Airport
Bowleys
Quarters
Dark Head Rd
Frog Mortar Creek
Bowleys Quarters Rd
Susquehanna Ave
Wilson Point Rd
2nd Rd
Shore Rd
Chestnut Rd
Galloway Rd
Tred Avon Rd
Birch Rd
Middleborough Rd
Wye Rd
Sassafras Rd
Middle River
Galloway Creek
Apartments
Google
500 m

APPENDIX B—PHOTOGRAPHIC LOGS OF SEDIMENT CORES

Close-up view of FMC-27-1 sediment core

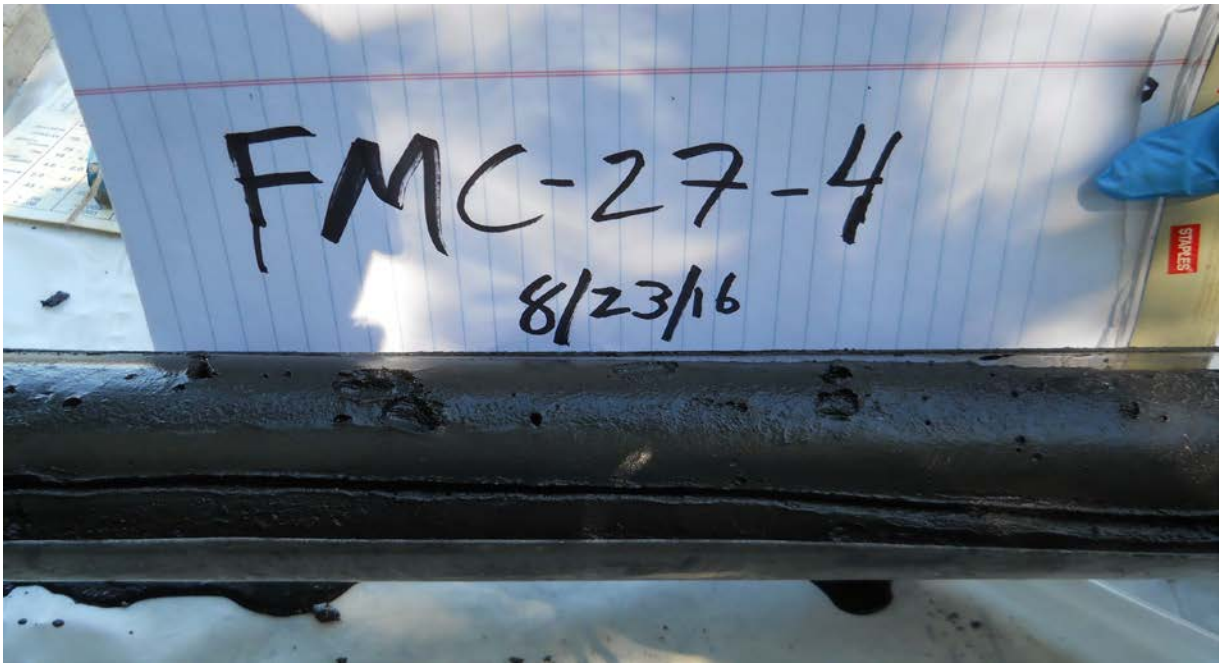
Broad view of FMC-27-1 sediment core

Close-up view of FMC-27-2 sediment core

Broad view of FMC-27-2 sediment core

Close-up view of FMC-27-3 sediment core

Broad view of FMC-27-3 sediment core



Close-up view of FMC-27-4 sediment core

Broad view of FMC-27-4 sediment core

Close-up view of FMC-27-5 sediment core

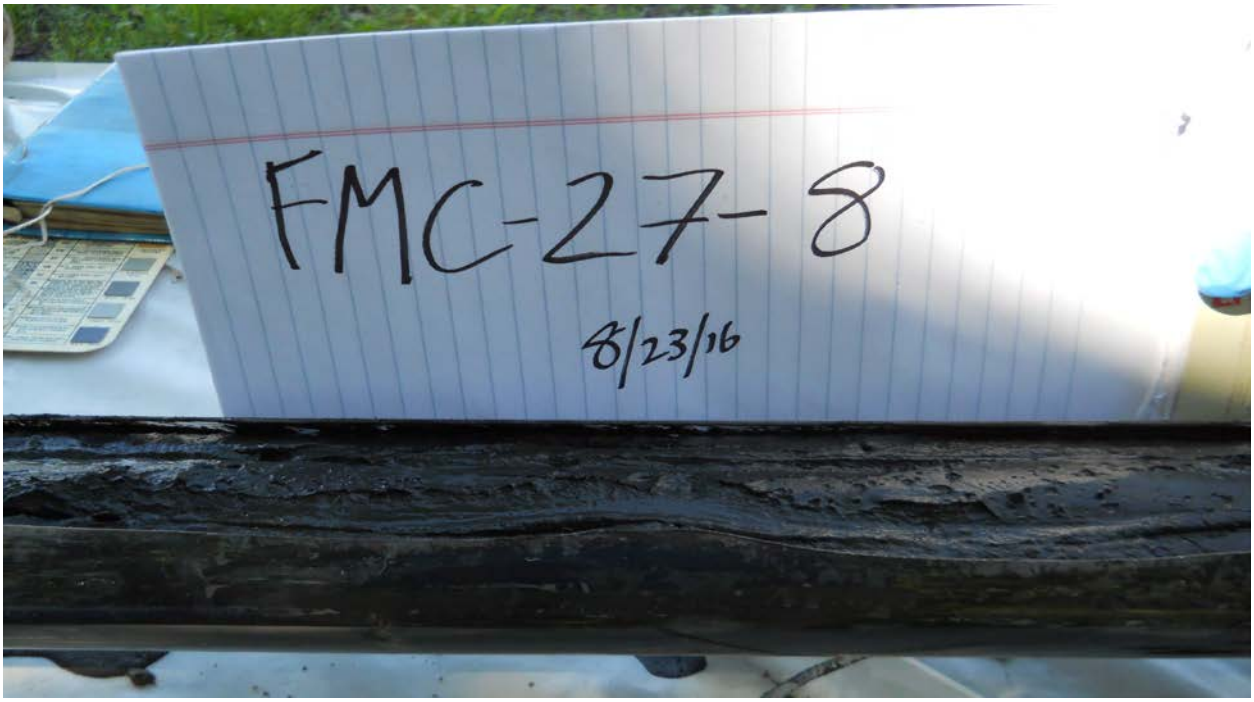
Broad view of FMC-27-5 sediment core

Close-up view of FMC-27-6 sediment core

Broad view of FMC-27-6 sediment core

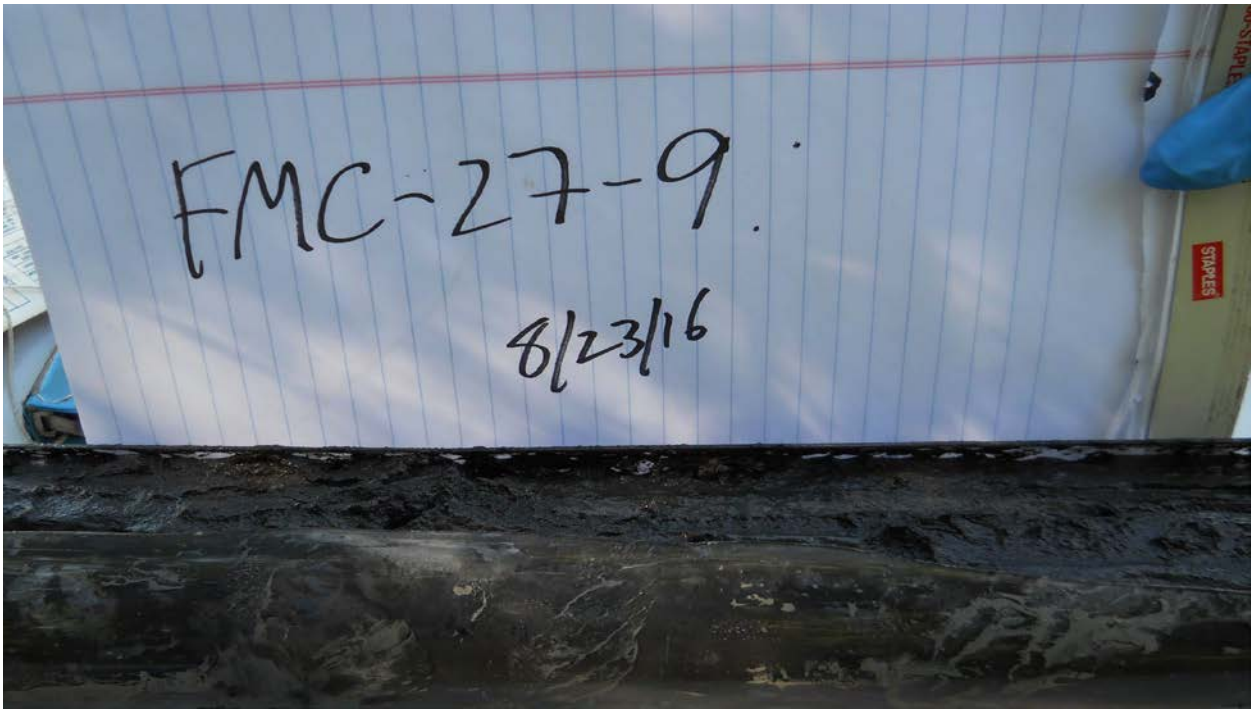
Close-up view of FMC-27-7 sediment core

Broad view of FMC-27-7 sediment core



Close-up view of FMC-27-8 sediment core

Broad view of FMC-27-8 sediment core



Close-up view of FMC-27-9 sediment core

Broad view of FMC-27-9 sediment core

APPENDIX C—FIELD-SAMPLE SHEETS AND BORING LOGS

Table 1

TT/FMC Sediment
Normandeau Associates, Inc.

Survey Dates
8/22-23/2016

Equipment: Trimble GeoXH 6000

Coordinate System: US State Plane, NAD 83 (feet)
Zone: Maryland 1900

Proposed			Actual	
NORTHING	EASTING	LOCATION ID	NORTHING	EASTING
607755.312	1479346.178	FMC-27-1	607756.308	1479346.171
607755.315	1479366.162	FMC-27-2	607756.858	1479366.514
607755.308	1479386.147	FMC-27-3	607755.480	1479385.723
607735.312	1479346.186	FMC-27-4	607735.497	1479345.460
607735.315	1479366.171	FMC-27-5	607734.876	1479363.638
607735.313	1479386.155	FMC-27-6	607734.752	1479385.797
607715.312	1479346.195	FMC-27-7	607714.580	1479347.165
607715.315	1479366.179	FMC-27-8	607716.461	1479366.111
607715.313	1479386.164	FMC-27-9	607715.509	1479385.680

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization		Proj. #: 23912.000
Site Name:	Frog Mortar Creek		Task #: N/A
City:	Middle River	State: MD	Date: 08 22 16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1015-1030
Station ID #: FMC-27-1
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5 mph W

FIELD DATA

Water Depth: 4.0'
Tide: Ebb (Flood) Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-1 Coring Time: 1025 Penetration Depth: 78" Core Recovery: 68"
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

N/A

DGPS DATA

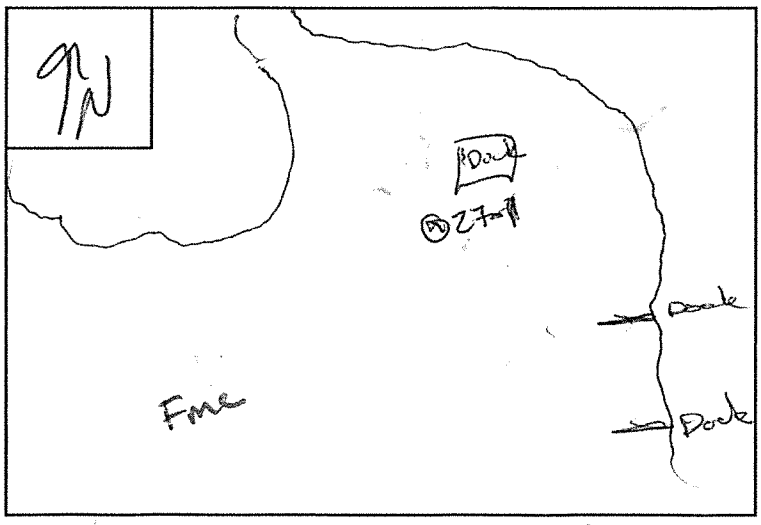
Operator: KCM
File Name: FMC-27-1
Lat / (N): 607756.308
Lon / (E): 1479346.171
SVs 10

Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

Ft. Tube used = 6.5'

Preparer's Initial: KCM



KCM 8-19-16

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization		Proj. #: 23912.000
Site Name:	Frog Mortar Creek		Task #: N/A
City:	Middle River	State: MD	Date: 8/22/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1258 - ~~1305~~ 1315
Station ID #: FMC-27-2
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph NE

FIELD DATA

Water Depth: 3.2'
Tide: (Ebb) Flood Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-2 Coring Time: 1305 Penetration Depth: 7' Core Recovery: ~~49"~~ 73" KCM
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

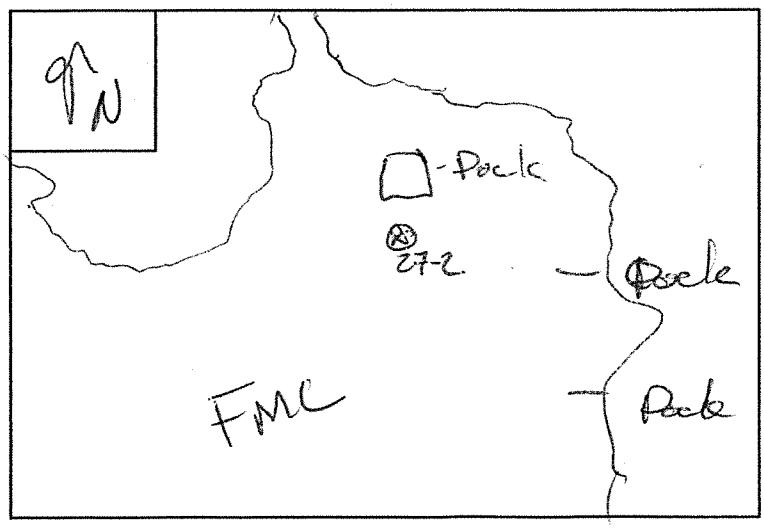
DGPS DATA

Operator: KCM
File Name: FMC-27-2
Lat / (N) 607756.858
Lon / (E) 1479366.514
SVs 11
Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

Ft. tube used = 7'

Preparer's Initial: KCM



KCM 10-16

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization		Proj. #: 23912.000
Site Name:	Frog Mortar Creek		Task #: N/A
City:	Middle River	State: MD	Date: 8/22/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1320 - 1345
Station ID #: FMC-27-3
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph NE

FIELD DATA

Water Depth: 2.0'
Tide: (Ebb) Flood Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-3 Coring Time: 1326 Penetration Depth: 78" Core Recovery: 59"*
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: 27-3-2 Coring Time: 1340 Penetration Depth: 78" Core Recovery: 51.5"
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

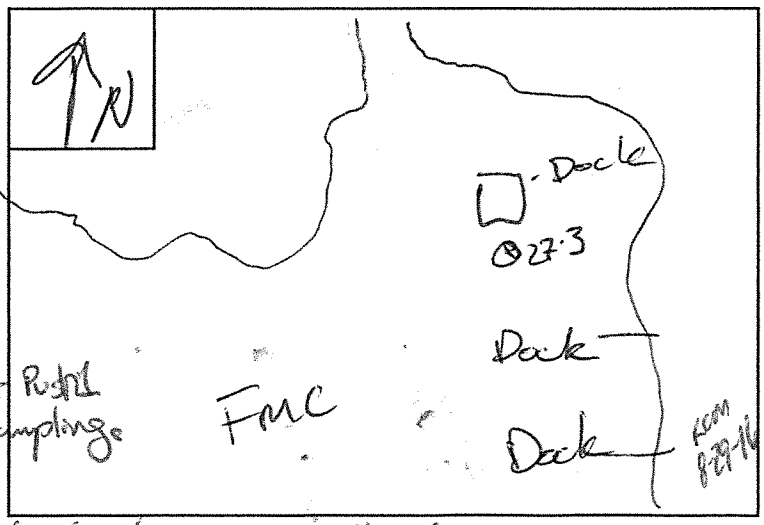
DGPS DATA

Operator: KCM
File Name: FMC-27-3
Lat / (N): 607755.480
Lon / (E): 1479385.723
SVs 11

Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

First push buried rossfelder & only recovered 59". Had sandy plug in bottom. Try again per POC & keep longest one; discard shorter. Second push settled out to ~7" less recovery than push 1. Similar effect as push 1 w/ hard pack sand plug @ bottom. Kept Push 2 for sampling.
- Ft tube used = 13'



Preparer's Initial: KCM

*Vibr. [illegible] 51.5" / recovery is 59"

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization	Proj. #: 23912.000
Site Name:	Frog Mortar Creek	Task #: N/A
City:	Middle River State: MD	Date: 8/23/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 0915-0930
Station ID #: FMC-27-4
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph NW

FIELD DATA

Water Depth: 4.1'
Tide: Ebb (Flood) Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-4 Coring Time: 0925 Penetration Depth: 78" Core Recovery: 73"*
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

N/A

DGPS DATA

Operator: KCM
File Name: FMC-27-4
Lat / (N): 607735.497
Lon / (E): 1479345.460
SVs 10

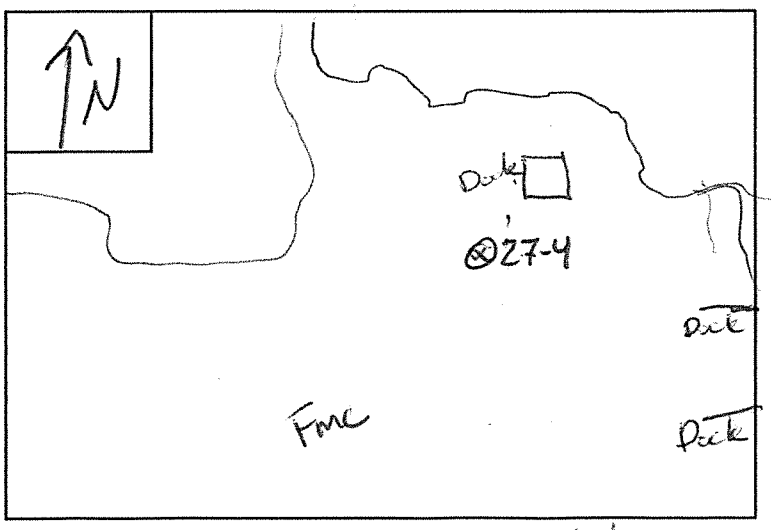
Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

*Note recovery from Push 1 settled out to 69" vs 73"

Ft tube used = 6.5'

Preparer's Initial: KCM



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ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization		Proj. #: 23912.000
Site Name:	Frog Mortar Creek		Task #: N/A
City:	Middle River	State: MD	Date: 8/23/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 0938 - 1000
Station ID #: ~~27-5~~ FMC-27-5
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5 mph NW

FIELD DATA

Water Depth: 4.2'
Tide: Ebb (Flood) Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-5 Coring Time: 0950 Penetration Depth: 84" Core Recovery: 78" *
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: N/A Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

Operator: KCM
File Name: Fmc-27-5
Lat / (N): 607734.876
Lon / (E): 1479363.638
SVs 10

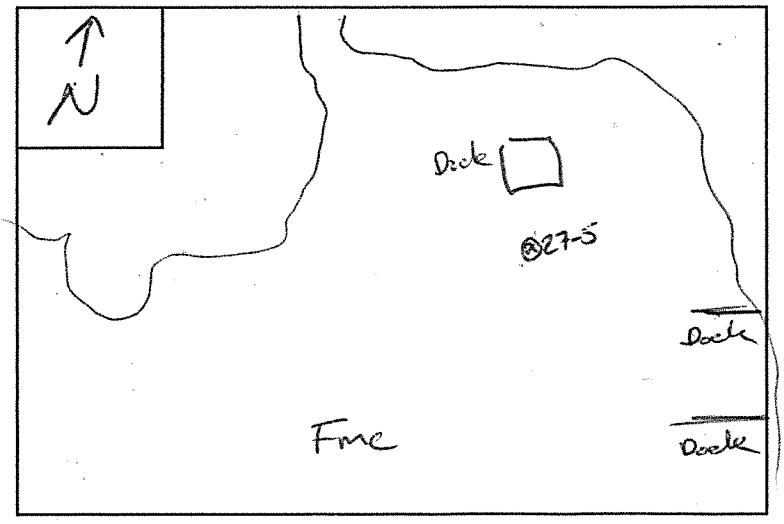
Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

* Note recovery from Push 1 settled out to 76" vs 78"

~~10~~ Ft tube used = 7'

Preparer's Initial: KCM



KCM 8-29-16

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ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization	Proj. #: 23912.000
Site Name:	Frog Mortar Creek	Task #: N/A
City:	Middle River State: MD	Date: 8/23/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1005 - 1030
Station ID #: ~~Z~~ Fmc-27-6
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph W

FIELD DATA

Water Depth: 3.1'
Tide: Ebb (Flood) Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-6 Coring Time: 1015 Penetration Depth: 3.5' Core Recovery: 3'
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: 27-6 Coring Time: 1025 Penetration Depth: 78" Core Recovery: ~~57"~~ KCM 60"
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #3

Core ID#: ____ ~~Coring Time:~~ ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

N/A

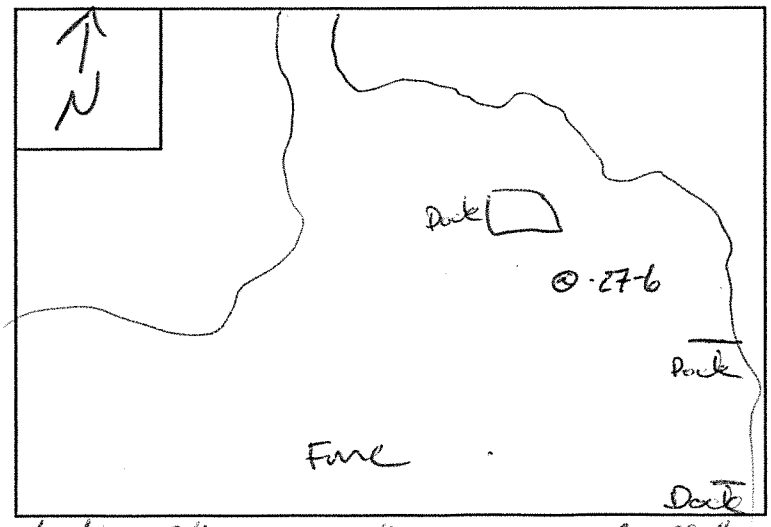
DGPS DATA

Operator: KCM
File Name: Fmc-27-6
Lat / (N): 607734.752
Lon / (E): 1479385.797
SVs 9

Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

First push hit refusal, possibly a rock. Only 3' recovery. Dumped contents and did 2nd push ~ 2' NE of push 1. Buried rossfelder but only recovered ~60". Hard sand pack @ bottom of core similar to 27-3 (other eastern push from 8-22-16). Recovery acceptable to Poc Tony. Ft tube used = 6.5'



Preparer's Initial: KCM

KCM 8-29-16

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization	Proj. #: 23912.000
Site Name:	Frog Mortar Creek	Task #: N/A
City:	Middle River State: MD	Date: 8/23/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1245 - 1300
Station ID #: FMC-27-7
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph NW

FIELD DATA

Water Depth: 4.4'
Tide: Ebb Flood Low Slack (High Slack) Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-7 Coring Time: 1250 Penetration Depth: ~~86~~ KCM 84" Core Recovery: 70" *
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

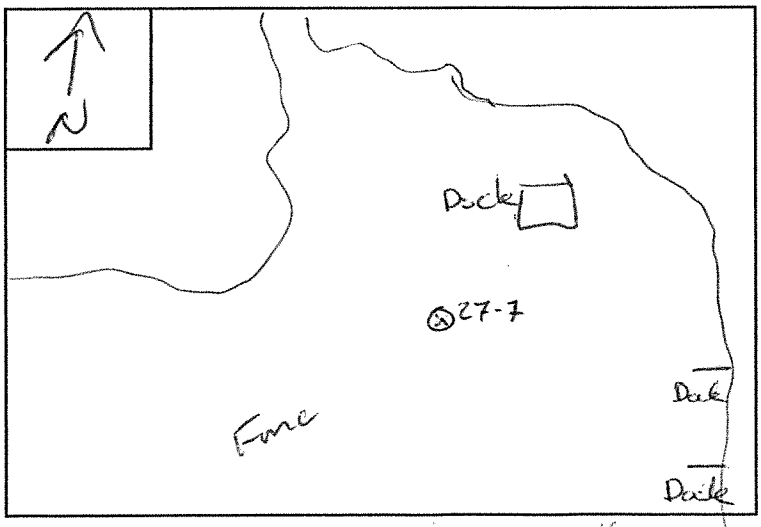
Operator: KCM
File Name: FMC-27-7
Lat / (N): 607714.580
Lon / (E): 1479347.165
SVs 10
Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

*Note recovery from Push 1 settled out to 68" vs. 70"

Ft tube used = 7'

Preparer's Initial: KCM



KCM 8-19-16

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization	Proj. #: 23912.000
Site Name:	Frog Mortar Creek	Task #: N/A
City: Middle River	State: MD	Date: 8/23/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1304-1315
Station ID #: Fmc-27-8
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph S

FIELD DATA

Water Depth: 4.4'
Tide: (Ebb) Flood Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-8 Coring Time: 1310 Penetration Depth: 78" Core Recovery: 70" *
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: N/A Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

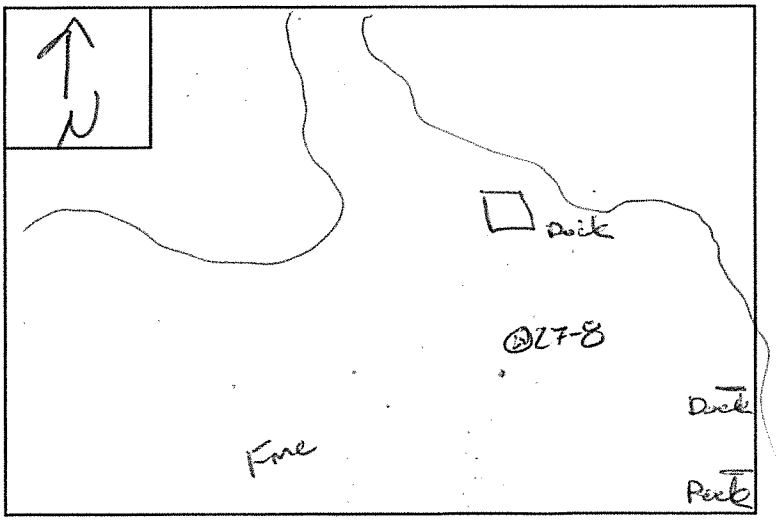
Operator: KCM
File Name: Fmc-27-8
Lat / (N): 607716.461
Lon / (E): 1479366.111
SVs 11
Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

*Note recovery from Push 1 settled out to 67" vs 70"

Ft. Tube used = 6.5'

Preparer's Initial: KCM



KCM 9-9-16

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

FIELD DATA SHEET

Project Name:	TTNUS Frog Mortar Creek Sediment Characterization		Proj. #: 23912.000
Site Name:	Frog Mortar Creek		Task #: N/A
City:	Middle River	State: MD	Date: 8/23/16

Field Team Leader(s): MKM
Field Team Safety Coordinator: MKM
Field Crew: KCM, BJA
Arrival/Departure Times: 1328 - 1345
Station ID #: ~~Z~~ FMC-27-9
Weather: (Clear) Cloudy Rain Other ____
Photos: Y (N) Roll No./Exposure No.: N/A
Wind Conditions (Speed/Direction): 0-5mph S

FIELD DATA

Water Depth: 4.0'
Tide: (Ebb) Flood Low Slack High Slack Other ____ NA
PID: NA Redox Potential: NA pH: NA H^2O Temp.: NA Air Temp.: NA

SAMPLE/PUSH #1

Core ID#: 27-9 Coring Time: 1335 Penetration Depth: 78" Core Recovery: ~~75"~~ KCM 72"
Sample Collection Method: Ponar / (Vibracore) / Piston Liner Material: (CAB) / Alum / SS / PE Core Diameter (OD): 2" (3") 4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Piston Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: ____ Coring Time: ____ Penetration Depth: ____ Core Recovery: ____
Sample Collection Method: Ponar / Vibracore / Manual Liner Material: CAB / Alum / SS / PE Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

NA

DGPS DATA

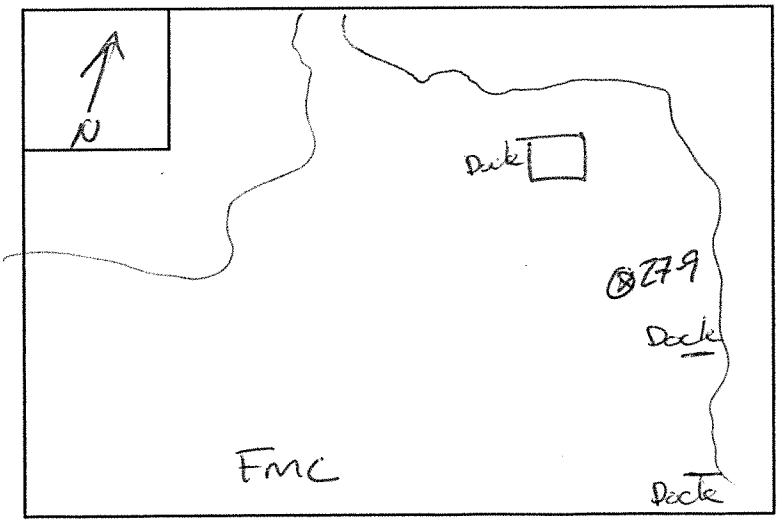
Operator: KCM
File Name: FMC-27-9
Lat / (N): 607715.509
Lon / (E): 1479385.680
SVs 10

Coordinate Units: Lat/Lon (Feet)
Datum: State Plane 1983 (Y) N Other ____
Proj.: Maryland
GPS : GeoXH 6000

COMMENTS / NOTES

Ft. Tube used = 6.5'

Preparer's Initial: KCM



KCM

PROJECT NUMBER	BORING NUMBER
23912.000	FMC-27-1 SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : TTNUS-Frog Mortar Creek Sediment LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : Normandeau Associates

DRILLING METHOD AND EQUIPMENT USED : Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core

WATER LEVEL : 4' START : 1100 END : 1125 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					very soft to soft, Chr. 1 3/N, olive	FMC-27-1-0-3 @1115
					Silt w/ fine grained sands and clay	FMC-27-1-12-15 @1117
						FMC-27-1-24-27 @1119
					very wet to wet	FMC-27-1-36-39 @1121
					low plasticity, cohesive	FMC-27-1-48-51 @1123
					no odor	FMC-27-1-60-63 @1125
					med to coarse sand lens @ 7.5"-12"	
68"						

NAI-Boring Log Form-6/05

QC'd 9/12/16

KCM 8-29-16

PROJECT NUMBER	BORING NUMBER	
23912.000	FMC-27-2	SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : **TTNUS-Frog Mortar Creek Sediment** LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : **Normandeau Associates**

DRILLING METHOD AND EQUIPMENT USED : **Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core**

WATER LEVEL : 3.2 START : 1400 END : 1427 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0"					very soft to soft, Chart 1 gley 3/N very wet to wet low plasticity, cohesive silt w/clay and trace fine sand slight hydrocarbon odor	FMC-27-2-0-3 @1417
						FMC-27-2-12-15 @1419
						FMC-27-2-24-27 @1421
						FMC-27-2-36-39 @1423
						FMC-27-2-48-51 @1425
						FMC-27-2-60-63 @1427
73"						

KEM 8-29-16

PROJECT NUMBER	BORING NUMBER	
23912.000	FMC-27-3	SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : TTNUS-Frog Mortar Creek Sediment LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : Normandeau Associates

DRILLING METHOD AND EQUIPMENT USED : Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core

WATER LEVEL : 2.0 START : 1430 END : 1450 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Very soft to soft, very wet to wet Chart 1 gley 2.5/10y	FMC-27-3-0-3 1442
						FMC-27-3-12-15 @ 1444
					- silt w/ fine to medium grained sands, trace clay	FMC-27-3-24-27 @ 1446
					- Slight hydrocarbon odor	FMC-27-3-36-39 @ 1448
					40-44" lens of high plasticity clay w/ fine grained sands	FMC-27-3-48-51 @ 1450
						FMC-27-3-60-63
					- low plast, cohesive (0-40, 44-56.5)	Dense sands caused refusal @ 56", no sample collected for 60-63"
56.5"						

QC: RCM 8-29-16

PROJECT NUMBER	BORING NUMBER
23912.000	FMC-27-4 SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : TTNUS-Frog Mortar Creek Sediment LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : Normandeau Associates

DRILLING METHOD AND EQUIPMENT USED : Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core

WATER LEVEL : 4.1 START : 1140 END : 1200 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					very soft to soft very wet to wet Clay w/silt and fine grained sands Chart 1 gley 3/10Y low plasticity, cohesive no odor	FMC-27-4-0-3 @ 1150 FMC-27-4-12-15 @ 1152 FMC-27-4-24-27 @ 1154 FMC-27-4-36-39 @ 1156 FMC-27-4-48-51 @ 1158 FMC-27-4-60-63 @ 1200
					7"-13.5" sand w/silt lens, fine to med sand	
64"						

KCM 8-29-16

PROJECT NUMBER	BORING NUMBER
23912.000	FMC-27-5 SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : **TTNUS-Frog Mortar Creek Sediment** LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : **Normandeau Associates**

DRILLING METHOD AND EQUIPMENT USED : **Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core**

WATER LEVEL : 4.2 START : 1120 END : 1140 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Very soft to soft, very wet to wet Chart 1 gley 2.5/10Y low plasticity, cohesive no odor clay w/silt and trace fine sand	FMC-27-5-0-3 @1130 FMC-27-5-12-15 @1132 FMC-27-5-24-27 @1134 FMC-27-5-36-39 @1136 FMC-27-5-48-51 @1138 FMC-27-5-60-63 @1140
76"						

NAI-Boring Log Form-6/05

KCM 8-29-16

PROJECT NUMBER	BORING NUMBER
23912.000	FMC-27-6 SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : TTNUS-Frog Mortar Creek Sediment LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : Normandeau Associates

DRILLING METHOD AND EQUIPMENT USED : Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core

WATER LEVEL : 3.1 START : 1100 END : 1120 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					very silt to silt very wet to wet sand w/silt and clay low plasticity, cohesive slight hydrocarbon odor Chart 1 gley, 3/N	FMC-27-6-0-3 e1106 FMC-27-6-12-15 e1108 FMC-27-6-24-27 e1110 FMC-27-6-36-39 e1112 FMC-27-6-48-51 e1114 FMC-27-6-56-59 e1116 ↙ boring depth 59" due to recovery/dense sands, therefore sample collected e56-59" instead of 60-63"
59"						

NAI-Boring Log Form-6/05

KCM 8-29-16

PROJECT NUMBER	BORING NUMBER
23912.000	FMC-27-7 SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : TTNUS-Frog Mortar Creek Sediment LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : Normandeau Associates

DRILLING METHOD AND EQUIPMENT USED : Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core

WATER LEVEL : 4.4 START : 1432 END : 1450 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					very soft to soft wet Chart 1 gley 4/10Y Clay w/silt and trace fine sands low plasticity, cohesive no odor	FMC-27-7-0-3 @ 1440 FMC-27-7-12-15 @ 1442 FMC-27-7-24-27 @ 1444 FMC-27-7-36-39 @ 1446 FMC-27-7-48-51 @ 1448 FMC-27-7-60-63 @ 1450
					fine to medium sand from 3'-11"	
68"						

QC: KEM 8-29-06

PROJECT NUMBER	BORING NUMBER
23912.000	FMC-27-8 SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : TTNUS-Frog Mortar Creek Sediment LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : Normandeau Associates

DRILLING METHOD AND EQUIPMENT USED : Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core

WATER LEVEL : 4.4 START : 1410 END : 1431 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					-very soft to soft -Very wet to wet - Chart 1 gley 3/N - clay w silt w/ trace fine grained sands -low plasticity, cohesive - no odor	FMC-27-8-03 c 1421 FMC-27-8-12-15 e 1423 FMC-27-8-24-27 e 1425 FMC-27-8-36-39 e 1427 FMC-27-8-48-51 e 1429 FMC-27-8-60-63 e 1431
67"						

NAI-Boring Log Form-6/05

icem 8-29-06

PROJECT NUMBER	BORING NUMBER	
23912.000	FMC-27-9	SHEET 1 OF 1

Normandeau Soil Boring Log

PROJECT : **TTNUS-Frog Mortar Creek Sediment** LOCATION : Middle River MD

ELEVATION : NA DRILLING CONTRACTOR : **Normandeau Associates**

DRILLING METHOD AND EQUIPMENT USED : **Vibracore/Ponar® Sediment Grab/Manually-pushed Piston Core**

WATER LEVEL : 4.0 START : 1450 END : 1510 LOGGER : MKM

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					very soft to soft very wet to wet chart 1 gley 2.5/10Y no odor clay w/silt and trace fine sand low plasticity cohesive	FMC-27-9-0-3 @ 1500 FMC-27-9-12-15 @ 1502 FMC-27-9-24-27 @ 1504 FMC-27-9-36-39 @ 1506 FMC-27-9-48-51 @ 1508 FMC-27-9-60-63 @ 1510
72"						

rcm 8-29-06

APPENDIX D—INVESTIGATION-DERIVED WASTE (IDW) DOCUMENTATION

Waste Identifcation and Classification Form

Remediation Project	FMC PCB Sediment Investigation	**State Generated**	MD
Description of Waste			
Generic Name	Residual sediment cores	**Solid, Liquid, Gas**	Solid and Liquid
		Additional Info.	
Date of Waste Generation	8/22/2016	**Ongoing (Y/N)?**	N

Description of Process Generating Waste

1 drum of nonhazardous sediment generated as part of the Frog Mortar Creek PCB Investigation around former sample location FMC-27.

Listed Waste ? (Y/N)	N	**F,K, P or U Codes**	

Justification for Waste Classification (attached supporting documentation)

Waste characterization sample collected and profiled as nonhazardous based on sample analysis. Drum removed from the site November 11, 2016.

Form completed by	Tony Apanavage
Date	11/1/2016

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 041603713418 SCPPW 11/2/2016 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: MDR000518760
2. Page 1 of: 1
3. Emergency Response Phone: (800)483-3719
4. Manifest Tracking Number: 009967396 FLE

5. Generator's Name and Mailing Address
Lockheed Martin
196 Chesapeake Park Plaza
Baltimore, MD 21220
Generator's Phone: (410) 666 4012 - ATTN: Mike Mushano

Generator's Site Address (if different than mailing address)
701 Wilson Point Road
Baltimore, MD 21220

6. Transporter 1 Company Name: Clean Harbors Environmental Service, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors of Baltimore Inc
1910 Russell Street
Baltimore, MD 21230
Facility's Phone: (410)244-0250

U.S. EPA ID Number: MDD980555189

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON DOT REGULATED MATERIAL, (SOIL, WATER)	001	DM	150	P	
	2. NON D.O.T. REGULATED, (NON-HAZ WATER)	001	DM	40	P	
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH1313119
2.CH673584

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Michael Mushano
Signature: Michael Mushano
Month 11 Day 11 Year 16

GENERATOR

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Lawrence J. Geho
Signature: Lawrence J. Geho
Month 11 Day 11 Year 16
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141	H141		

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name
Signature
Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. **GENERATOR'S INITIAL COPY**

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1313119

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # *MDR000518760* GENERATOR NAME: *Lockheed Martin*

GENERATOR CODE (Assigned by Clean Harbors) *LO2553* CITY *Baltimore* STATE/PROVINCE *MD* ZIP/POSTAL CODE *21220*

ADDRESS *701 Wilson Point Road* PHONE: (610) 656-4012

CUSTOMER CODE (Assigned by Clean Harbors) *TE0740* CUSTOMER NAME: *Tetra Tech Inc*

ADDRESS *20251 Century Boulevard Suite 200* CITY *Germantown* STATE/PROVINCE *MD* ZIP/POSTAL CODE *20874*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *MSA soil and water, trace PCB*

PROCESS GENERATING WASTE: IDW Waste

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? No

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- [x] LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
- % FREE LIQUID *45.00 - 49.00*
- % SETTLED SOLID *51.00 - 55.00*
- % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 [x] 2 3

% BY VOLUME (Approx.): TOP *49.00*; MIDDLE *0.00*; BOTTOM *51.00*

VISCOSITY (If liquid present)
- 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- [x] > 10,000

COLOR: *varies*

ODOR
- [x] NONE
- MILD
- STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- [x] >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- [x] > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- [x] > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- [x] Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
2-BUTANONE		--		Trace
ACETONE		--		Trace
AROCLOR 1254		--		Trace
ARSENIC		--		Trace
BARIUM		--		Trace
CADMIUM		--		Trace
CHROMIUM		--		Trace
LEAD		--		Trace
NAPHTHALENE		--		Trace
SELENIUM		--		Trace

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES [x] NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [x] NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [x] NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G19* SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W113*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ☑ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0		0.0150000	PPM	
D005	BARIUM	100.0		0.1600000	PPM	
D006	CADMIUM	1.0		0.2700000	PPM	
D007	CHROMIUM	5.0		0.0150000	PPM	
D008	LEAD	5.0		0.2700000	PPM	
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0		0.0060000	PPM	
D011	SILVER	5.0				☑

	VOLATILE COMPOUNDS	
D018	BENZENE	0.5
D019	CARBON TETRACHLORIDE	0.5
D021	CHLOROBENZENE	100.0
D022	CHLOROFORM	6.0
D028	1,2-DICHLOROETHANE	0.5
D029	1,1-DICHLOROETHYLENE	0.7
D035	METHYL ETHYL KETONE	200.0
D039	TETRACHLOROETHYLENE	0.7
D040	TRICHLOROETHYLENE	0.5
D043	VINYL CHLORIDE	0.2
	SEMI-VOLATILE COMPOUNDS	
D023	o-CRESOL	200.0
D024	m-CRESOL	200.0
D025	p-CRESOL	200.0
D026	CRESOL (TOTAL)	200.0
D027	1,4-DICHLOROBENZENE	7.5
D030	2,4-DINITROTOLUENE	0.13
D032	HEXACHLOROBENZENE	0.13
D033	HEXACHLOROBUTADIENE	0.5
D034	HEXACHLOROETHANE	3.0
D036	NITROBENZENE	2.0
D037	PENTACHLOROPHENOL	100.0
D038	PYRIDINE	5.0
D041	2,4,5-TRICHLOROPHENOL	400.0
D042	2,4,6-TRICHLOROPHENOL	2.0
	PESTICIDES AND HERBICIDES	
D012	ENDRIN	0.02
D013	LINDANE	0.4
D014	METHOXYCHLOR	10.0
D015	TOXAPHENE	0.5
D016	2,4-D	10.0
D017	2,4,5-TP (SILVEX)	1.0
D020	CHLORDANE	0.03
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

☑ NONE
< 1000 PPM
>= 1000 PPM

PCBs

NONE
☑ < 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	☑ OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: *Not subject to LDR*
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NON DOT REGULATED MATERIAL, (SOIL, WATER)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ☑ OTHER *varies*

☑ **CONTAINERIZED**

1-1 CONTAINERS/SHIPMENT

STORAGE CAPACITY: *1*

CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX ☑ DRUM

OTHER:

DRUM SIZE: *55*

BULK LIQUID

GALLONS/SHIPMENT: *0 Min -0 Max* GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: *0 Min - 0 Max*

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
Michael Mushens	Michael Mushens	Senior Staff ESH Engineer	10-20-16

Waste Identifcation and Classification Form

Remediation Project	FMC PCB Sediment Investigation	**State Generated**	MD
Description of Waste			
Generic Name	Decontamination water	**Solid, Liquid, Gas**	Liquid
		Additional Info.	
Date of Waste Generation	8/22/2016	**Ongoing (Y/N)?**	N

Description of Process Generating Waste

1 drum of nonhazardous decontamination water generated as part of the Frog Mortar Creek PCB Investigation around former sample location FMC-27.

Listed Waste ? (Y/N)	N	**F,K, P or U Codes**	

Justification for Waste Classification (attached supporting documentation)

Waste characterization sample collected and profiled as nonhazardous based on sample analysis. Drum removed from the site November 11, 2016.

Form completed by	Tony Apanavage
Date	11/1/2016

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1313119

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # ***MDR000518760*** GENERATOR NAME: ***Lockheed Martin***

GENERATOR CODE (Assigned by Clean Harbors) ***LO2553*** CITY ***Baltimore*** STATE/PROVINCE ***MD*** ZIP/POSTAL CODE ***21220***

ADDRESS ***701 Wilson Point Road*** PHONE: **(610) 656-4012**

CUSTOMER CODE (Assigned by Clean Harbors) ***TE0740*** CUSTOMER NAME: ***Tetra Tech Inc***

ADDRESS ***20251 Century Boulevard Suite 200*** CITY ***Germantown*** STATE/PROVINCE ***MD*** ZIP/POSTAL CODE ***20874***

B. WASTE DESCRIPTION

WASTE DESCRIPTION: ***MSA soil and water, trace PCB***

PROCESS GENERATING WASTE: **IDW Waste**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- [x] LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE

% FREE LIQUID ***45.00 - 49.00***
% SETTLED SOLID ***51.00 - 55.00***
% TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS
1 [x] 2 3

% BY VOLUME (Approx.)
TOP ***49.00***
MIDDLE ***0.00***
BOTTOM ***51.00***

VISCOSITY (If liquid present)
- 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- [x] > 10,000

COLOR
varies

ODOR
- [x] NONE
- MILD
- STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- [x] >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- [x] > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- [x] > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- [x] Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
2-BUTANONE		--		Trace
ACETONE		--		Trace
AROCLOR 1254		--		Trace
ARSENIC		--		Trace
BARIUM		--		Trace
CADMIUM		--		Trace
CHROMIUM		--		Trace
LEAD		--		Trace
NAPHTHALENE		--		Trace
SELENIUM		--		Trace

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES [x] NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [x] NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [x] NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. ***G19*** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. ***W113***

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge [✓] Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0		0.0150000	PPM	
D005	BARIUM	100.0		0.1600000	PPM	
D006	CADMIUM	1.0		0.2700000	PPM	
D007	CHROMIUM	5.0		0.0150000	PPM	
D008	LEAD	5.0		0.2700000	PPM	
D009	MERCURY	0.2				[✓]
D010	SELENIUM	1.0		0.0060000	PPM	
D011	SILVER	5.0				[✓]

	VOLATILE COMPOUNDS	
D018	BENZENE	0.5
D019	CARBON TETRACHLORIDE	0.5
D021	CHLOROBENZENE	100.0
D022	CHLOROFORM	6.0
D028	1,2-DICHLOROETHANE	0.5
D029	1,1-DICHLOROETHYLENE	0.7
D035	METHYL ETHYL KETONE	200.0
D039	TETRACHLOROETHYLENE	0.7
D040	TRICHLOROETHYLENE	0.5
D043	VINYL CHLORIDE	0.2
	SEMI-VOLATILE COMPOUNDS	
D023	o-CRESOL	200.0
D024	m-CRESOL	200.0
D025	p-CRESOL	200.0
D026	CRESOL (TOTAL)	200.0
D027	1,4-DICHLOROBENZENE	7.5
D030	2,4-DINITROTOLUENE	0.13
D032	HEXACHLOROBENZENE	0.13
D033	HEXACHLOROBUTADIENE	0.5
D034	HEXACHLOROETHANE	3.0
D036	NITROBENZENE	2.0
D037	PENTACHLOROPHENOL	100.0
D038	PYRIDINE	5.0
D041	2,4,5-TRICHLOROPHENOL	400.0
D042	2,4,6-TRICHLOROPHENOL	2.0
	PESTICIDES AND HERBICIDES	
D012	ENDRIN	0.02
D013	LINDANE	0.4
D014	METHOXYCHLOR	10.0
D015	TOXAPHENE	0.5
D016	2,4-D	10.0
D017	2,4,5-TP (SILVEX)	1.0
D020	CHLORDANE	0.03
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			[✓]
CHLORINE			[✓]
FLUORINE			[✓]
IODINE			[✓]
SULFUR			[✓]
POTASSIUM			[✓]
SODIUM			[✓]
AMMONIA			[✓]
CYANIDE AMENABLE			[✓]
CYANIDE REACTIVE			[✓]
CYANIDE TOTAL			[✓]
SULFIDE REACTIVE			[✓]

HOCs

[✓] NONE
< 1000 PPM
>= 1000 PPM

PCBs

NONE
[✓] < 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES [✓] NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES [✓] NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	[✓] OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: ***Not subject to LDR***
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NON DOT REGULATED MATERIAL, (SOIL, WATER)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ☑ OTHER ***varies***

☑ **CONTAINERIZED**

1-1 CONTAINERS/SHIPMENT

STORAGE CAPACITY: ***1***

CONTAINER TYPE:

PORTABLE TOTE TANK BOX|CARTON|CASE

CUBIC YARD BOX ☑ DRUM

OTHER:

DRUM SIZE: ***55***

BULK LIQUID

GALLONS/SHIPMENT: ***0 Min -0 Max*** GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: ***0 Min - 0 Max***

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
Michael Mushero	Michael Mushero	Senior Staff ESH Engineer	10-20-16

Addendum

D. COMPOSITION

CHEMICAL	MIN	--	MAX	UOM
SOIL	51.0000000	--	55.0000000	%
WATER	45.0000000	--	49.0000000	%

G. DOT/TDG INFORMATION

APPENDIX E—DATA-VALIDATION REPORTS

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **M. MARTIN** **DATE:** **OCTOBER 18, 2016**

FROM: **LEIGH A. CIOFANI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PCB HOMOLOGS**
FROG MORTAR CREEK - FULL REVIEW
SAMPLE DELIVERY GROUP (SDG) 680-129150-1

SAMPLES: 53 / Sediment / PCB Homologs

FMC-27-1-0-3	FMC-27-1-12-15	FMC-27-1-24-27
FMC-27-1-36-39	FMC-27-1-48-51	FMC-27-1-60-63
FMC-27-2-0-3	FMC-27-2-12-15	FMC-27-2-24-27
FMC-27-2-36-39	FMC-27-2-48-51	FMC-27-2-60-63
FMC-27-3-0-3	FMC-27-3-12-15	FMC-27-3-24-27
FMC-27-3-36-39	FMC-27-3-48-51	FMC-27-4-0-3
FMC-27-4-12-15	FMC-27-4-24-27	FMC-27-4-36-39
FMC-27-4-48-51	FMC-27-4-60-63	FMC-27-5-0-3
FMC-27-5-12-15	FMC-27-5-24-27	FMC-27-5-36-39
FMC-27-5-48-51	FMC-27-5-60-63	FMC-27-6-0-3
FMC-27-6-12-15	FMC-27-6-24-27	FMC-27-6-36-39
FMC-27-6-48-51	FMC-27-6-56-59	FMC-27-7-0-3
FMC-27-7-12-15	FMC-27-7-24-27	FMC-27-7-36-39
FMC-27-7-48-51	FMC-27-7-60-63	FMC-27-8-0-3
FMC-27-8-12-15	FMC-27-8-24-27	FMC-27-8-36-39
FMC-27-8-48-51	FMC-27-8-60-63	FMC-27-9-0-3
FMC-27-9-12-15	FMC-27-9-24-27	FMC-27-9-36-39
FMC-27-9-48-51	FMC-27-9-60-63	

OVERVIEW

The sample set for Frog Mortar Creek, SDG 680-129150-1 consists of fifty-three (53) sediment environmental samples. Samples were analyzed for polychlorinated biphenyl (PCB) homologs. No field duplicate pairs are included in this SDG. The samples were collected by Tetra Tech on August 22 and 23, 2016 and analyzed by TestAmerica. Analyses were conducted in accordance with EPA Method 680 analytical and reporting protocols.

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

MAJOR PROBLEMS

- None.

MINOR PROBLEMS

- The continuing calibration for PCB homologs performed on 08/27/16 at 17:01 on instrument CMSX had percent differences (%Ds) for monochlorobiphenyl, dichlorobiphenyl, trichlorobiphenyl, tetrachlorobiphenyl, pentachlorobiphenyl, hexachlorobiphenyl, nonachlorobiphenyl, and decachlorobiphenyl that exceeded the 20% quality control limit. Samples FMC-27-3-36-39, FMC-27-

6-0-3, FMC-27-6-12-15, FMC-27-6-36-39, FMC-27-6-48-51, FMC-27-5-0-3, FMC-27-5-12-15, FMC-27-5-24-27, FMC-27-5-36-39, FMC-27-5-48-51, and FMC-27-5-60-63 were associated with this calibration. Detected and non-detected results for these analytes were qualified as estimated (J and UJ, respectively) in the affected samples.

- The continuing calibration for PCB homologs performed on 08/29/16 at 22:32 on instrument CMSX had a %D for decachlorobiphenyl that exceeded the 20% quality control limit. Samples FMC-27-8-60-63, FMC-27-7-0-3, FMC-27-7-12-15, FMC-27-7-24-27, FMC-27-7-36-39, FMC-27-7-48-51, FMC-27-7-60-63, FMC-27-9-12-15, FMC-27-9-24-27, FMC-27-9-36-39, FMC-27-9-60-63, FMC-27-2-24-27, and FMC-27-6-56-59 were associated with this calibration. Non-detected results for decachlorobiphenyl were qualified as estimated (UJ) in the affected samples.

- The continuing calibration for PCB homologs performed on 08/30/16 at 10:16 on instrument CMSX had a %D for decachlorobiphenyl that exceeded the 20% quality control limit. Samples FMC-27-4-0-3, FMC-27-4-12-15, FMC-27-4-24-27, FMC-27-4-36-39, FMC-27-4-48-51, FMC-27-4-60-63, FMC-27-8-0-3, FMC-27-8-12-15, FMC-27-8-24-27, FMC-27-8-36-39, and FMC-27-9-0-3 were associated with this calibration. Non-detected results for decachlorobiphenyl were qualified as estimated (UJ) in the affected samples.

- The continuing calibration for PCB homologs performed on 08/30/16 at 20:22 on instrument CMSX had a %D for decachlorobiphenyl that exceeded the 20% quality control limit. Samples FMC-27-4-0-3, FMC-27-4-12-15, FMC-27-4-24-27, FMC-27-4-36-39, FMC-27-4-48-51, FMC-27-4-60-63, FMC-27-8-0-3, FMC-27-8-12-15, FMC-27-8-24-27, FMC-27-8-36-39, and FMC-27-9-0-3 were associated with this calibration. Non-detected results for decachlorobiphenyl were qualified as estimated (UJ) in the affected samples.

- The continuing calibration for PCB homologs performed on 08/31/16 at 11:09 on instrument CMSX had a %D for nonachlorobiphenyl that exceeded the 20% quality control limit. Samples FMC-27-3-48-51, FMC-27-6-24-27, FMC-27-9-48-51, and FMC-27-8-48-51 were associated with this calibration. Non-detected results for nonachlorobiphenyl were qualified as estimated (UJ) in the affected samples.

- The continuing calibration for PCB homologs performed on 08/31/16 at 14:08 on instrument CMSX had a %D for nonachlorobiphenyl that exceeded the 20% quality control limit. Samples FMC-27-3-48-51, FMC-27-6-24-27, FMC-27-9-48-51, and FMC-27-8-48-51 were associated with this calibration. Non-detected results for nonachlorobiphenyl were qualified as estimated (UJ) in the affected samples.

- The laboratory control sample (LCS) 680-447321/22-A associated with preparation batch 680-447321 had a percent recovery (%R) for nonachlorobiphenyl that was greater than laboratory quality control limits. Samples FMC-27-1-0-3, FMC-27-1-12-15, FMC-27-1-24-27, FMC-27-1-36-39, FMC-27-1-48-51, FMC-27-1-60-63, FMC-27-2-0-3, FMC-27-2-12-15, FMC-27-2-36-39, FMC-27-2-48-51, FMC-27-2-60-63, FMC-27-3-0-3, FMC-27-3-12-15, FMC-27-3-24-27, FMC-27-3-36-39, FMC-27-6-0-3, FMC-27-6-12-15, FMC-27-2-24-27, FMC-27-3-48-51, and FMC-27-6-24-27 were associated with this LCS. The detected result for nonachlorobiphenyl in sample FMC-27-1-48-51 was qualified as estimated (J). No action was necessary for the associated non-detected results.

- The internal standard areas were greater than the laboratory upper quality control limits for both phenanthrene-d10 and chrysene-d12 in samples FMC-27-8-60-63, FMC-27-9-12-15, and FMC-27-9-24-27. Additionally, the internal standard areas were greater than the laboratory upper quality control limits for chrysene-d12 in sample FMC-27-7-24-27 and for phenanthrene-d10 in sample FMC-27-4-36-39. All detected results in samples FMC-27-8-60-63, FMC-27-9-12-15, FMC-27-9-24-27, and FMC-27-

7-24-27 were qualified as estimated low (J-) (or estimated [J] in the case of conflicting noncompliances). No action was taken for sample FMC-27-4-36-39, as detected results in this sample were not associated with the noncompliant internal standard, phenanthrene-d10.

- Detected results below the RL but above the method detection limit (MDL) were qualified as estimated (J).

NOTES

Non-detected results were reported to the MDL.

Samples FMC-27-2-24-27, FMC-27-3-48-51, FMC-27-6-24-27, FMC-27-6-56-59, FMC-27-9-0-3, and FMC-27-9-48-51 were analyzed at a dilution factor of 5.

The matrix spike (MS)/matrix spike duplicate (MSD) performed on sample FMC-27-1-0-3 had MS and MSD %Rs for nonachlorobiphenyl that were greater than laboratory quality control limits. The %R for nonachlorobiphenyl in the associated LCS (680-447321/22-A) was also greater than laboratory quality control limits. No action was necessary because the result for nonachlorobiphenyl was non-detected in the original unspiked sample, FMC-27-1-0-3.

The LCS 680-447324/21-A associated with preparation batch 680-447324 had a %R for nonachlorobiphenyl that was greater than laboratory quality control limits. Samples FMC-27-6-36-39, FMC-27-6-48-51, FMC-27-5-0-3, FMC-27-5-12-15, FMC-27-5-24-27, FMC-27-5-36-39, FMC-27-5-48-51, FMC-27-5-60-63, FMC-27-6-56-59, FMC-27-4-0-3, FMC-27-4-12-15, FMC-27-4-24-27, FMC-27-4-36-39, FMC-27-4-48-51, FMC-27-4-60-63, FMC-27-8-0-3, FMC-27-8-12-15, FMC-27-8-24-27, FMC-27-8-36-39, and FMC-27-8-48-51 were associated with this LCS. No action was necessary because results for nonachlorobiphenyl were non-detected in the associated samples.

The LCS 680-447398/22-A associated with batch 680-447398/21-A had a %R for nonachlorobiphenyl that was greater than the laboratory quality control limits. Samples FMC-27-8-60-63, FMC-27-7-0-3, FMC-27-7-12-15, FMC-27-7-24-27, FMC-27-7-36-39, FMC-27-7-48-51, FMC-27-7-60-63, FMC-27-9-12-15, FMC-27-9-24-27, FMC-27-9-36-39, FMC-27-9-60-63, FMC-27-9-0-3, and FMC-27-9-48-51 were associated with this LCS. No action was necessary because results for nonachlorobiphenyl were non-detected in the associated samples.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several detected and non-detected results were qualified as estimated due to calibration noncompliance. One detected result was qualified due to LCS %R noncompliance. Some detected results were qualified due to internal standard noncompliance.

Other Factors Affecting Data Quality: Detected results between the MDL and RL were qualified as estimated.

The data for these analyses were reviewed with reference to the USEPA “National Functional Guidelines for Superfund Organic Methods Data Review” (August 2014). The text of this report has been formulated to address only those problem areas affecting data quality.

Leigh A. Ciofani

Tetra Tech
Leigh A. Ciofani
Environmental Scientist/Data Validator

Joseph A. Samchuck

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

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

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

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 x IDL for inorganics and <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
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 07804	NSAMPLE	FMC-27-1-0-3			FMC-27-1-12-15			FMC-27-1-24-27			FMC-27-1-36-39		
SDG: 680-129150-1	LAB_ID	680-129150-1			680-129150-2			680-129150-3			680-129150-4		
FRACTION: PCB	SAMP_DATE	8/22/2016			8/22/2016			8/22/2016			8/22/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	47.0			50.4			47.3			48.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.8	U		1.6	U		1.7	U		1.7	U	
DICHLOROBIPHENYLS		0.75	U		0.69	U		0.74	U		0.73	U	
HEPTACHLOROBIPHENYLS		1.1	U		0.99	U		1.7	J	P	1.1	J	P
HEXACHLOROBIPHENYLS		16			5.4	J	P	11	J	P	7.2	J	P
MONOCHLOROBIPHENYLS		0.4	U		0.38	U		0.4	U		0.4	U	
NONACHLOROBIPHENYLS		7	U		6.5	U		6.9	U		6.9	U	
OCTACHLOROBIPHENYLS		1.1	U		1.1	U		1.1	U		1.1	U	
PENTACHLOROBIPHENYLS		26			5.8	J	P	14			13	J	P
TETRACHLOROBIPHENYLS		0.79	U		0.73	U		0.78	U		5.5	J	P
TRICHLOROBIPHENYLS		0.36	U		0.34	U		0.36	U		0.35	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-1-48-51			FMC-27-1-60-63			FMC-27-2-0-3			FMC-27-2-12-15		
SDG: 680-129150-1	LAB_ID	680-129150-5			680-129150-6			680-129150-7			680-129150-8		
FRACTION: PCB	SAMP_DATE	8/22/2016			8/22/2016			8/22/2016			8/22/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	50.8			54.5			47.3			47.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		4.4	J	P	1.5	U		1.7	U		1.7	U	
DICHLOROBIPHENYLS		0.68	U		0.64	U		0.74	U		0.74	U	
HEPTACHLOROBIPHENYLS		30			1.4	J	P	3.1	J	P	1.1	U	
HEXACHLOROBIPHENYLS		19			8.1	J	P	5.7	J	P	5.8	J	P
MONOCHLOROBIPHENYLS		0.37	U		0.35	U		0.4	U		0.4	U	
NONACHLOROBIPHENYLS		53	J	E	6	U		7	U		7	U	
OCTACHLOROBIPHENYLS		62			0.97	U		1.1	U		1.1	U	
PENTACHLOROBIPHENYLS		21			18			8.2	J	P	8.3	J	P
TETRACHLOROBIPHENYLS		0.72	U		0.77	J	P	0.78	U		0.78	U	
TRICHLOROBIPHENYLS		0.33	U		0.31	U		0.36	U		0.36	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-2-24-27			FMC-27-2-36-39			FMC-27-2-48-51			FMC-27-2-60-63		
SDG: 680-129150-1	LAB_ID	680-129150-9			680-129150-10			680-129150-11			680-129150-12		
FRACTION: PCB	SAMP_DATE	8/22/2016			8/22/2016			8/22/2016			8/22/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	45.3			47.1			48.2			52.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		9.1	UJ	C	1.8	U		1.7	U		1.6	U	
DICHLOROBIPHENYLS		3.8	U		0.74	U		0.72	U		0.67	U	
HEPTACHLOROBIPHENYLS		5.5	U		3.5	J	P	3.8	J	P	0.96	U	
HEXACHLOROBIPHENYLS		25	J	P	14			6	J	P	5.1	J	P
MONOCHLOROBIPHENYLS		2.1	U		0.4	U		0.39	U		0.36	U	
NONACHLOROBIPHENYLS		36	U		7	U		6.8	U		6.3	U	
OCTACHLOROBIPHENYLS		5.8	U		1.1	U		1.1	U		1	U	
PENTACHLOROBIPHENYLS		5.9	J	P	19			17			4.6	J	P
TETRACHLOROBIPHENYLS		4.1	U		0.79	U		1.7	J	P	2.7	J	P
TRICHLOROBIPHENYLS		1.9	U		0.36	U		0.35	U		0.33	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-3-0-3			FMC-27-3-12-15			FMC-27-3-24-27			FMC-27-3-36-39		
SDG: 680-129150-1	LAB_ID	680-129150-13			680-129150-14			680-129150-15			680-129150-16		
FRACTION: PCB	SAMP_DATE	8/22/2016			8/22/2016			8/22/2016			8/22/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	62.9			66.5			72.3			70.9		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.3	U		1.2	U		1.1	U		1.2	UJ	C
DICHLOROBIPHENYLS		0.56	U		0.52	U		0.48	U		0.49	UJ	C
HEPTACHLOROBIPHENYLS		3.2	J	P	2.7	J	P	8.5	J	P	35		
HEXACHLOROBIPHENYLS		16			13			31			66	J	C
MONOCHLOROBIPHENYLS		0.3	U		0.28	U		0.68	J	P	0.27	UJ	C
NONACHLOROBIPHENYLS		5.2	U		4.9	U		4.6	U		4.6	UJ	C
OCTACHLOROBIPHENYLS		0.84	U		0.79	U		0.73	U		1.9	J	P
PENTACHLOROBIPHENYLS		22			26			41			53	J	C
TETRACHLOROBIPHENYLS		0.59	U		2.7	J	P	4.5	J	P	20	J	C
TRICHLOROBIPHENYLS		0.27	U		0.25	U		0.23	U		2.3	J	CP

PROJ_NO: 07804	NSAMPLE	FMC-27-3-48-51			FMC-27-4-0-3			FMC-27-4-12-15			FMC-27-4-24-27		
SDG: 680-129150-1	LAB_ID	680-129150-17			680-129150-30			680-129150-31			680-129150-32		
FRACTION: PCB	SAMP_DATE	8/22/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	61.3			47.9			47.9			61.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		6.7	U		1.7	UJ	C	1.7	UJ	C	1.4	UJ	C
DICHLOROBIPHENYLS		2.8	U		0.73	U		0.73	U		0.57	U	
HEPTACHLOROBIPHENYLS		17	J	P	23			2.7	J	P	1.2	J	P
HEXACHLOROBIPHENYLS		88			50			11	J	P	6.5	J	P
MONOCHLOROBIPHENYLS		1.5	U		0.4	U		0.4	U		0.31	U	
NONACHLOROBIPHENYLS		27	UJ	C	6.9	U		6.9	U		5.4	U	
OCTACHLOROBIPHENYLS		4.3	U		1.8	J	P	1.1	U		0.86	U	
PENTACHLOROBIPHENYLS		95			36			10	J	P	10	J	P
TETRACHLOROBIPHENYLS		81			2.2	J	P	2.8	J	P	0.6	U	
TRICHLOROBIPHENYLS		1.4	U		0.35	U		0.35	U		0.28	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-4-36-39			FMC-27-4-48-51			FMC-27-4-60-63			FMC-27-5-0-3		
SDG: 680-129150-1	LAB_ID	680-129150-33			680-129150-34			680-129150-35			680-129150-24		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	50.8			51.5			55.0			42.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.6	UJ	C	1.6	UJ	C	1.5	UJ	C	2	UJ	C
DICHLOROBIPHENYLS		0.69	U		0.68	U		0.63	U		0.83	UJ	C
HEPTACHLOROBIPHENYLS		0.98	U		2.9	J	P	3.4	J	P	4.1	J	P
HEXACHLOROBIPHENYLS		5.8	J	P	15			18			19	J	C
MONOCHLOROBIPHENYLS		0.37	U		0.37	U		0.34	U		0.45	UJ	C
NONACHLOROBIPHENYLS		6.5	U		6.4	U		6	U		7.8	UJ	C
OCTACHLOROBIPHENYLS		1	U		1	U		0.96	U		1.3	U	
PENTACHLOROBIPHENYLS		7	J	P	15			25			22	J	C
TETRACHLOROBIPHENYLS		0.73	U		1.7	J	P	9	J	P	1.2	J	CP
TRICHLOROBIPHENYLS		0.33	U		0.33	U		0.31	U		0.4	UJ	C

PROJ_NO: 07804	NSAMPLE	FMC-27-5-12-15			FMC-27-5-24-27			FMC-27-5-36-39			FMC-27-5-48-51		
SDG: 680-129150-1	LAB_ID	680-129150-25			680-129150-26			680-129150-27			680-129150-28		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	41.8			42.5			41.3			47.7		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		2	UJ	C	1.9	UJ	C	2	UJ	C	1.7	UJ	C
DICHLOROBIPHENYLS		0.83	UJ	C	0.82	UJ	C	0.84	UJ	C	0.73	UJ	C
HEPTACHLOROBIPHENYLS		1.2	U		1.2	U		1.3	J	P	1.3	J	P
HEXACHLOROBIPHENYLS		6.2	J	CP	6.6	J	CP	14	J	CP	14	J	C
MONOCHLOROBIPHENYLS		0.45	UJ	C	0.45	UJ	C	0.46	UJ	C	0.4	UJ	C
NONACHLOROBIPHENYLS		7.8	UJ	C	7.7	UJ	C	7.9	UJ	C	6.9	UJ	C
OCTACHLOROBIPHENYLS		1.3	U		1.2	U		1.3	U		1.1	U	
PENTACHLOROBIPHENYLS		4.1	J	CP	6.7	J	CP	22	J	C	18	J	C
TETRACHLOROBIPHENYLS		0.88	UJ	C	0.87	UJ	C	0.89	UJ	C	0.77	UJ	C
TRICHLOROBIPHENYLS		0.4	UJ	C	0.4	UJ	C	0.41	UJ	C	0.35	UJ	C

PROJ_NO: 07804	NSAMPLE	FMC-27-5-60-63			FMC-27-6-0-3			FMC-27-6-12-15			FMC-27-6-24-27		
SDG: 680-129150-1	LAB_ID	680-129150-29			680-129150-18			680-129150-19			680-129150-20		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	52.9			59.3			65.0			61.3		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.6	UJ	C	1.4	UJ	C	1.3	UJ	C	6.7	U	
DICHLOROBIPHENYLS		0.66	UJ	C	0.59	UJ	C	0.54	UJ	C	2.8	U	
HEPTACHLOROBIPHENYLS		3	J	P	91			0.77	U		26	J	P
HEXACHLOROBIPHENYLS		14	J	C	140	J	C	12	J	C	47	J	P
MONOCHLOROBIPHENYLS		0.36	UJ	C	0.32	UJ	C	0.29	UJ	C	1.5	U	
NONACHLOROBIPHENYLS		6.2	UJ	C	5.5	UJ	C	5.1	UJ	C	27	UJ	C
OCTACHLOROBIPHENYLS		1	U		8.4	J	P	0.81	U		4.3	U	
PENTACHLOROBIPHENYLS		26	J	C	120	J	C	18	J	C	48	J	P
TETRACHLOROBIPHENYLS		6.2	J	CP	14	J	C	0.57	UJ	C	39	J	P
TRICHLOROBIPHENYLS		0.32	UJ	C	0.29	UJ	C	0.26	UJ	C	1.4	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-6-36-39			FMC-27-6-48-51			FMC-27-6-56-59			FMC-27-7-0-3		
SDG: 680-129150-1	LAB_ID	680-129150-21			680-129150-22			680-129150-23			680-129150-42		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	61.0			73.0			77.0			61.5		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.4	UJ	C	1.1	UJ	C	5.4	UJ	C	1.3	UJ	C
DICHLOROBIPHENYLS		0.57	UJ	C	0.48	UJ	C	2.3	U		0.57	U	
HEPTACHLOROBIPHENYLS		10	J	P	14			210			0.81	U	
HEXACHLOROBIPHENYLS		48	J	C	31	J	C	350			9.9	J	P
MONOCHLOROBIPHENYLS		0.31	UJ	C	0.26	UJ	C	1.2	U		0.31	U	
NONACHLOROBIPHENYLS		5.4	UJ	C	4.5	UJ	C	21	U		5.4	U	
OCTACHLOROBIPHENYLS		0.87	U		0.72	U		14	J	P	0.86	U	
PENTACHLOROBIPHENYLS		59	J	C	21	J	C	340			16		
TETRACHLOROBIPHENYLS		25	J	C	130	J	C	480			0.6	U	
TRICHLOROBIPHENYLS		3.9	J	CP	0.23	UJ	C	8.9	J	P	0.28	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-7-12-15			FMC-27-7-24-27			FMC-27-7-36-39			FMC-27-7-48-51		
SDG: 680-129150-1	LAB_ID	680-129150-43			680-129150-44			680-129150-45			680-129150-46		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	44.0			47.3			48.9			60.2		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.9	UJ	C	1.8	UJ	C	1.7	UJ	C	1.4	UJ	C
DICHLOROBIPHENYLS		0.79	U		0.74	U		0.71	U		0.58	U	
HEPTACHLOROBIPHENYLS		1.1	U		1.1	U		1	U		16	J	P
HEXACHLOROBIPHENYLS		2.9	J	P	3.6	J	NP	4.2	J	P	58		
MONOCHLOROBIPHENYLS		0.43	U		0.4	U		0.39	U		0.31	U	
NONACHLOROBIPHENYLS		7.5	U		7	U		6.7	U		5.5	U	
OCTACHLOROBIPHENYLS		1.2	U		1.1	U		1.1	U		1.1	J	P
PENTACHLOROBIPHENYLS		4.1	J	P	7.2	J	NP	4.4	J	P	65		
TETRACHLOROBIPHENYLS		0.84	U		0.78	U		1.3	J	P	48		
TRICHLOROBIPHENYLS		0.39	U		0.36	U		0.35	U		8		

PROJ_NO: 07804	NSAMPLE	FMC-27-7-60-63			FMC-27-8-0-3			FMC-27-8-12-15			FMC-27-8-24-27		
SDG: 680-129150-1	LAB_ID	680-129150-47			680-129150-36			680-129150-37			680-129150-38		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	54.2			40.3			36.6			39.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.5	UJ	C	2.1	UJ	C	2.3	UJ	C	2.1	UJ	C
DICHLOROBIPHENYLS		0.64	U		0.87	U		0.95	U		0.89	U	
HEPTACHLOROBIPHENYLS		0.92	U		1.2	U		1.5	J	P	1.3	U	
HEXACHLOROBIPHENYLS		0.61	U		2.3	J	P	13	J	P	11	J	P
MONOCHLOROBIPHENYLS		0.35	U		0.47	U		0.52	U		0.49	U	
NONACHLOROBIPHENYLS		6.1	U		8.2	U		9	U		8.4	U	
OCTACHLOROBIPHENYLS		0.97	U		1.3	U		1.4	U		1.4	U	
PENTACHLOROBIPHENYLS		0.62	U		5.6	J	P	16	J	P	16	J	P
TETRACHLOROBIPHENYLS		0.68	U		0.92	U		1	U		0.95	U	
TRICHLOROBIPHENYLS		0.31	U		0.42	U		1.1	J	P	0.43	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-8-36-39			FMC-27-8-48-51			FMC-27-8-60-63			FMC-27-9-0-3		
SDG: 680-129150-1	LAB_ID	680-129150-39			680-129150-40			680-129150-41			680-129150-48		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	42.8			49.4			50.3			43.6		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.9	UJ	C	1.7	U		1.6	UJ	C	9.5	UJ	C
DICHLOROBIPHENYLS		0.81	U		0.71	U		0.69	U		4	U	
HEPTACHLOROBIPHENYLS		1.2	J	P	3	J	P	1.9	J	NP	5.7	U	
HEXACHLOROBIPHENYLS		9.1	J	P	14			10	J	NP	3.8	U	
MONOCHLOROBIPHENYLS		0.44	U		0.89	J	P	0.38	U		2.2	U	
NONACHLOROBIPHENYLS		7.7	U		6.7	UJ	C	6.5	U		38	U	
OCTACHLOROBIPHENYLS		1.2	U		1.1	U		1	U		6	U	
PENTACHLOROBIPHENYLS		13	J	P	13	J	P	18	J-	N	20	J	P
TETRACHLOROBIPHENYLS		4.3	J	P	0.75	U		5.5	J	NP	4.2	U	
TRICHLOROBIPHENYLS		0.39	U		0.34	U		0.34	U		1.9	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-9-12-15			FMC-27-9-24-27			FMC-27-9-36-39			FMC-27-9-48-51		
SDG: 680-129150-1	LAB_ID	680-129150-49			680-129150-50			680-129150-51			680-129150-52		
FRACTION: PCB	SAMP_DATE	8/23/2016			8/23/2016			8/23/2016			8/23/2016		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	41.2			45.4			46.5			49.1		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DECACHLOROBIPHENYL		2	UJ	C	1.8	UJ	C	1.8	UJ	C	8.4	U	
DICHLOROBIPHENYLS		0.85	U		0.77	U		0.75	U		3.6	U	
HEPTACHLOROBIPHENYLS		1.2	U		1.3	J	NP	1.1	U		5.1	U	
HEXACHLOROBIPHENYLS		9.4	J	NP	13	J	NP	16			13	J	P
MONOCHLOROBIPHENYLS		0.46	U		0.42	U		0.41	U		1.9	U	
NONACHLOROBIPHENYLS		8	U		7.2	U		7.1	U		34	UJ	C
OCTACHLOROBIPHENYLS		1.3	U		1.2	U		1.1	U		5.4	U	
PENTACHLOROBIPHENYLS		18	J-	N	18	J-	N	16			31	J	P
TETRACHLOROBIPHENYLS		2.1	J	NP	0.81	U		5.4	J	P	14	J	P
TRICHLOROBIPHENYLS		0.41	U		0.37	U		0.36	U		1.7	U	

PROJ_NO: 07804	NSAMPLE	FMC-27-9-60-63		
SDG: 680-129150-1	LAB_ID	680-129150-53		
FRACTION: PCB	SAMP_DATE	8/23/2016		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	54.7		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
DECACHLOROBIPHENYL		1.5	UJ	C
DICHLOROBIPHENYLS		0.64	U	
HEPTACHLOROBIPHENYLS		6.6	J	P
HEXACHLOROBIPHENYLS		15		
MONOCHLOROBIPHENYLS		0.34	U	
NONACHLOROBIPHENYLS		6	U	
OCTACHLOROBIPHENYLS		0.96	U	
PENTACHLOROBIPHENYLS		32		
TETRACHLOROBIPHENYLS		37		
TRICHLOROBIPHENYLS		0.31	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-1-0-3
Lab Sample ID: 680-129150-1
Matrix: Solid
Lab File ID: Xh2610.D
Analysis Method: 680
Date Collected: 08/22/2016 11:15
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.00(g)
Date Analyzed: 08/26/2016 20:44
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 53.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.8	U	36	1.8
25512-42-9	Dichlorobiphenyl	0.75	U	7.0	0.75
28655-71-2	Heptachlorobiphenyl	1.1	U	21	1.1
26601-64-9	Hexachlorobiphenyl	16		14	0.70
27323-18-8	Monochlorobiphenyl	0.40	U	7.0	0.40
53742-07-7	Nonachlorobiphenyl	7.0	U F1 *	36	7.0
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	26		14	0.72
26914-33-0	Tetrachlorobiphenyl	0.79	U	14	0.79
25323-68-6	Trichlorobiphenyl	0.36	U	7.0	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	67		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-1-12-15
Lab Sample ID: 680-129150-2
Matrix: Solid
Lab File ID: Xh2611.D
Analysis Method: 680
Date Collected: 08/22/2016 11:17
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.03(g)
Date Analyzed: 08/26/2016 21:13
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 49.6
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.6	U	34	1.6
25512-42-9	Dichlorobiphenyl	0.69	U	6.5	0.69
28655-71-2	Heptachlorobiphenyl	0.99	U	20	0.99
26601-64-9	Hexachlorobiphenyl	5.4	J	13	0.65
27323-18-8	Monochlorobiphenyl	0.38	U	6.5	0.38
53742-07-7	Nonachlorobiphenyl	6.5	U *	34	6.5
55722-26-4	Octachlorobiphenyl	1.1	U	20	1.1
25429-29-2	Pentachlorobiphenyl	5.8	J	13	0.67
26914-33-0	Tetrachlorobiphenyl	0.73	U	13	0.73
25323-68-6	Trichlorobiphenyl	0.34	U	6.5	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	57		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-1-24-27
Lab Sample ID: 680-129150-3
Matrix: Solid
Lab File ID: Xh2612.D
Analysis Method: 680
Date Collected: 08/22/2016 11:19
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.15(g)
Date Analyzed: 08/26/2016 21:42
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	36	1.7
25512-42-9	Dichlorobiphenyl	0.74	U	6.9	0.74
28655-71-2	Heptachlorobiphenyl	1.7	J	21	1.1
26601-64-9	Hexachlorobiphenyl	11	J	14	0.69
27323-18-8	Monochlorobiphenyl	0.40	U	6.9	0.40
53742-07-7	Nonachlorobiphenyl	6.9	U *	36	6.9
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	14		14	0.72
26914-33-0	Tetrachlorobiphenyl	0.78	U	14	0.78
25323-68-6	Trichlorobiphenyl	0.36	U	6.9	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	71		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-1-36-39
Lab Sample ID: 680-129150-4
Matrix: Solid
Lab File ID: Xh2613.D
Analysis Method: 680
Date Collected: 08/22/2016 11:21
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.00(g)
Date Analyzed: 08/26/2016 22:11
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	35	1.7
25512-42-9	Dichlorobiphenyl	0.73	U	6.9	0.73
28655-71-2	Heptachlorobiphenyl	1.1	J	21	1.0
26601-64-9	Hexachlorobiphenyl	7.2	J	14	0.69
27323-18-8	Monochlorobiphenyl	0.40	U	6.9	0.40
53742-07-7	Nonachlorobiphenyl	6.9	U *	35	6.9
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	13	J	14	0.71
26914-33-0	Tetrachlorobiphenyl	5.5	J	14	0.77
25323-68-6	Trichlorobiphenyl	0.35	U	6.9	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	62		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-129150-1

SDG No.:

Client Sample ID: FMC-27-1-48-51 | Lab Sample ID: 680-129150-5

Matrix: Solid | Lab File ID: Xh2614.D

Analysis Method: 680 | Date Collected: 08/22/2016 11:23

Extract. Method: 680 | Date Extracted: 08/26/2016 11:03

Sample wt/vol: 30.20(g) | Date Analyzed: 08/26/2016 22:39

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 49.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 447433 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	4.4	J	33	1.6
25512-42-9	Dichlorobiphenyl	0.68	U	6.4	0.68
28655-71-2	Heptachlorobiphenyl	30		20	0.98
26601-64-9	Hexachlorobiphenyl	19		13	0.64
27323-18-8	Monochlorobiphenyl	0.37	U	6.4	0.37
53742-07-7	Nonachlorobiphenyl	53	*	33	6.4
55722-26-4	Octachlorobiphenyl	62		20	1.0
25429-29-2	Pentachlorobiphenyl	21		13	0.66
26914-33-0	Tetrachlorobiphenyl	0.72	U	13	0.72
25323-68-6	Trichlorobiphenyl	0.33	U	6.4	0.33

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	66		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-1-60-63
Lab Sample ID: 680-129150-6
Matrix: Solid
Lab File ID: Xh2615.D
Analysis Method: 680
Date Collected: 08/22/2016 11:25
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.04(g)
Date Analyzed: 08/26/2016 23:08
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 45.5
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.5	U	31	1.5
25512-42-9	Dichlorobiphenyl	0.64	U	6.0	0.64
28655-71-2	Heptachlorobiphenyl	1.4	J	18	0.92
26601-64-9	Hexachlorobiphenyl	8.1	J	12	0.60
27323-18-8	Monochlorobiphenyl	0.35	U	6.0	0.35
53742-07-7	Nonachlorobiphenyl	6.0	U *	31	6.0
55722-26-4	Octachlorobiphenyl	0.97	U	18	0.97
25429-29-2	Pentachlorobiphenyl	18		12	0.62
26914-33-0	Tetrachlorobiphenyl	0.77	J	12	0.68
25323-68-6	Trichlorobiphenyl	0.31	U	6.0	0.31

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	52		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-129150-1

SDG No.:

Client Sample ID: FMC-27-2-0-3 | Lab Sample ID: 680-129150-7

Matrix: Solid | Lab File ID: Xh2616.D

Analysis Method: 680 | Date Collected: 08/22/2016 14:17

Extract. Method: 680 | Date Extracted: 08/26/2016 11:03

Sample wt/vol: 30.06(g) | Date Analyzed: 08/26/2016 23:37

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 52.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 447433 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	36	1.7
25512-42-9	Dichlorobiphenyl	0.74	U	7.0	0.74
28655-71-2	Heptachlorobiphenyl	3.1	J	21	1.1
26601-64-9	Hexachlorobiphenyl	5.7	J	14	0.70
27323-18-8	Monochlorobiphenyl	0.40	U	7.0	0.40
53742-07-7	Nonachlorobiphenyl	7.0	U *	36	7.0
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	8.2	J	14	0.72
26914-33-0	Tetrachlorobiphenyl	0.78	U	14	0.78
25323-68-6	Trichlorobiphenyl	0.36	U	7.0	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	47		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-2-12-15
Lab Sample ID: 680-129150-8
Matrix: Solid
Lab File ID: Xh2617.D
Analysis Method: 680
Date Collected: 08/22/2016 14:19
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.09(g)
Date Analyzed: 08/27/2016 00:05
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	36	1.7
25512-42-9	Dichlorobiphenyl	0.74	U	7.0	0.74
28655-71-2	Heptachlorobiphenyl	1.1	U	21	1.1
26601-64-9	Hexachlorobiphenyl	5.8	J	14	0.70
27323-18-8	Monochlorobiphenyl	0.40	U	7.0	0.40
53742-07-7	Nonachlorobiphenyl	7.0	U *	36	7.0
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	8.3	J	14	0.72
26914-33-0	Tetrachlorobiphenyl	0.78	U	14	0.78
25323-68-6	Trichlorobiphenyl	0.36	U	7.0	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	41		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-2-24-27
Lab Sample ID: 680-129150-9
Matrix: Solid
Lab File ID: Xh2829.D
Analysis Method: 680
Date Collected: 08/22/2016 14:21
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.18(g)
Date Analyzed: 08/29/2016 21:06
Con. Extract Vol.: 1(mL)
Dilution Factor: 5
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 54.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	9.1	U	190	9.1
25512-42-9	Dichlorobiphenyl	3.8	U	36	3.8
28655-71-2	Heptachlorobiphenyl	5.5	U	110	5.5
26601-64-9	Hexachlorobiphenyl	25	J	74	3.6
27323-18-8	Monochlorobiphenyl	2.1	U	36	2.1
53742-07-7	Nonachlorobiphenyl	36	U *	190	36
55722-26-4	Octachlorobiphenyl	5.8	U	110	5.8
25429-29-2	Pentachlorobiphenyl	5.9	J	74	3.7
26914-33-0	Tetrachlorobiphenyl	4.1	U	74	4.1
25323-68-6	Trichlorobiphenyl	1.9	U	36	1.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	53		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-2-36-39
Lab Sample ID: 680-129150-10
Matrix: Solid
Lab File ID: Xh2619.D
Analysis Method: 680
Date Collected: 08/22/2016 14:23
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.02(g)
Date Analyzed: 08/27/2016 01:03
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.9
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.8	U	36	1.8
25512-42-9	Dichlorobiphenyl	0.74	U	7.0	0.74
28655-71-2	Heptachlorobiphenyl	3.5	J	21	1.1
26601-64-9	Hexachlorobiphenyl	14		14	0.70
27323-18-8	Monochlorobiphenyl	0.40	U	7.0	0.40
53742-07-7	Nonachlorobiphenyl	7.0	U *	36	7.0
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	19		14	0.72
26914-33-0	Tetrachlorobiphenyl	0.79	U	14	0.79
25323-68-6	Trichlorobiphenyl	0.36	U	7.0	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	44		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-129150-1

SDG No.:

Client Sample ID: FMC-27-2-48-51 | Lab Sample ID: 680-129150-11

Matrix: Solid | Lab File ID: Xh2620.D

Analysis Method: 680 | Date Collected: 08/22/2016 14:25

Extract. Method: 680 | Date Extracted: 08/26/2016 11:03

Sample wt/vol: 30.11(g) | Date Analyzed: 08/27/2016 01:32

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 51.8 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 447433 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	35	1.7
25512-42-9	Dichlorobiphenyl	0.72	U	6.8	0.72
28655-71-2	Heptachlorobiphenyl	3.8	J	21	1.0
26601-64-9	Hexachlorobiphenyl	6.0	J	14	0.68
27323-18-8	Monochlorobiphenyl	0.39	U	6.8	0.39
53742-07-7	Nonachlorobiphenyl	6.8	U *	35	6.8
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	17		14	0.70
26914-33-0	Tetrachlorobiphenyl	1.7	J	14	0.77
25323-68-6	Trichlorobiphenyl	0.35	U	6.8	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	47		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-2-60-63
Lab Sample ID: 680-129150-12
Matrix: Solid
Lab File ID: Xh2621.D
Analysis Method: 680
Date Collected: 08/22/2016 14:27
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.13(g)
Date Analyzed: 08/27/2016 02:01
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 48.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.6	U	33	1.6
25512-42-9	Dichlorobiphenyl	0.67	U	6.3	0.67
28655-71-2	Heptachlorobiphenyl	0.96	U	19	0.96
26601-64-9	Hexachlorobiphenyl	5.1	J	13	0.63
27323-18-8	Monochlorobiphenyl	0.36	U	6.3	0.36
53742-07-7	Nonachlorobiphenyl	6.3	U *	33	6.3
55722-26-4	Octachlorobiphenyl	1.0	U	19	1.0
25429-29-2	Pentachlorobiphenyl	4.6	J	13	0.65
26914-33-0	Tetrachlorobiphenyl	2.7	J	13	0.71
25323-68-6	Trichlorobiphenyl	0.33	U	6.3	0.33

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	37		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-3-0-3
Lab Sample ID: 680-129150-13
Matrix: Solid
Lab File ID: Xh2622.D
Analysis Method: 680
Date Collected: 08/22/2016 14:42
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.10(g)
Date Analyzed: 08/27/2016 02:29
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 37.1
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.3	U	27	1.3
25512-42-9	Dichlorobiphenyl	0.56	U	5.2	0.56
28655-71-2	Heptachlorobiphenyl	3.2	J	16	0.79
26601-64-9	Hexachlorobiphenyl	16		11	0.52
27323-18-8	Monochlorobiphenyl	0.30	U	5.2	0.30
53742-07-7	Nonachlorobiphenyl	5.2	U *	27	5.2
55722-26-4	Octachlorobiphenyl	0.84	U	16	0.84
25429-29-2	Pentachlorobiphenyl	22		11	0.54
26914-33-0	Tetrachlorobiphenyl	0.59	U	11	0.59
25323-68-6	Trichlorobiphenyl	0.27	U	5.2	0.27

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	52		10-134

FORM I
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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-3-12-15
Lab Sample ID: 680-129150-14
Matrix: Solid
Lab File ID: Xh2623.D
Analysis Method: 680
Date Collected: 08/22/2016 14:44
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.10(g)
Date Analyzed: 08/27/2016 02:58
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 33.5
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.2	U	25	1.2
25512-42-9	Dichlorobiphenyl	0.52	U	4.9	0.52
28655-71-2	Heptachlorobiphenyl	2.7	J	15	0.75
26601-64-9	Hexachlorobiphenyl	13		10	0.49
27323-18-8	Monochlorobiphenyl	0.28	U	4.9	0.28
53742-07-7	Nonachlorobiphenyl	4.9	U *	25	4.9
55722-26-4	Octachlorobiphenyl	0.79	U	15	0.79
25429-29-2	Pentachlorobiphenyl	26		10	0.51
26914-33-0	Tetrachlorobiphenyl	2.7	J	10	0.55
25323-68-6	Trichlorobiphenyl	0.25	U	4.9	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	52		10-134

FORM I
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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-3-24-27
Lab Sample ID: 680-129150-15
Matrix: Solid
Lab File ID: Xh2624.D
Analysis Method: 680
Date Collected: 08/22/2016 14:46
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.06(g)
Date Analyzed: 08/27/2016 03:27
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 27.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.1	U	23	1.1
25512-42-9	Dichlorobiphenyl	0.48	U	4.6	0.48
28655-71-2	Heptachlorobiphenyl	8.5	J	14	0.69
26601-64-9	Hexachlorobiphenyl	31		9.2	0.46
27323-18-8	Monochlorobiphenyl	0.68	J	4.6	0.26
53742-07-7	Nonachlorobiphenyl	4.6	U *	23	4.6
55722-26-4	Octachlorobiphenyl	0.73	U	14	0.73
25429-29-2	Pentachlorobiphenyl	41		9.2	0.47
26914-33-0	Tetrachlorobiphenyl	4.5	J	9.2	0.51
25323-68-6	Trichlorobiphenyl	0.23	U	4.6	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	50		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-3-36-39
Lab Sample ID: 680-129150-16
Matrix: Solid
Lab File ID: Xh2634.D
Analysis Method: 680
Date Collected: 08/22/2016 14:48
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.13(g)
Date Analyzed: 08/27/2016 08:21
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 29.1
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.2	U	24	1.2
25512-42-9	Dichlorobiphenyl	0.49	U	4.6	0.49
28655-71-2	Heptachlorobiphenyl	35		14	0.70
26601-64-9	Hexachlorobiphenyl	66		9.4	0.46
27323-18-8	Monochlorobiphenyl	0.27	U	4.6	0.27
53742-07-7	Nonachlorobiphenyl	4.6	U *	24	4.6
55722-26-4	Octachlorobiphenyl	1.9	J	14	0.74
25429-29-2	Pentachlorobiphenyl	53		9.4	0.48
26914-33-0	Tetrachlorobiphenyl	20		9.4	0.52
25323-68-6	Trichlorobiphenyl	2.3	J	4.6	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	48		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-3-48-51
Lab Sample ID: 680-129150-17
Matrix: Solid
Lab File ID: Xh3105.D
Analysis Method: 680
Date Collected: 08/22/2016 14:50
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.11(g)
Date Analyzed: 08/31/2016 11:38
Con. Extract Vol.: 1(mL)
Dilution Factor: 5
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 38.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447879
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	6.7	U	140	6.7
25512-42-9	Dichlorobiphenyl	2.8	U	27	2.8
28655-71-2	Heptachlorobiphenyl	17	J	81	4.1
26601-64-9	Hexachlorobiphenyl	88		54	2.7
27323-18-8	Monochlorobiphenyl	1.5	U	27	1.5
53742-07-7	Nonachlorobiphenyl	27	U *	140	27
55722-26-4	Octachlorobiphenyl	4.3	U	81	4.3
25429-29-2	Pentachlorobiphenyl	95		54	2.8
26914-33-0	Tetrachlorobiphenyl	81		54	3.0
25323-68-6	Trichlorobiphenyl	1.4	U	27	1.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	52		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-4-0-3
Lab Sample ID: 680-129150-30
Matrix: Solid
Lab File ID: Xh2905.D
Analysis Method: 680
Date Collected: 08/23/2016 11:50
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.04(g)
Date Analyzed: 08/30/2016 10:44
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.1
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	35	1.7
25512-42-9	Dichlorobiphenyl	0.73	U	6.9	0.73
28655-71-2	Heptachlorobiphenyl	23		21	1.0
26601-64-9	Hexachlorobiphenyl	50		14	0.69
27323-18-8	Monochlorobiphenyl	0.40	U	6.9	0.40
53742-07-7	Nonachlorobiphenyl	6.9	U *	35	6.9
55722-26-4	Octachlorobiphenyl	1.8	J	21	1.1
25429-29-2	Pentachlorobiphenyl	36		14	0.71
26914-33-0	Tetrachlorobiphenyl	2.2	J	14	0.77
25323-68-6	Trichlorobiphenyl	0.35	U	6.9	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	39		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-4-12-15
Lab Sample ID: 680-129150-31
Matrix: Solid
Lab File ID: Xh2906.D
Analysis Method: 680
Date Collected: 08/23/2016 11:52
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.14(g)
Date Analyzed: 08/30/2016 11:13
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.1
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	35	1.7
25512-42-9	Dichlorobiphenyl	0.73	U	6.9	0.73
28655-71-2	Heptachlorobiphenyl	2.7	J	21	1.0
26601-64-9	Hexachlorobiphenyl	11	J	14	0.69
27323-18-8	Monochlorobiphenyl	0.40	U	6.9	0.40
53742-07-7	Nonachlorobiphenyl	6.9	U *	35	6.9
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	10	J	14	0.71
26914-33-0	Tetrachlorobiphenyl	2.8	J	14	0.77
25323-68-6	Trichlorobiphenyl	0.35	U	6.9	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	52		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-4-24-27
Lab Sample ID: 680-129150-32
Matrix: Solid
Lab File ID: Xh2907.D
Analysis Method: 680
Date Collected: 08/23/2016 11:54
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.01(g)
Date Analyzed: 08/30/2016 11:42
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 38.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.4	U	28	1.4
25512-42-9	Dichlorobiphenyl	0.57	U	5.4	0.57
28655-71-2	Heptachlorobiphenyl	1.2	J	16	0.82
26601-64-9	Hexachlorobiphenyl	6.5	J	11	0.54
27323-18-8	Monochlorobiphenyl	0.31	U	5.4	0.31
53742-07-7	Nonachlorobiphenyl	5.4	U *	28	5.4
55722-26-4	Octachlorobiphenyl	0.86	U	16	0.86
25429-29-2	Pentachlorobiphenyl	10	J	11	0.55
26914-33-0	Tetrachlorobiphenyl	0.60	U	11	0.60
25323-68-6	Trichlorobiphenyl	0.28	U	5.4	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	47		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-4-36-39
Lab Sample ID: 680-129150-33
Matrix: Solid
Lab File ID: Xh2908.D
Analysis Method: 680
Date Collected: 08/23/2016 11:56
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.08(g)
Date Analyzed: 08/30/2016 12:11
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 49.2
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.6	U	33	1.6
25512-42-9	Dichlorobiphenyl	0.69	U	6.5	0.69
28655-71-2	Heptachlorobiphenyl	0.98	U	20	0.98
26601-64-9	Hexachlorobiphenyl	5.8	J	13	0.65
27323-18-8	Monochlorobiphenyl	0.37	U	6.5	0.37
53742-07-7	Nonachlorobiphenyl	6.5	U *	33	6.5
55722-26-4	Octachlorobiphenyl	1.0	U	20	1.0
25429-29-2	Pentachlorobiphenyl	7.0	J	13	0.67
26914-33-0	Tetrachlorobiphenyl	0.73	U	13	0.73
25323-68-6	Trichlorobiphenyl	0.33	U	6.5	0.33

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	41		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-4-48-51
Lab Sample ID: 680-129150-34
Matrix: Solid
Lab File ID: Xh2909.D
Analysis Method: 680
Date Collected: 08/23/2016 11:58
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.01(g)
Date Analyzed: 08/30/2016 12:40
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 48.5
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.6	U	33	1.6
25512-42-9	Dichlorobiphenyl	0.68	U	6.4	0.68
28655-71-2	Heptachlorobiphenyl	2.9	J	19	0.97
26601-64-9	Hexachlorobiphenyl	15		13	0.64
27323-18-8	Monochlorobiphenyl	0.37	U	6.4	0.37
53742-07-7	Nonachlorobiphenyl	6.4	U *	33	6.4
55722-26-4	Octachlorobiphenyl	1.0	U	19	1.0
25429-29-2	Pentachlorobiphenyl	15		13	0.66
26914-33-0	Tetrachlorobiphenyl	1.7	J	13	0.72
25323-68-6	Trichlorobiphenyl	0.33	U	6.4	0.33

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	37		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-4-60-63
Lab Sample ID: 680-129150-35
Matrix: Solid
Lab File ID: Xh2910.D
Analysis Method: 680
Date Collected: 08/23/2016 12:00
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.20(g)
Date Analyzed: 08/30/2016 13:08
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 45.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.5	U	31	1.5
25512-42-9	Dichlorobiphenyl	0.63	U	6.0	0.63
28655-71-2	Heptachlorobiphenyl	3.4	J	18	0.90
26601-64-9	Hexachlorobiphenyl	18		12	0.60
27323-18-8	Monochlorobiphenyl	0.34	U	6.0	0.34
53742-07-7	Nonachlorobiphenyl	6.0	U *	31	6.0
55722-26-4	Octachlorobiphenyl	0.96	U	18	0.96
25429-29-2	Pentachlorobiphenyl	25		12	0.61
26914-33-0	Tetrachlorobiphenyl	9.0	J	12	0.67
25323-68-6	Trichlorobiphenyl	0.31	U	6.0	0.31

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	42		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-5-0-3
Lab Sample ID: 680-129150-24
Matrix: Solid
Lab File ID: Xh2646.D
Analysis Method: 680
Date Collected: 08/23/2016 11:30
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.09(g)
Date Analyzed: 08/27/2016 14:07
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 57.9
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.0	U	40	2.0
25512-42-9	Dichlorobiphenyl	0.83	U	7.8	0.83
28655-71-2	Heptachlorobiphenyl	4.1	J	24	1.2
26601-64-9	Hexachlorobiphenyl	19		16	0.78
27323-18-8	Monochlorobiphenyl	0.45	U	7.8	0.45
53742-07-7	Nonachlorobiphenyl	7.8	U *	40	7.8
55722-26-4	Octachlorobiphenyl	1.3	U	24	1.3
25429-29-2	Pentachlorobiphenyl	22		16	0.80
26914-33-0	Tetrachlorobiphenyl	1.2	J	16	0.88
25323-68-6	Trichlorobiphenyl	0.40	U	7.8	0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	27		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-5-12-15
Lab Sample ID: 680-129150-25
Matrix: Solid
Lab File ID: Xh2647.D
Analysis Method: 680
Date Collected: 08/23/2016 11:32
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.16(g)
Date Analyzed: 08/27/2016 14:36
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 58.2
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.0	U	40	2.0
25512-42-9	Dichlorobiphenyl	0.83	U	7.8	0.83
28655-71-2	Heptachlorobiphenyl	1.2	U	24	1.2
26601-64-9	Hexachlorobiphenyl	6.2	J	16	0.78
27323-18-8	Monochlorobiphenyl	0.45	U	7.8	0.45
53742-07-7	Nonachlorobiphenyl	7.8	U *	40	7.8
55722-26-4	Octachlorobiphenyl	1.3	U	24	1.3
25429-29-2	Pentachlorobiphenyl	4.1	J	16	0.81
26914-33-0	Tetrachlorobiphenyl	0.88	U	16	0.88
25323-68-6	Trichlorobiphenyl	0.40	U	7.8	0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	32		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-5-24-27
Lab Sample ID: 680-129150-26
Matrix: Solid
Lab File ID: Xh2648.D
Analysis Method: 680
Date Collected: 08/23/2016 11:34
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.09(g)
Date Analyzed: 08/27/2016 15:05
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 57.5
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.9	U	40	1.9
25512-42-9	Dichlorobiphenyl	0.82	U	7.7	0.82
28655-71-2	Heptachlorobiphenyl	1.2	U	23	1.2
26601-64-9	Hexachlorobiphenyl	6.6	J	16	0.77
27323-18-8	Monochlorobiphenyl	0.45	U	7.7	0.45
53742-07-7	Nonachlorobiphenyl	7.7	U *	40	7.7
55722-26-4	Octachlorobiphenyl	1.2	U	23	1.2
25429-29-2	Pentachlorobiphenyl	6.7	J	16	0.80
26914-33-0	Tetrachlorobiphenyl	0.87	U	16	0.87
25323-68-6	Trichlorobiphenyl	0.40	U	7.7	0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	45		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-5-36-39
Lab Sample ID: 680-129150-27
Matrix: Solid
Lab File ID: Xh2649.D
Analysis Method: 680
Date Collected: 08/23/2016 11:36
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.16(g)
Date Analyzed: 08/27/2016 15:34
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 58.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.0	U	41	2.0
25512-42-9	Dichlorobiphenyl	0.84	U	7.9	0.84
28655-71-2	Heptachlorobiphenyl	1.3	J	24	1.2
26601-64-9	Hexachlorobiphenyl	14	J	16	0.79
27323-18-8	Monochlorobiphenyl	0.46	U	7.9	0.46
53742-07-7	Nonachlorobiphenyl	7.9	U *	41	7.9
55722-26-4	Octachlorobiphenyl	1.3	U	24	1.3
25429-29-2	Pentachlorobiphenyl	22		16	0.82
26914-33-0	Tetrachlorobiphenyl	0.89	U	16	0.89
25323-68-6	Trichlorobiphenyl	0.41	U	7.9	0.41

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	50		10-134

FORM I
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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-5-48-51
Lab Sample ID: 680-129150-28
Matrix: Solid
Lab File ID: Xh2650.D
Analysis Method: 680
Date Collected: 08/23/2016 11:38
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.14(g)
Date Analyzed: 08/27/2016 16:03
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 52.3
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	35	1.7
25512-42-9	Dichlorobiphenyl	0.73	U	6.9	0.73
28655-71-2	Heptachlorobiphenyl	1.3	J	21	1.0
26601-64-9	Hexachlorobiphenyl	14		14	0.69
27323-18-8	Monochlorobiphenyl	0.40	U	6.9	0.40
53742-07-7	Nonachlorobiphenyl	6.9	U *	35	6.9
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	18		14	0.71
26914-33-0	Tetrachlorobiphenyl	0.77	U	14	0.77
25323-68-6	Trichlorobiphenyl	0.35	U	6.9	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	46		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-5-60-63
Lab Sample ID: 680-129150-29
Matrix: Solid
Lab File ID: Xh2651.D
Analysis Method: 680
Date Collected: 08/23/2016 11:40
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.08(g)
Date Analyzed: 08/27/2016 16:32
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 47.1
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.6	U	32	1.6
25512-42-9	Dichlorobiphenyl	0.66	U	6.2	0.66
28655-71-2	Heptachlorobiphenyl	3.0	J	19	0.94
26601-64-9	Hexachlorobiphenyl	14		13	0.62
27323-18-8	Monochlorobiphenyl	0.36	U	6.2	0.36
53742-07-7	Nonachlorobiphenyl	6.2	U *	32	6.2
55722-26-4	Octachlorobiphenyl	1.0	U	19	1.0
25429-29-2	Pentachlorobiphenyl	26		13	0.64
26914-33-0	Tetrachlorobiphenyl	6.2	J	13	0.70
25323-68-6	Trichlorobiphenyl	0.32	U	6.2	0.32

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	42		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-6-0-3
Lab Sample ID: 680-129150-18
Matrix: Solid
Lab File ID: Xh2636.D
Analysis Method: 680
Date Collected: 08/23/2016 11:06
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.16(g)
Date Analyzed: 08/27/2016 09:18
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 40.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.4	U	29	1.4
25512-42-9	Dichlorobiphenyl	0.59	U	5.5	0.59
28655-71-2	Heptachlorobiphenyl	91		17	0.84
26601-64-9	Hexachlorobiphenyl	140		11	0.55
27323-18-8	Monochlorobiphenyl	0.32	U	5.5	0.32
53742-07-7	Nonachlorobiphenyl	5.5	U *	29	5.5
55722-26-4	Octachlorobiphenyl	8.4	J	17	0.89
25429-29-2	Pentachlorobiphenyl	120		11	0.57
26914-33-0	Tetrachlorobiphenyl	14		11	0.62
25323-68-6	Trichlorobiphenyl	0.29	U	5.5	0.29

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	41		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-6-12-15
Lab Sample ID: 680-129150-19
Matrix: Solid
Lab File ID: Xh2637.D
Analysis Method: 680
Date Collected: 08/23/2016 11:08
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.05(g)
Date Analyzed: 08/27/2016 09:47
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 35.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.3	U	26	1.3
25512-42-9	Dichlorobiphenyl	0.54	U	5.1	0.54
28655-71-2	Heptachlorobiphenyl	0.77	U	15	0.77
26601-64-9	Hexachlorobiphenyl	12		10	0.51
27323-18-8	Monochlorobiphenyl	0.29	U	5.1	0.29
53742-07-7	Nonachlorobiphenyl	5.1	U *	26	5.1
55722-26-4	Octachlorobiphenyl	0.81	U	15	0.81
25429-29-2	Pentachlorobiphenyl	18		10	0.52
26914-33-0	Tetrachlorobiphenyl	0.57	U	10	0.57
25323-68-6	Trichlorobiphenyl	0.26	U	5.1	0.26

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	50		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-6-24-27
Lab Sample ID: 680-129150-20
Matrix: Solid
Lab File ID: Xh3106.D
Analysis Method: 680
Date Collected: 08/23/2016 11:10
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.15(g)
Date Analyzed: 08/31/2016 12:07
Con. Extract Vol.: 1(mL)
Dilution Factor: 5
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 38.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447879
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	6.7	U	140	6.7
25512-42-9	Dichlorobiphenyl	2.8	U	27	2.8
28655-71-2	Heptachlorobiphenyl	26	J	81	4.1
26601-64-9	Hexachlorobiphenyl	47	J	54	2.7
27323-18-8	Monochlorobiphenyl	1.5	U	27	1.5
53742-07-7	Nonachlorobiphenyl	27	U *	140	27
55722-26-4	Octachlorobiphenyl	4.3	U	81	4.3
25429-29-2	Pentachlorobiphenyl	48	J	54	2.8
26914-33-0	Tetrachlorobiphenyl	39	J	54	3.0
25323-68-6	Trichlorobiphenyl	1.4	U	27	1.4

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	71		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-6-36-39
Lab Sample ID: 680-129150-21
Matrix: Solid
Lab File ID: Xh2643.D
Analysis Method: 680
Date Collected: 08/23/2016 11:12
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.02(g)
Date Analyzed: 08/27/2016 12:40
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 39.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.4	U	28	1.4
25512-42-9	Dichlorobiphenyl	0.57	U	5.4	0.57
28655-71-2	Heptachlorobiphenyl	10	J	16	0.82
26601-64-9	Hexachlorobiphenyl	48		11	0.54
27323-18-8	Monochlorobiphenyl	0.31	U	5.4	0.31
53742-07-7	Nonachlorobiphenyl	5.4	U *	28	5.4
55722-26-4	Octachlorobiphenyl	0.87	U	16	0.87
25429-29-2	Pentachlorobiphenyl	59		11	0.56
26914-33-0	Tetrachlorobiphenyl	25		11	0.61
25323-68-6	Trichlorobiphenyl	3.9	J	5.4	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	32		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-6-48-51
Lab Sample ID: 680-129150-22
Matrix: Solid
Lab File ID: Xh2644.D
Analysis Method: 680
Date Collected: 08/23/2016 11:14
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.11(g)
Date Analyzed: 08/27/2016 13:09
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 27.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.1	U	23	1.1
25512-42-9	Dichlorobiphenyl	0.48	U	4.5	0.48
28655-71-2	Heptachlorobiphenyl	14		14	0.68
26601-64-9	Hexachlorobiphenyl	31		9.1	0.45
27323-18-8	Monochlorobiphenyl	0.26	U	4.5	0.26
53742-07-7	Nonachlorobiphenyl	4.5	U *	23	4.5
55722-26-4	Octachlorobiphenyl	0.72	U	14	0.72
25429-29-2	Pentachlorobiphenyl	21		9.1	0.46
26914-33-0	Tetrachlorobiphenyl	130		9.1	0.51
25323-68-6	Trichlorobiphenyl	0.23	U	4.5	0.23

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	37		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-6-56-59
Lab Sample ID: 680-129150-23
Matrix: Solid
Lab File ID: Xh2830.D
Analysis Method: 680
Date Collected: 08/23/2016 11:16
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.10(g)
Date Analyzed: 08/29/2016 21:35
Con. Extract Vol.: 1(mL)
Dilution Factor: 5
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 23.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	5.4	U	110	5.4
25512-42-9	Dichlorobiphenyl	2.3	U	21	2.3
28655-71-2	Heptachlorobiphenyl	210		65	3.2
26601-64-9	Hexachlorobiphenyl	350		43	2.1
27323-18-8	Monochlorobiphenyl	1.2	U	21	1.2
53742-07-7	Nonachlorobiphenyl	21	U *	110	21
55722-26-4	Octachlorobiphenyl	14	J	65	3.4
25429-29-2	Pentachlorobiphenyl	340		43	2.2
26914-33-0	Tetrachlorobiphenyl	480		43	2.4
25323-68-6	Trichlorobiphenyl	8.9	J	21	1.1

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	50		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-7-0-3
Lab Sample ID: 680-129150-42
Matrix: Solid
Lab File ID: Xh2817.D
Analysis Method: 680
Date Collected: 08/23/2016 14:40
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.07(g)
Date Analyzed: 08/29/2016 15:20
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 38.5
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.3	U	28	1.3
25512-42-9	Dichlorobiphenyl	0.57	U	5.4	0.57
28655-71-2	Heptachlorobiphenyl	0.81	U	16	0.81
26601-64-9	Hexachlorobiphenyl	9.9	J	11	0.54
27323-18-8	Monochlorobiphenyl	0.31	U	5.4	0.31
53742-07-7	Nonachlorobiphenyl	5.4	U *	28	5.4
55722-26-4	Octachlorobiphenyl	0.86	U	16	0.86
25429-29-2	Pentachlorobiphenyl	16		11	0.55
26914-33-0	Tetrachlorobiphenyl	0.60	U	11	0.60
25323-68-6	Trichlorobiphenyl	0.28	U	5.4	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	49		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-7-12-15
Lab Sample ID: 680-129150-43
Matrix: Solid
Lab File ID: Xh2818.D
Analysis Method: 680
Date Collected: 08/23/2016 14:42
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.08(g)
Date Analyzed: 08/29/2016 15:48
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 56.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.9	U	39	1.9
25512-42-9	Dichlorobiphenyl	0.79	U	7.5	0.79
28655-71-2	Heptachlorobiphenyl	1.1	U	23	1.1
26601-64-9	Hexachlorobiphenyl	2.9	J	15	0.75
27323-18-8	Monochlorobiphenyl	0.43	U	7.5	0.43
53742-07-7	Nonachlorobiphenyl	7.5	U *	39	7.5
55722-26-4	Octachlorobiphenyl	1.2	U	23	1.2
25429-29-2	Pentachlorobiphenyl	4.1	J	15	0.77
26914-33-0	Tetrachlorobiphenyl	0.84	U	15	0.84
25323-68-6	Trichlorobiphenyl	0.39	U	7.5	0.39

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	42		10-134

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Lab Name: TestAmerica Savannah | Job No.: 680-129150-1

SDG No.:

Client Sample ID: FMC-27-7-24-27 | Lab Sample ID: 680-129150-44

Matrix: Solid | Lab File ID: Xh2819.D

Analysis Method: 680 | Date Collected: 08/23/2016 14:44

Extract. Method: 680 | Date Extracted: 08/26/2016 16:28

Sample wt/vol: 30.00(g) | Date Analyzed: 08/29/2016 16:17

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 52.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 447503 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.8	U *	36	1.8
25512-42-9	Dichlorobiphenyl	0.74	U *	7.0	0.74
28655-71-2	Heptachlorobiphenyl	1.1	U *	21	1.1
26601-64-9	Hexachlorobiphenyl	3.6	J *	14	0.70
27323-18-8	Monochlorobiphenyl	0.40	U *	7.0	0.40
53742-07-7	Nonachlorobiphenyl	7.0	U *	36	7.0
55722-26-4	Octachlorobiphenyl	1.1	U *	21	1.1
25429-29-2	Pentachlorobiphenyl	7.2	J *	14	0.72
26914-33-0	Tetrachlorobiphenyl	0.78	U *	14	0.78
25323-68-6	Trichlorobiphenyl	0.36	U *	7.0	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	45	*	10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-7-36-39
Lab Sample ID: 680-129150-45
Matrix: Solid
Lab File ID: Xh2820.D
Analysis Method: 680
Date Collected: 08/23/2016 14:46
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.20(g)
Date Analyzed: 08/29/2016 16:46
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 51.1
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	35	1.7
25512-42-9	Dichlorobiphenyl	0.71	U	6.7	0.71
28655-71-2	Heptachlorobiphenyl	1.0	U	20	1.0
26601-64-9	Hexachlorobiphenyl	4.2	J	14	0.67
27323-18-8	Monochlorobiphenyl	0.39	U	6.7	0.39
53742-07-7	Nonachlorobiphenyl	6.7	U *	35	6.7
55722-26-4	Octachlorobiphenyl	1.1	U	20	1.1
25429-29-2	Pentachlorobiphenyl	4.4	J	14	0.69
26914-33-0	Tetrachlorobiphenyl	1.3	J	14	0.75
25323-68-6	Trichlorobiphenyl	0.35	U	6.7	0.35

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	57		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-7-48-51
Lab Sample ID: 680-129150-46
Matrix: Solid
Lab File ID: Xh2821.D
Analysis Method: 680
Date Collected: 08/23/2016 14:48
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.12(g)
Date Analyzed: 08/29/2016 17:15
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 39.8
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.4	U	28	1.4
25512-42-9	Dichlorobiphenyl	0.58	U	5.5	0.58
28655-71-2	Heptachlorobiphenyl	16	J	17	0.83
26601-64-9	Hexachlorobiphenyl	58		11	0.55
27323-18-8	Monochlorobiphenyl	0.31	U	5.5	0.31
53742-07-7	Nonachlorobiphenyl	5.5	U *	28	5.5
55722-26-4	Octachlorobiphenyl	1.1	J	17	0.88
25429-29-2	Pentachlorobiphenyl	65		11	0.56
26914-33-0	Tetrachlorobiphenyl	48		11	0.61
25323-68-6	Trichlorobiphenyl	8.0		5.5	0.28

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	51		10-134

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Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-7-60-63
Lab Sample ID: 680-129150-47
Matrix: Solid
Lab File ID: Xh2822.D
Analysis Method: 680
Date Collected: 08/23/2016 14:50
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.20(g)
Date Analyzed: 08/29/2016 17:44
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 45.8
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.5	U	31	1.5
25512-42-9	Dichlorobiphenyl	0.64	U	6.1	0.64
28655-71-2	Heptachlorobiphenyl	0.92	U	18	0.92
26601-64-9	Hexachlorobiphenyl	0.61	U	12	0.61
27323-18-8	Monochlorobiphenyl	0.35	U	6.1	0.35
53742-07-7	Nonachlorobiphenyl	6.1	U *	31	6.1
55722-26-4	Octachlorobiphenyl	0.97	U	18	0.97
25429-29-2	Pentachlorobiphenyl	0.62	U	12	0.62
26914-33-0	Tetrachlorobiphenyl	0.68	U	12	0.68
25323-68-6	Trichlorobiphenyl	0.31	U	6.1	0.31

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	54		10-134

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PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-8-0-3
Lab Sample ID: 680-129150-36
Matrix: Solid
Lab File ID: Xh2911.D
Analysis Method: 680
Date Collected: 08/23/2016 14:21
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.07(g)
Date Analyzed: 08/30/2016 13:37
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 59.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.1	U	42	2.1
25512-42-9	Dichlorobiphenyl	0.87	U	8.2	0.87
28655-71-2	Heptachlorobiphenyl	1.2	U	25	1.2
26601-64-9	Hexachlorobiphenyl	2.3	J	17	0.82
27323-18-8	Monochlorobiphenyl	0.47	U	8.2	0.47
53742-07-7	Nonachlorobiphenyl	8.2	U *	42	8.2
55722-26-4	Octachlorobiphenyl	1.3	U	25	1.3
25429-29-2	Pentachlorobiphenyl	5.6	J	17	0.84
26914-33-0	Tetrachlorobiphenyl	0.92	U	17	0.92
25323-68-6	Trichlorobiphenyl	0.42	U	8.2	0.42

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	38		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-8-12-15
Lab Sample ID: 680-129150-37
Matrix: Solid
Lab File ID: Xh2912.D
Analysis Method: 680
Date Collected: 08/23/2016 14:23
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.11(g)
Date Analyzed: 08/30/2016 14:06
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 63.4
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.3	U	46	2.3
25512-42-9	Dichlorobiphenyl	0.95	U	9.0	0.95
28655-71-2	Heptachlorobiphenyl	1.5	J	27	1.4
26601-64-9	Hexachlorobiphenyl	13	J	18	0.90
27323-18-8	Monochlorobiphenyl	0.52	U	9.0	0.52
53742-07-7	Nonachlorobiphenyl	9.0	U *	46	9.0
55722-26-4	Octachlorobiphenyl	1.4	U	27	1.4
25429-29-2	Pentachlorobiphenyl	16	J	18	0.93
26914-33-0	Tetrachlorobiphenyl	1.0	U	18	1.0
25323-68-6	Trichlorobiphenyl	1.1	J	9.0	0.46

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	39		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-8-24-27
Lab Sample ID: 680-129150-38
Matrix: Solid
Lab File ID: Xh2913.D
Analysis Method: 680
Date Collected: 08/23/2016 14:25
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.13(g)
Date Analyzed: 08/30/2016 14:35
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 61.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.1	U	43	2.1
25512-42-9	Dichlorobiphenyl	0.89	U	8.4	0.89
28655-71-2	Heptachlorobiphenyl	1.3	U	26	1.3
26601-64-9	Hexachlorobiphenyl	11	J	17	0.84
27323-18-8	Monochlorobiphenyl	0.49	U	8.4	0.49
53742-07-7	Nonachlorobiphenyl	8.4	U *	43	8.4
55722-26-4	Octachlorobiphenyl	1.4	U	26	1.4
25429-29-2	Pentachlorobiphenyl	16	J	17	0.87
26914-33-0	Tetrachlorobiphenyl	0.95	U	17	0.95
25323-68-6	Trichlorobiphenyl	0.43	U	8.4	0.43

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	50		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-8-36-39
Lab Sample ID: 680-129150-39
Matrix: Solid
Lab File ID: Xh2914.D
Analysis Method: 680
Date Collected: 08/23/2016 14:27
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.15(g)
Date Analyzed: 08/30/2016 15:04
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 57.2
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.9	U	39	1.9
25512-42-9	Dichlorobiphenyl	0.81	U	7.7	0.81
28655-71-2	Heptachlorobiphenyl	1.2	J	23	1.2
26601-64-9	Hexachlorobiphenyl	9.1	J	16	0.77
27323-18-8	Monochlorobiphenyl	0.44	U	7.7	0.44
53742-07-7	Nonachlorobiphenyl	7.7	U *	39	7.7
55722-26-4	Octachlorobiphenyl	1.2	U	23	1.2
25429-29-2	Pentachlorobiphenyl	13	J	16	0.79
26914-33-0	Tetrachlorobiphenyl	4.3	J	16	0.86
25323-68-6	Trichlorobiphenyl	0.39	U	7.7	0.39

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	40		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-8-48-51
Lab Sample ID: 680-129150-40
Matrix: Solid
Lab File ID: Xh3109.D
Analysis Method: 680
Date Collected: 08/23/2016 14:29
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.11(g)
Date Analyzed: 08/31/2016 13:04
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 50.6
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447879
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.7	U	34	1.7
25512-42-9	Dichlorobiphenyl	0.71	U	6.7	0.71
28655-71-2	Heptachlorobiphenyl	3.0	J	20	1.0
26601-64-9	Hexachlorobiphenyl	14		14	0.67
27323-18-8	Monochlorobiphenyl	0.89	J	6.7	0.38
53742-07-7	Nonachlorobiphenyl	6.7	U *	34	6.7
55722-26-4	Octachlorobiphenyl	1.1	U	20	1.1
25429-29-2	Pentachlorobiphenyl	13	J	14	0.69
26914-33-0	Tetrachlorobiphenyl	0.75	U	14	0.75
25323-68-6	Trichlorobiphenyl	0.34	U	6.7	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	45		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-8-60-63
Lab Sample ID: 680-129150-41
Matrix: Solid
Lab File ID: Xh2816.D
Analysis Method: 680
Date Collected: 08/23/2016 14:31
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.19(g)
Date Analyzed: 08/29/2016 14:51
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 49.7
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.6	U *	34	1.6
25512-42-9	Dichlorobiphenyl	0.69	U *	6.5	0.69
28655-71-2	Heptachlorobiphenyl	1.9	J *	20	0.99
26601-64-9	Hexachlorobiphenyl	10	J *	13	0.65
27323-18-8	Monochlorobiphenyl	0.38	U *	6.5	0.38
53742-07-7	Nonachlorobiphenyl	6.5	U *	34	6.5
55722-26-4	Octachlorobiphenyl	1.0	U *	20	1.0
25429-29-2	Pentachlorobiphenyl	18	*	13	0.67
26914-33-0	Tetrachlorobiphenyl	5.5	J *	13	0.73
25323-68-6	Trichlorobiphenyl	0.34	U *	6.5	0.34

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	45	*	10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-9-0-3
Lab Sample ID: 680-129150-48
Matrix: Solid
Lab File ID: Xh2916.D
Analysis Method: 680
Date Collected: 08/23/2016 15:00
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.19(g)
Date Analyzed: 08/30/2016 16:02
Con. Extract Vol.: 1(mL)
Dilution Factor: 5
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 56.4
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447681
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	9.5	U	190	9.5
25512-42-9	Dichlorobiphenyl	4.0	U	38	4.0
28655-71-2	Heptachlorobiphenyl	5.7	U	110	5.7
26601-64-9	Hexachlorobiphenyl	3.8	U	76	3.8
27323-18-8	Monochlorobiphenyl	2.2	U	38	2.2
53742-07-7	Nonachlorobiphenyl	38	U *	190	38
55722-26-4	Octachlorobiphenyl	6.0	U	110	6.0
25429-29-2	Pentachlorobiphenyl	20	J	76	3.9
26914-33-0	Tetrachlorobiphenyl	4.2	U	76	4.2
25323-68-6	Trichlorobiphenyl	1.9	U	38	1.9

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	52		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-9-12-15
Lab Sample ID: 680-129150-49
Matrix: Solid
Lab File ID: Xh2824.D
Analysis Method: 680
Date Collected: 08/23/2016 15:02
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.03(g)
Date Analyzed: 08/29/2016 18:42
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 58.8
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	2.0	U *	41	2.0
25512-42-9	Dichlorobiphenyl	0.85	U *	8.0	0.85
28655-71-2	Heptachlorobiphenyl	1.2	U *	24	1.2
26601-64-9	Hexachlorobiphenyl	9.4	J *	16	0.80
27323-18-8	Monochlorobiphenyl	0.46	U *	8.0	0.46
53742-07-7	Nonachlorobiphenyl	8.0	U *	41	8.0
55722-26-4	Octachlorobiphenyl	1.3	U *	24	1.3
25429-29-2	Pentachlorobiphenyl	18	*	16	0.82
26914-33-0	Tetrachlorobiphenyl	2.1	J *	16	0.90
25323-68-6	Trichlorobiphenyl	0.41	U *	8.0	0.41

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	49	*	10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-9-24-27
Lab Sample ID: 680-129150-50
Matrix: Solid
Lab File ID: Xh2825.D
Analysis Method: 680
Date Collected: 08/23/2016 15:04
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.08(g)
Date Analyzed: 08/29/2016 19:10
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 54.6
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.8	U *	37	1.8
25512-42-9	Dichlorobiphenyl	0.77	U *	7.2	0.77
28655-71-2	Heptachlorobiphenyl	1.3	J *	22	1.1
26601-64-9	Hexachlorobiphenyl	13	J *	15	0.72
27323-18-8	Monochlorobiphenyl	0.42	U *	7.2	0.42
53742-07-7	Nonachlorobiphenyl	7.2	U *	37	7.2
55722-26-4	Octachlorobiphenyl	1.2	U *	22	1.2
25429-29-2	Pentachlorobiphenyl	18	*	15	0.75
26914-33-0	Tetrachlorobiphenyl	0.81	U *	15	0.81
25323-68-6	Trichlorobiphenyl	0.37	U *	7.2	0.37

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	48	*	10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-9-36-39
Lab Sample ID: 680-129150-51
Matrix: Solid
Lab File ID: Xh2826.D
Analysis Method: 680
Date Collected: 08/23/2016 15:06
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.08(g)
Date Analyzed: 08/29/2016 19:39
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 53.5
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.8	U	36	1.8
25512-42-9	Dichlorobiphenyl	0.75	U	7.1	0.75
28655-71-2	Heptachlorobiphenyl	1.1	U	21	1.1
26601-64-9	Hexachlorobiphenyl	16		14	0.71
27323-18-8	Monochlorobiphenyl	0.41	U	7.1	0.41
53742-07-7	Nonachlorobiphenyl	7.1	U *	36	7.1
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	16		14	0.73
26914-33-0	Tetrachlorobiphenyl	5.4	J	14	0.79
25323-68-6	Trichlorobiphenyl	0.36	U	7.1	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	42		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-129150-1

SDG No.:

Client Sample ID: FMC-27-9-48-51 | Lab Sample ID: 680-129150-52

Matrix: Solid | Lab File ID: Xh3107.D

Analysis Method: 680 | Date Collected: 08/23/2016 15:08

Extract. Method: 680 | Date Extracted: 08/26/2016 16:28

Sample wt/vol: 30.06(g) | Date Analyzed: 08/31/2016 12:36

Con. Extract Vol.: 1(mL) | Dilution Factor: 5

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 50.9 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 447879 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	8.4	U	170	8.4
25512-42-9	Dichlorobiphenyl	3.6	U	34	3.6
28655-71-2	Heptachlorobiphenyl	5.1	U	100	5.1
26601-64-9	Hexachlorobiphenyl	13	J	68	3.4
27323-18-8	Monochlorobiphenyl	1.9	U	34	1.9
53742-07-7	Nonachlorobiphenyl	34	U *	170	34
55722-26-4	Octachlorobiphenyl	5.4	U	100	5.4
25429-29-2	Pentachlorobiphenyl	31	J	68	3.5
26914-33-0	Tetrachlorobiphenyl	14	J	68	3.8
25323-68-6	Trichlorobiphenyl	1.7	U	34	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	46		10-134

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-9-60-63
Lab Sample ID: 680-129150-53
Matrix: Solid
Lab File ID: Xh2828.D
Analysis Method: 680
Date Collected: 08/23/2016 15:10
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.20(g)
Date Analyzed: 08/29/2016 20:37
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 45.3
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.5	U	31	1.5
25512-42-9	Dichlorobiphenyl	0.64	U	6.0	0.64
28655-71-2	Heptachlorobiphenyl	6.6	J	18	0.91
26601-64-9	Hexachlorobiphenyl	15		12	0.60
27323-18-8	Monochlorobiphenyl	0.34	U	6.0	0.34
53742-07-7	Nonachlorobiphenyl	6.0	U *	31	6.0
55722-26-4	Octachlorobiphenyl	0.96	U	18	0.96
25429-29-2	Pentachlorobiphenyl	32		12	0.62
26914-33-0	Tetrachlorobiphenyl	37		12	0.67
25323-68-6	Trichlorobiphenyl	0.31	U	6.0	0.31

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	38		10-134

APPENDIX C

SUPPORT DOCUMENTATION

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: FMC-27 Sediment

Report Number: 680-129150-1

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 the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

RECEIPT

The samples were received on 08/25/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.5º C, 3.7º C, 4.8º C and 5.8º C.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples FMC-27-1-0-3 (680-129150-1), FMC-27-1-12-15 (680-129150-2), FMC-27-1-24-27 (680-129150-3), FMC-27-1-36-39 (680-129150-4), FMC-27-1-48-51 (680-129150-5), FMC-27-1-60-63 (680-129150-6), FMC-27-2-0-3 (680-129150-7), FMC-27-2-12-15 (680-129150-8), FMC-27-2-24-27 (680-129150-9), FMC-27-2-36-39 (680-129150-10), FMC-27-2-48-51 (680-129150-11), FMC-27-2-60-63 (680-129150-12), FMC-27-3-0-3 (680-129150-13), FMC-27-3-12-15 (680-129150-14), FMC-27-3-24-27 (680-129150-15), FMC-27-3-36-39 (680-129150-16), FMC-27-3-48-51 (680-129150-17), FMC-27-6-0-3 (680-129150-18), FMC-27-6-12-15 (680-129150-19), FMC-27-6-24-27 (680-129150-20), FMC-27-6-36-39 (680-129150-21), FMC-27-6-48-51 (680-129150-22), FMC-27-6-56-59 (680-129150-23), FMC-27-5-0-3 (680-129150-24), FMC-27-5-12-15 (680-129150-25), FMC-27-5-24-27 (680-129150-26), FMC-27-5-36-39 (680-129150-27), FMC-27-5-48-51 (680-129150-28), FMC-27-5-60-63 (680-129150-29), FMC-27-4-0-3 (680-129150-30), FMC-27-4-12-15 (680-129150-31), FMC-27-4-24-27 (680-129150-32), FMC-27-4-36-39 (680-129150-33), FMC-27-4-48-51 (680-129150-34), FMC-27-4-60-63 (680-129150-35), FMC-27-8-0-3 (680-129150-36), FMC-27-8-12-15 (680-129150-37), FMC-27-8-24-27 (680-129150-38), FMC-27-8-36-39 (680-129150-39), FMC-27-8-48-51 (680-129150-40), FMC-27-8-60-63 (680-129150-41), FMC-27-7-0-3 (680-129150-42), FMC-27-7-12-15 (680-129150-43), FMC-27-7-24-27 (680-129150-44), FMC-27-7-36-39 (680-129150-45), FMC-27-7-48-51 (680-129150-46), FMC-27-7-60-63 (680-129150-47), FMC-27-9-0-3 (680-129150-48), FMC-27-9-12-15 (680-129150-49), FMC-27-9-24-27 (680-129150-50), FMC-27-9-36-39 (680-129150-51), FMC-27-9-48-51 (680-129150-52) and FMC-27-9-60-63 (680-129150-53) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA Method 680. The samples were prepared on 08/26/2016 and analyzed on 08/26/2016, 08/27/2016, 08/29/2016, 08/30/2016 and 08/31/2016.

The SOP for the 680 Method allows that for soils the CCVIS has a limit of <30%D for each analyte and for liquids <20%D for each analyte . It also allows that the capping CCV for soils has the limit of <30% average %D with no analyte >60%D and for liquids <20% average D with no analyte >40%D. Due to software limitations for this method, the limits are set at <20%D.
(CCV 680-447681/23) and (CCVIS 680-447681/3)

The SOP for the 680 Method allows that the capping CCV for soils has the limit of <30% average %D with no analyte >60%D. Due to software limitations for this method, the limits are set at <30%D.
(CCV 680-447435/23)

The internal standard response for the following sample(s) was outside of acceptance limits when compared to the area of the CCVIS(continuing calibration verification internal standard). The 680 method allows that the sample also be compared to the average internal standard area of the calibration (ICISAV). Due to limitations in the software, when the areas of the sample are out of control for either the CCVIS or the ICISAV both are flagged. Although a * flag appears on the data, the sample is within the area range for the average internal standard area of the calibration (ICISAV).

Internal standard (ISTD) response for the following sample was outside ratio control limits: (680-129150-A-21-C MS). The sample(s) was re-analyzed with concurring results, and the data has been reported.

The SOP for the 680 Method allows that for soils the CCVIS has a limit of <30%D for each analyte and for liquids <20%D for each analyte . It also allows that the capping CCV for soils has the limit of <30% average %D with no analyte >60%D and for liquids <20% average D with no analyte >40%D. Due to software limitations for this method, the limits are set at <20%D and flags will appear on data when data is outside that criteria.

(CCV 680-447879/9)

Sample FMC-27-1-48-51 (680-129150-5), has hit for nonachlorobiphenyl above the RL. The LCS for this sample recovered high for nonachlorobiphenyl. The sample was re-prepped and the hit was confirmed. The original run has been reported.

The laboratory control sample (LCS) for preparation batch 680-447398 and analytical batch 680-447503 recovered outside control limits for the following analytes: Nonachlorobiphenyl. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

The laboratory control sample (LCS) for preparation batch 680-447324 and analytical batch 680-447435 recovered outside control limits for the following analytes: Nonachlorobiphenyl. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Nonachlorobiphenyl failed the recovery criteria high for the MS/MSD of sample FMC-27-1-0-3 (680-129150-1) in batch 680-447433.

Samples FMC-27-2-24-27 (680-129150-9)[5X], FMC-27-3-48-51 (680-129150-17)[5X], FMC-27-6-24-27 (680-129150-20)[5X], FMC-27-6-56-59 (680-129150-23)[5X], FMC-27-9-0-3 (680-129150-48)[5X] and FMC-27-9-48-51 (680-129150-52)[5X] required dilution prior to analysis. Samples FMC-27-3-48-51 (680-129150-17), FMC-27-6-24-27 (680-129150-20) and FMC-27-9-48-51 (680-129150-52) were diluted due to sample matrix. The reporting limits have been adjusted accordingly.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS/MOISTURE

Samples FMC-27-1-0-3 (680-129150-1), FMC-27-1-12-15 (680-129150-2), FMC-27-1-24-27 (680-129150-3), FMC-27-1-36-39 (680-129150-4), FMC-27-1-48-51 (680-129150-5), FMC-27-1-60-63 (680-129150-6), FMC-27-2-0-3 (680-129150-7), FMC-27-2-12-15 (680-129150-8), FMC-27-2-24-27 (680-129150-9), FMC-27-2-36-39 (680-129150-10), FMC-27-2-48-51 (680-129150-11), FMC-27-2-60-63 (680-129150-12), FMC-27-3-0-3 (680-129150-13), FMC-27-3-12-15 (680-129150-14), FMC-27-3-24-27 (680-129150-15), FMC-27-3-36-39 (680-129150-16), FMC-27-3-48-51 (680-129150-17), FMC-27-6-0-3 (680-129150-18), FMC-27-6-12-15 (680-129150-19), FMC-27-6-24-27 (680-129150-20), FMC-27-6-36-39 (680-129150-21), FMC-27-6-48-51 (680-129150-22), FMC-27-6-56-59 (680-129150-23), FMC-27-5-0-3 (680-129150-24), FMC-27-5-12-15 (680-129150-25), FMC-27-5-24-27 (680-129150-26), FMC-27-5-36-39 (680-129150-27), FMC-27-5-48-51 (680-129150-28), FMC-27-5-60-63 (680-129150-29), FMC-27-4-0-3 (680-129150-30), FMC-27-4-12-15 (680-129150-31), FMC-27-4-24-27 (680-129150-32), FMC-27-4-36-39 (680-129150-33), FMC-27-4-48-51 (680-129150-34), FMC-27-4-60-63 (680-129150-35), FMC-27-8-0-3 (680-129150-36), FMC-27-8-12-15 (680-129150-37), FMC-27-8-24-27 (680-129150-38), FMC-27-8-36-39 (680-129150-39), FMC-27-8-48-51 (680-129150-40), FMC-27-8-60-63 (680-129150-41), FMC-27-7-0-3 (680-129150-42), FMC-27-7-12-15 (680-129150-43), FMC-27-7-24-27 (680-129150-44), FMC-27-7-36-39 (680-129150-45), FMC-27-7-48-51 (680-129150-46), FMC-27-7-60-63 (680-129150-47), FMC-27-9-0-3 (680-129150-48), FMC-27-9-12-15 (680-129150-49), FMC-27-9-24-27 (680-129150-50), FMC-27-9-36-39 (680-129150-51), FMC-27-9-48-51 (680-129150-52) and FMC-27-9-60-63 (680-129150-53) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP. The samples were analyzed on 08/26/2016.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

SAMPLE SUMMARY

Client: Tetra Tech, Inc. Job Number: 680-129150-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-129150-1	FMC-27-1-0-3	Solid	08/22/2016 1115	08/25/2016 0917
680-129150-2	FMC-27-1-12-15	Solid	08/22/2016 1117	08/25/2016 0917
680-129150-3	FMC-27-1-24-27	Solid	08/22/2016 1119	08/25/2016 0917
680-129150-4	FMC-27-1-36-39	Solid	08/22/2016 1121	08/25/2016 0917
680-129150-5	FMC-27-1-48-51	Solid	08/22/2016 1123	08/25/2016 0917
680-129150-6	FMC-27-1-60-63	Solid	08/22/2016 1125	08/25/2016 0917
680-129150-7	FMC-27-2-0-3	Solid	08/22/2016 1417	08/25/2016 0917
680-129150-8	FMC-27-2-12-15	Solid	08/22/2016 1419	08/25/2016 0917
680-129150-9	FMC-27-2-24-27	Solid	08/22/2016 1421	08/25/2016 0917
680-129150-10	FMC-27-2-36-39	Solid	08/22/2016 1423	08/25/2016 0917
680-129150-11	FMC-27-2-48-51	Solid	08/22/2016 1425	08/25/2016 0917
680-129150-12	FMC-27-2-60-63	Solid	08/22/2016 1427	08/25/2016 0917
680-129150-13	FMC-27-3-0-3	Solid	08/22/2016 1442	08/25/2016 0917
680-129150-14	FMC-27-3-12-15	Solid	08/22/2016 1444	08/25/2016 0917
680-129150-15	FMC-27-3-24-27	Solid	08/22/2016 1446	08/25/2016 0917
680-129150-16	FMC-27-3-36-39	Solid	08/22/2016 1448	08/25/2016 0917
680-129150-17	FMC-27-3-48-51	Solid	08/22/2016 1450	08/25/2016 0917
680-129150-18	FMC-27-6-0-3	Solid	08/23/2016 1106	08/25/2016 0917
680-129150-19	FMC-27-6-12-15	Solid	08/23/2016 1108	08/25/2016 0917
680-129150-20	FMC-27-6-24-27	Solid	08/23/2016 1110	08/25/2016 0917
680-129150-21	FMC-27-6-36-39	Solid	08/23/2016 1112	08/25/2016 0917
680-129150-22	FMC-27-6-48-51	Solid	08/23/2016 1114	08/25/2016 0917
680-129150-23	FMC-27-6-56-59	Solid	08/23/2016 1116	08/25/2016 0917
680-129150-24	FMC-27-5-0-3	Solid	08/23/2016 1130	08/25/2016 0917
680-129150-25	FMC-27-5-12-15	Solid	08/23/2016 1132	08/25/2016 0917
680-129150-26	FMC-27-5-24-27	Solid	08/23/2016 1134	08/25/2016 0917
680-129150-27	FMC-27-5-36-39	Solid	08/23/2016 1136	08/25/2016 0917
680-129150-28	FMC-27-5-48-51	Solid	08/23/2016 1138	08/25/2016 0917
680-129150-29	FMC-27-5-60-63	Solid	08/23/2016 1140	08/25/2016 0917
680-129150-30	FMC-27-4-0-3	Solid	08/23/2016 1150	08/25/2016 0917
680-129150-31	FMC-27-4-12-15	Solid	08/23/2016 1152	08/25/2016 0917
680-129150-32	FMC-27-4-24-27	Solid	08/23/2016 1154	08/25/2016 0917
680-129150-33	FMC-27-4-36-39	Solid	08/23/2016 1156	08/25/2016 0917
680-129150-34	FMC-27-4-48-51	Solid	08/23/2016 1158	08/25/2016 0917
680-129150-35	FMC-27-4-60-63	Solid	08/23/2016 1200	08/25/2016 0917
680-129150-36	FMC-27-8-0-3	Solid	08/23/2016 1421	08/25/2016 0917
680-129150-37	FMC-27-8-12-15	Solid	08/23/2016 1423	08/25/2016 0917
680-129150-38	FMC-27-8-24-27	Solid	08/23/2016 1425	08/25/2016 0917
680-129150-39	FMC-27-8-36-39	Solid	08/23/2016 1427	08/25/2016 0917
680-129150-40	FMC-27-8-48-51	Solid	08/23/2016 1429	08/25/2016 0917
680-129150-41	FMC-27-8-60-63	Solid	08/23/2016 1431	08/25/2016 0917
680-129150-42	FMC-27-7-0-3	Solid	08/23/2016 1440	08/25/2016 0917
680-129150-43	FMC-27-7-12-15	Solid	08/23/2016 1442	08/25/2016 0917
680-129150-44	FMC-27-7-24-27	Solid	08/23/2016 1444	08/25/2016 0917
680-129150-45	FMC-27-7-36-39	Solid	08/23/2016 1446	08/25/2016 0917
680-129150-46	FMC-27-7-48-51	Solid	08/23/2016 1448	08/25/2016 0917
680-129150-47	FMC-27-7-60-63	Solid	08/23/2016 1450	08/25/2016 0917
680-129150-48	FMC-27-9-0-3	Solid	08/23/2016 1500	08/25/2016 0917
680-129150-49	FMC-27-9-12-15	Solid	08/23/2016 1502	08/25/2016 0917
680-129150-50	FMC-27-9-24-27	Solid	08/23/2016 1504	08/25/2016 0917
680-129150-51	FMC-27-9-36-39	Solid	08/23/2016 1506	08/25/2016 0917
680-129150-52	FMC-27-9-48-51	Solid	08/23/2016 1508	08/25/2016 0917
680-129150-53	FMC-27-9-60-63	Solid	08/23/2016 1510	08/25/2016 0917

METHOD SUMMARY

Client: Tetra Tech, Inc. Job Number: 680-129150-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Polychlorinated Biphenyls (PCBs) (GC/MS)	TAL SAV	EPA 680	
Extraction (Solid PCBs)	TAL SAV		EPA 680
Percent Moisture	TAL SAV	EPA Moisture	

Lab References:

TAL SAV = TestAmerica Savannah

Method References:

EPA = US Environmental Protection Agency

DATA REPORTING QUALIFIERS

Client: Tetra Tech, Inc. Job Number: 680-129150-1

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Indicates the analyte was analyzed for but not detected.
	*	ISTD response or retention time outside acceptable limits
	*	LCS or LCSD is outside acceptance limits.
	F1	MS and/or MSD Recovery is outside acceptance limits.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

erica Baltimore
elley Drive
MD 21076
410.766.2516 Fax:

1-3/C2-3
2-0/C3-0
2-6/C3-6

180325

Chain of Custody Record

000069

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

BALTIMORE

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: APANAVAGE	Site Contact: MULLIS	Date: 8/22/16	COC No:
Company Name: TETRA TECH INC.	Tel/Fax: 301-528-3021	Lab Contact: MCFADDEN	Carrier: FEDEX	1 of 5 COCs
Address: 20251 Century Blvd. Ste. 300	Analysis Turnaround Time			Sampler:
City/State/Zip: GERMANTOWN, MD, 20874	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 301-528-3021	TAT if different from Below			Walk-in Client:
Fax: —	☐ 2 weeks STANDARD			Lab Sampling:
Project Name: FMC-27 Sediment	☐ 1 week			
Site: MSA FMC	☐ 2 days			Job / SDG No..
PO # 112IC07809	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs (680)	Sample Specific Notes:
FMC-27-1-0-3	8/22/16	1115	G	SED	1			X	
FMC-27-1-12-15		1117						X	
FMC-27-1-24-27		1119						X	
FMC-27-1-36-39		1121						X	
FMC-27-1-48-51		1123						X	
FMC-27-1-60-63		1125						X	
FMC-27-2-0-3		1417						X	
FMC-27-2-12-15		1419						X	
FMC-27-2-24-27		1421						X	
FMC-27-2-36-39		1423						X	
FMC-27-2-48-51		1425						X	
FMC-27-2-60-63		1427						X	

680-129150 Chain of Custody

5.4/3.3/4.4/3.1 (C)
5.8/3.7/4.8/3.5 C

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: FMC-27 SEDIMENT PCB INVESTIGATION. USE METHOD 680 ~~8082~~

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Tetra Tech	8/23/16 1535		TT	1535 8/23/16
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TestAmerica	8-23-2016/1632		TAC	08/24/16 1015
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
	TAC	8/24/16 1700		Sav.	08-25-16 0917

680-129150

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180325

Chain of Custody Record

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TestAmerica Laboratories, Inc.
TAL-8210 (0713)

BALTIMORE
Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: ARAMAVAGE	Site Contact: MULLIS	Date: 8/23/16	COC No:
Company Name: TETRA TECH INC.	Tel/Fax: 301-528-3021	Lab Contact: MCFADDEN	Carrier: FedEx	2 of 5 COCs
Address: 20251 CENTURY BLVD. STE.200	Analysis Turnaround Time			Sampler:
City/State/Zip: GERMANTOWN, MD, 20874	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 301-528-3021	TAT if different from Below _____			Walk-in Client:
Fax: —	☐ 2 weeks			Lab Sampling:
Project Name: FMC-27 SEDIMENT	☐ 1 week STANDARD			
Site: MSA FMC	☐ 2 days			Job / SDG No.:
P O # 112IC07809	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs (680)	Sample Specific Notes.
FMC-27-3-0-3	8/22/16	1442	G	SED	1			X	
FMC-27-3-12-15		1444						X	
FMC-27-3-24-27		1446						X	
FMC-27-3-36-39		1448						X	
FMC-27-3-48-51		1450						X	
TAM ~~FMC-27-6-0-3~~ FMC-27-6-0-3	8/23	1106	G	SED	1			X	
FMC-27-6-12-15	8/23/16	1108						X	
FMC-27-6-24-27		1110						X	5.4/3.3/4.4/3.1 (°F)
FMC-27-6-36-39		1112						X	5.8/3.7/4.8/3.5 °C
FMC-27-6-48-51		1114						X	
FMC-27-6-56-59		1116						X	
FMC-27-5-0-3		1130						X	

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments: FMC-27 SEDIMENT INVESTIGATION. USE METHOD 680 ~~AA~~

Custody Seals Intact. ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Tetra Tech	8/23/16 1535	[signature]	TT	8/23/16 1535
Relinquished by: [signature]	Company: TestAmerica	Date/Time: 8-23-2016 1632	Received by: [signature]	Company: TAC	Date/Time: 08/24/16 1015
Relinquished by: [signature]	Company: TAC	Date/Time: 8/24/16 1205	Received in Laboratory by: [signature]	Company: Sau	Date/Time: 08/25/16 0917

680-129150

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Phone: 410.766.2516 Fax:

180325 Chain of Custody Record

000067

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TestAmerica Laboratories, Inc.
TAL-8210 (0713)

BALTIMORE

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact			
Company Name: TETRA TECH INC.	Project Manager: APANAVIA GE	Site Contact: MULLIS	Date: 8/23/16
Address: 20251 Century Blvd. Ste. 200	Tel/Fax: 301-528-3021	Lab Contact: MCFADDEN	Carrier: Fed Ex
City/State/Zip: Germantown, MD, 20874	Analysis Turnaround Time		COC No: 3 of 5 COCs
Phone: 301-528-3021	☐ CALENDAR DAYS ☐ WORKING DAYS		Sampler:
Fax:	TAT if different from Below		For Lab Use Only:
Project Name: FMC-27 SEDIMENT	☐ 2 weeks		Walk-in Client:
Site: MSA FMC	☐ 1 week STANDARD		Lab Sampling:
PO# 112IC07809	☐ 2 days		Job / SDG No..
	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs (8270)	Sample Specific Notes:
FMC-27-5-12-15	8/23/16	1132	G	SED	1			X	
FMC-27-5-24-27		1134						X	
FMC-27-5-36-39		1136						X	
FMC-27-5-48-51		1138						X	
FMC-27-5-60-63		1140						X	
FMC-27-4-0-3		1150						X	
FMC-27-4-12-15		1152						X	
FMC-27-4-24-27		1154						X	
FMC-27-4-36-39		1156						X	5.4/3.3/4.4/3.1 (CF)
FMC-27-4-48-51		1158						X	5.8/3.7/4.8/3.5°C
FMC-27-4-60-63		1200						X	
FMC-27-8-0-3		1421						X	

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: FMC-27 SEDIMENT INV. - USE METHOD 680 ~~8270~~

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd _____ Corr'd _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
	Tetra Tech	8/23/16 1535		TOA	8/23/16 1535
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TestAmerica	8-23-2016/1632		TAC	08/24/16 1615
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
	TAC	8/24/16 1700		Sou.	08/25/16 0917

680-129150

TestAmerica Baltimore
7526 Connelley Drive
Suite F
Hanover, MD 21076
Phone: 410.766.2516 Fax:

180325

Chain of Custody Record

000066

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

BALTIMORE
Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: APAPARADE	Site Contact: MILLES	Date: 8/23/16	COC No:
Company Name: TETRA TECH INC.	Tel/Fax: 301-528-3021	Lab Contact: MCFARLAND	Carrier: FedEx	4 of 5 COCs
Address: 20251 Century Blvd. Ste. 200	Analysis Turnaround Time			Sampler:
City/State/Zip: Germantown, MD 20874	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 301-528-3021	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name FMC-27 SEDIMENT	☐ 1 week STANDARD			
Site: FMC MSA	☐ 2 days			Job / SDG No.:
PO # 112IC07809	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs (608)													Sample Specific Notes
FMC-27-8-12-15	8/23/16	1423	G	SED	1			X													
FMC-27-8-24-27		1425						X													
FMC-27-8-36-39		1427						X													
FMC-27-8-48-51		1429						X													
FMC-27-8-60-63		1431						X													
FMC-27-7-0-3		1440						X													
FMC-27-7-12-15		1442						X													
FMC-27-7-24-27		1444						X													
FMC-27-7-36-39		1446						X													
FMC-27-7-48-51		1448						X													5.4/33/4.4/3.1(C)
FMC-27-7-60-63		1450						X													
FMC-27-9-0-3		1500						X													5.8/3.7/4.8/3.5°C

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: SEE PAGE 1

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Tetra Tech	8/23/16 1535	[signature]	TT	8/23/16 1535
[signature]	TestAmerica	8-23-2016 1632	[signature]	TAC	08/24/16 1015
[signature]	TAC	8/24/16 1700	Received in Laboratory by: [signature]	Company: TAC	Date/Time: 08-25-16 0917

680-12915

TestAmerica Baltimore
7526 Connelley Drive
Suite F
Hanover, MD 21076
Phone: 410.766.2516 Fax:

180325

Chain of Custody Record

000065

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

BALTIMORE
Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: APAMAVAGE	Site Contact: MILLES	Date: 8/23/16	COC No.
Company Name	TETRA TECH INC	Tel/Fax: 301-528-3021	Lab Contact: MCFADDEN	Carrier: Fed Ex	5 of 5 COCs
Address:	20251 century Blvd. Ste. 200	Analysis Turnaround Time			Sampler:
City/State/Zip:	Germantown, MD 20874	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone:	301-528-3021	TAT if different from Below			Walk-in Client:
Fax:		☐ 2 weeks			Lab Sampling:
Project Name:	FMC 27 Sediment	☐ 1 week STANDARD			
Site:	MSA FMC	☐ 2 days			Job / SDG No.:
PO #	1125C07809	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp. G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs (608)	Sample Specific Notes:
FMC-27-9-12-15	8/23/16	1502	G	SED	1			X	
FMC-27-9-24-27		1504						X	
FMC-27-9-36-39		1506						X	
FMC-27-9-48-51		1508						X	
FMC-27-9-60-63		1510						X	

8/23/16

5.4/3.3/4.4/3.1 (CF)
5.8/3.7/4.8/3.5°C

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: SEE PAGE 1

Custody Seals Intact? ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

	Company:	Date/Time:	Received by:	Company	Date/Time:
Relinquished by:	Tetra Tech	8/23/16 1535		TT	8/23/16 1535
Relinquished by:	TestAmerica	8-23-2016 1632		TAL	08/24/16 1015
Relinquished by:	TAL	8/24/16 1200	Received in Laboratory by:	Sev.	08-25-16 0917

680-129150

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 680-129150-1

Login Number: 129150
List Number: 1
Creator: Banda, Christy S

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Method 680

Polychlorinated Biphenyls (PCBs) (GC/MS) by Method 680

FORM V
PCBS INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh1802.D DFTPP Injection Date: 08/18/2016

Instrument ID: CMSX DFTPP Injection Time: 08:31

Analysis Batch No.: 446137

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
127	40 - 60 % of mass 198	54.8
197	Less than 1 % of mass 198	0.5
198	Base peak, 100 % Relative abundance	100.0
199	5 - 9 % of mass 198	7.1
275	10 - 30% of mass 198	26.3
365	Greater than 1% of mass 198	3.4
441	Present but less than mass 443	8.1 (80.1) 2
442	Greater than 40% of mass 198	51.8
443	17 - 23% of mass 442	10.1 (19.5) 1

1-Value is % mass 442 2-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
	ICISAV 680-446137/3	Xh1806.D	08/18/2016	12:57
	IC 680-446137/4	Xh1807.D	08/18/2016	14:37
	IC 680-446137/5	Xh1808.D	08/18/2016	15:06
	IC 680-446137/6	Xh1809.D	08/18/2016	15:35
	IC 680-446137/7	Xh1810.D	08/18/2016	16:04
	ICV 680-446137/8	Xh1811.D	08/18/2016	16:33

FORM VI
PCBS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Savannah Job No.: 680-129150-1 Analy Batch No.: 446137

SDG No.:

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/18/2016 12:57 Calibration End Date: 08/18/2016 16:04 Calibration ID: 47649

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 680-446137/7	Xh1810.D
Level 2	IC 680-446137/6	Xh1809.D
Level 3	ICISAV 680-446137/3	Xh1806.D
Level 4	IC 680-446137/5	Xh1808.D
Level 5	IC 680-446137/4	Xh1807.D

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	LVL 5		B	M1	M2								
Monochlorobiphenyl	1.0211	0.7705	0.7014	0.9274	0.9780	Ave		0.8797				15.6		20.0			
Dichlorobiphenyl	0.6818	0.5727	0.5140	0.6413	0.7085	Ave		0.6237				12.8		20.0			
Trichlorobiphenyl	0.4167	0.3717	0.3328	0.4094	0.4552	Ave		0.3972				11.7		20.0			
PCB-104			0.2701			Ave		0.2701						30.0			
Tetrachlorobiphenyl	0.2889	0.2476	0.2230	0.2810	0.3085	Ave		0.2698				12.7		20.0			
Pentachlorobiphenyl	0.2075	0.1926	0.1780	0.2154	0.2360	Ave		0.2059				10.7		20.0			
PCB-77			0.3347			Ave		0.3347						30.0			
Hexachlorobiphenyl	0.2044	0.1889	0.1761	0.2022	0.2226	Ave		0.1988				8.8		20.0			
Heptachlorobiphenyl	0.1809	0.1687	0.1578	0.1796	0.1996	Ave		0.1773				8.8		20.0			
Octachlorobiphenyl	0.1468	0.1409	0.1336	0.1469	0.1628	Ave		0.1462				7.4		20.0			
PCB-208			0.0439			Ave		0.0439						30.0			
Nonachlorobiphenyl			0.0346			Ave		0.0228				4.9		20.0			
DCB Decachlorobiphenyl	0.0232	0.0224	0.0216	0.0222	0.0245	Ave		0.0228				4.9		20.0			
gamma-BHC-13C6 (Surr)	0.2057	0.1825	0.1589	0.2015	0.2137	Ave		0.1925				11.4		50.0			
4,4'-DDT-13C12 (Surr)	0.2764	0.3225	0.3234	0.3857	0.4439	Ave		0.3504				18.6		50.0			
Decachlorobiphenyl-13C12	0.0259	0.0273	0.0245	0.0257	0.0283	Ave		0.0264				5.6		20.0			

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

FORM VI
PCBS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Savannah Job No.: 680-129150-1 Analy Batch No.: 446137

SDG No.:

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/18/2016 12:57 Calibration End Date: 08/18/2016 16:04 Calibration ID: 47649

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 680-446137/7	Xh1810.D
Level 2	IC 680-446137/6	Xh1809.D
Level 3	ICISAV 680-446137/3	Xh1806.D
Level 4	IC 680-446137/5	Xh1808.D
Level 5	IC 680-446137/4	Xh1807.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/ML)				
			LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5
Monochlorobiphenyl	CRY	Ave	10965	47519	99609	188473	614888	0.100	0.500	1.00	2.00	5.00
Dichlorobiphenyl	CRY	Ave	7321	35323	72994	130332	445454	0.100	0.500	1.00	2.00	5.00
Trichlorobiphenyl	CRY	Ave	4475	22923	47262	83196	286170	0.100	0.500	1.00	2.00	5.00
PCB-104	CRY	Ave			76710					2.00		
Tetrachlorobiphenyl	CRY	Ave	6204	30541	63326	114230	387954	0.200	1.00	2.00	4.00	10.0
Pentachlorobiphenyl	CRY	Ave	4456	23764	50555	87528	296747	0.200	1.00	2.00	4.00	10.0
PCB-77	CRY	Ave			95060					2.00		
Hexachlorobiphenyl	CRY	Ave	4390	23298	50010	82189	279956	0.200	1.00	2.00	4.00	10.0
Heptachlorobiphenyl	CRY	Ave	5828	31219	67215	109502	376390	0.300	1.50	3.00	6.00	15.0
Octachlorobiphenyl	CRY	Ave	4729	26067	56905	89572	307058	0.300	1.50	3.00	6.00	15.0
PCB-208	CRY	Ave			24926					4.00		
Nonachlorobiphenyl	CRY	Ave			24554					5.00		
DCB Decachlorobiphenyl	CRY	Ave	1245	6914	15338	22587	77064	0.500	2.50	5.00	10.0	25.0
gamma-BHC-13C6 (Surr)	CRY	Ave	4417	22517	45142	81917	268687	0.200	1.00	2.00	4.00	10.0
4,4'-DDT-13C12 (Surr)	CRY	Ave	5937	39786	91862	156749	558189	0.200	1.00	2.00	4.00	10.0
Decachlorobiphenyl-13C12	CRY	Ave	1393	8432	17400	26161	71146	0.500	2.50	5.00	10.0	20.0

Curve Type Legend:

Ave = Average ISTD

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: ICV 680-446137/8 Calibration Date: 08/18/2016 16:33

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh1811.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.7596		0.863	1.00	-13.7	20.0
Dichlorobiphenyl	Ave	0.6237	0.5217		0.836	1.00	-16.4	20.0
Trichlorobiphenyl	Ave	0.3972	0.3810		0.959	1.00	-4.1	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2482		1.84	2.00	-8.0	20.0
Pentachlorobiphenyl	Ave	0.2059	0.1906		1.85	2.00	-7.4	20.0
Hexachlorobiphenyl	Ave	0.1988	0.1810		1.82	2.00	-9.0	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1634		2.76	3.00	-7.9	20.0
Octachlorobiphenyl	Ave	0.1462	0.1384		2.84	3.00	-5.3	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0463		8.13	4.00	34.0*	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0215		4.72	5.00	-5.7	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1686		1.75	2.00	-12.4	20.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.3214		1.83	2.00	-8.3	20.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0251		4.76	5.00	-4.7	20.0

FORM V
PCBS INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2602.D DFTPP Injection Date: 08/26/2016

Instrument ID: CMSX DFTPP Injection Time: 16:49

Analysis Batch No.: 447433

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
127	40 - 60 % of mass 198	53.7
197	Less than 1 % of mass 198	0.0
198	Base peak, 100 % Relative abundance	100.0
199	5 - 9 % of mass 198	6.1
275	10 - 30% of mass 198	25.0
365	Greater than 1% of mass 198	3.2
441	Present but less than mass 443	8.4 (97.2) 2
442	Greater than 40% of mass 198	50.7
443	17 - 23% of mass 442	8.6 (17.0) 1

1-Value is % mass 442 2-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
	WDM 680-447433/2	Xh2603.D	08/26/2016	17:20
	CCVIS 680-447433/3	Xh2604.D	08/26/2016	17:51
	MB 680-447321/21-A	Xh2606.D	08/26/2016	18:49
	LCS 680-447321/22-A	Xh2607.D	08/26/2016	19:18
FMC-27-1-0-3 MS	680-129150-1 MS	Xh2608.D	08/26/2016	19:46
FMC-27-1-0-3 MSD	680-129150-1 MSD	Xh2609.D	08/26/2016	20:15
FMC-27-1-0-3	680-129150-1	Xh2610.D	08/26/2016	20:44
FMC-27-1-12-15	680-129150-2	Xh2611.D	08/26/2016	21:13
FMC-27-1-24-27	680-129150-3	Xh2612.D	08/26/2016	21:42
FMC-27-1-36-39	680-129150-4	Xh2613.D	08/26/2016	22:11
FMC-27-1-48-51	680-129150-5	Xh2614.D	08/26/2016	22:39
FMC-27-1-60-63	680-129150-6	Xh2615.D	08/26/2016	23:08
FMC-27-2-0-3	680-129150-7	Xh2616.D	08/26/2016	23:37
FMC-27-2-12-15	680-129150-8	Xh2617.D	08/27/2016	00:05
FMC-27-2-36-39	680-129150-10	Xh2619.D	08/27/2016	01:03
FMC-27-2-48-51	680-129150-11	Xh2620.D	08/27/2016	01:32
FMC-27-2-60-63	680-129150-12	Xh2621.D	08/27/2016	02:01
FMC-27-3-0-3	680-129150-13	Xh2622.D	08/27/2016	02:29
FMC-27-3-12-15	680-129150-14	Xh2623.D	08/27/2016	02:58
FMC-27-3-24-27	680-129150-15	Xh2624.D	08/27/2016	03:27
	CCV 680-447433/24	Xh2626.D	08/27/2016	04:25

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCVIS 680-447433/3 Calibration Date: 08/26/2016 17:51

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2604.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.8119		0.923	1.00	-7.7	20.0
Dichlorobiphenyl	Ave	0.6237	0.5944		0.953	1.00	-4.7	20.0
Trichlorobiphenyl	Ave	0.3972	0.3985		1.00	1.00	0.3	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2611		1.94	2.00	-3.2	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2128		2.07	2.00	3.4	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2062		2.07	2.00	3.7	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1847		3.12	3.00	4.1	20.0
Octachlorobiphenyl	Ave	0.1462	0.1550		3.18	3.00	6.0	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0234		5.12	5.00	2.4	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1835		1.91	2.00	-4.7	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.3687		2.10	2.00	5.2	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0275		5.22	5.00	4.3	20.0

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCV 680-447433/24 Calibration Date: 08/27/2016 04:25

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2626.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.8601		0.978	1.00	-2.2	20.0
Dichlorobiphenyl	Ave	0.6237	0.6501		1.04	1.00	4.2	20.0
Trichlorobiphenyl	Ave	0.3972	0.4327		1.09	1.00	9.0	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2783		2.06	2.00	3.1	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2273		2.21	2.00	10.4	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2129		2.14	2.00	7.1	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1828		3.09	3.00	3.1	20.0
Octachlorobiphenyl	Ave	0.1462	0.1523		3.12	3.00	4.1	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0184		4.04	5.00	-19.1	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1560		1.62	2.00	-18.9	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0268		0.153	2.00	-92.4*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0216		4.10	5.00	-18.0	20.0

FORM V
PCBS INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2630.D DFTPP Injection Date: 08/27/2016

Instrument ID: CMSX DFTPP Injection Time: 06:22

Analysis Batch No.: 447435

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
127	40 - 60 % of mass 198	50.9
197	Less than 1 % of mass 198	0.0
198	Base peak, 100 % Relative abundance	100.0
199	5 - 9 % of mass 198	6.8
275	10 - 30% of mass 198	29.6
365	Greater than 1% of mass 198	4.0
441	Present but less than mass 443	7.5 (61.4) 2
442	Greater than 40% of mass 198	67.8
443	17 - 23% of mass 442	12.2 (18.0) 1

1-Value is % mass 442 2-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
	WDM 680-447435/2	Xh2631.D	08/27/2016	06:52
	CCVIS 680-447435/3	Xh2632.D	08/27/2016	07:23
FMC-27-3-36-39	680-129150-16	Xh2634.D	08/27/2016	08:21
FMC-27-6-0-3	680-129150-18	Xh2636.D	08/27/2016	09:18
FMC-27-6-12-15	680-129150-19	Xh2637.D	08/27/2016	09:47
	MB 680-447324/21-A	Xh2639.D	08/27/2016	10:45
	LCS 680-447324/22-A	Xh2640.D	08/27/2016	11:14
FMC-27-6-36-39 MSD	680-129150-21 MSD	Xh2642.D	08/27/2016	12:11
FMC-27-6-36-39	680-129150-21	Xh2643.D	08/27/2016	12:40
FMC-27-6-48-51	680-129150-22	Xh2644.D	08/27/2016	13:09
FMC-27-5-0-3	680-129150-24	Xh2646.D	08/27/2016	14:07
FMC-27-5-12-15	680-129150-25	Xh2647.D	08/27/2016	14:36
FMC-27-5-24-27	680-129150-26	Xh2648.D	08/27/2016	15:05
FMC-27-5-36-39	680-129150-27	Xh2649.D	08/27/2016	15:34
FMC-27-5-48-51	680-129150-28	Xh2650.D	08/27/2016	16:03
FMC-27-5-60-63	680-129150-29	Xh2651.D	08/27/2016	16:32
	CCV 680-447435/23	Xh2652.D	08/27/2016	17:01

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCVIS 680-447435/3 Calibration Date: 08/27/2016 07:23

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2632.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.9048		1.03	1.00	2.9	20.0
Dichlorobiphenyl	Ave	0.6237	0.6751		1.08	1.00	8.2	20.0
Trichlorobiphenyl	Ave	0.3972	0.4533		1.14	1.00	14.1	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2893		2.14	2.00	7.2	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2379		2.31	2.00	15.5	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2326		2.34	2.00	17.0	20.0
Heptachlorobiphenyl	Ave	0.1773	0.2056		3.48	3.00	16.0	20.0
Octachlorobiphenyl	Ave	0.1462	0.1666		3.42	3.00	14.0	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0216		4.74	5.00	-5.2	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1739		1.81	2.00	-9.7	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0392		0.224	2.00	-88.8*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0258		4.89	5.00	-2.2	20.0

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCV 680-447435/23 Calibration Date: 08/27/2016 17:01

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2652.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	1.074		1.22	1.00	22.1*	20.0
Dichlorobiphenyl	Ave	0.6237	0.8073		1.29	1.00	29.4*	20.0
Trichlorobiphenyl	Ave	0.3972	0.5339		1.34	1.00	34.4*	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.3428		2.54	2.00	27.1*	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2590		2.52	2.00	25.8*	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2421		2.44	2.00	21.8*	20.0
Heptachlorobiphenyl	Ave	0.1773	0.2046		3.46	3.00	15.4	20.0
Octachlorobiphenyl	Ave	0.1462	0.1515		3.11	3.00	3.6	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0425		7.45	4.00	22.8*	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0161		3.53	5.00	-29.5*	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1887		1.96	2.00	-2.0	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0318		0.181	2.00	-90.9*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0182		3.46	5.00	-30.8*	20.0

FORM V
PCBS INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2808.D DFTPP Injection Date: 08/29/2016

Instrument ID: CMSX DFTPP Injection Time: 11:24

Analysis Batch No.: 447503

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
127	40 - 60 % of mass 198	54.7
197	Less than 1 % of mass 198	0.7
198	Base peak, 100 % Relative abundance	100.0
199	5 - 9 % of mass 198	5.7
275	10 - 30% of mass 198	24.9
365	Greater than 1% of mass 198	3.8
441	Present but less than mass 443	8.6 (90.7) 2
442	Greater than 40% of mass 198	49.2
443	17 - 23% of mass 442	9.5 (19.4) 1

1-Value is % mass 442 2-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
	WDM 680-447503/2	Xh2809.D	08/29/2016	11:55
	CCVIS 680-447503/3	Xh2810.D	08/29/2016	12:26
	MB 680-447398/21-A	Xh2812.D	08/29/2016	12:55
	LCS 680-447398/22-A	Xh2813.D	08/29/2016	13:24
FMC-27-8-60-63 MSD	680-129150-41 MSD	Xh2815.D	08/29/2016	14:22
FMC-27-8-60-63	680-129150-41	Xh2816.D	08/29/2016	14:51
FMC-27-7-0-3	680-129150-42	Xh2817.D	08/29/2016	15:20
FMC-27-7-12-15	680-129150-43	Xh2818.D	08/29/2016	15:48
FMC-27-7-24-27	680-129150-44	Xh2819.D	08/29/2016	16:17
FMC-27-7-36-39	680-129150-45	Xh2820.D	08/29/2016	16:46
FMC-27-7-48-51	680-129150-46	Xh2821.D	08/29/2016	17:15
FMC-27-7-60-63	680-129150-47	Xh2822.D	08/29/2016	17:44
FMC-27-9-12-15	680-129150-49	Xh2824.D	08/29/2016	18:42
FMC-27-9-24-27	680-129150-50	Xh2825.D	08/29/2016	19:10
FMC-27-9-36-39	680-129150-51	Xh2826.D	08/29/2016	19:39
FMC-27-9-60-63	680-129150-53	Xh2828.D	08/29/2016	20:37
FMC-27-2-24-27	680-129150-9	Xh2829.D	08/29/2016	21:06
FMC-27-6-56-59	680-129150-23	Xh2830.D	08/29/2016	21:35
FMC-27-6-36-39 MS	680-129150-21 MS	Xh2831.D	08/29/2016	22:04
	CCV 680-447503/24	Xh2832.D	08/29/2016	22:32

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCVIS 680-447503/3 Calibration Date: 08/29/2016 12:26

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2810.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.8263		0.939	1.00	-6.1	20.0
Dichlorobiphenyl	Ave	0.6237	0.5994		0.961	1.00	-3.9	20.0
Trichlorobiphenyl	Ave	0.3972	0.3972		1.00	1.00	0.0	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2659		1.97	2.00	-1.5	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2204		2.14	2.00	7.0	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2111		2.12	2.00	6.2	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1893		3.20	3.00	6.8	20.0
Octachlorobiphenyl	Ave	0.1462	0.1593		3.27	3.00	9.0	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0230		5.06	5.00	1.1	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1868		1.94	2.00	-3.0	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.2677		1.53	2.00	-23.6	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0266		5.05	5.00	1.0	20.0

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCV 680-447503/24 Calibration Date: 08/29/2016 22:32

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2832.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.7488		0.851	1.00	-14.9	20.0
Dichlorobiphenyl	Ave	0.6237	0.5711		0.916	1.00	-8.4	20.0
Trichlorobiphenyl	Ave	0.3972	0.3804		0.958	1.00	-4.2	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2461		1.82	2.00	-8.8	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2018		1.96	2.00	-2.0	20.0
Hexachlorobiphenyl	Ave	0.1988	0.1877		1.89	2.00	-5.6	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1652		2.79	3.00	-6.8	20.0
Octachlorobiphenyl	Ave	0.1462	0.1295		2.66	3.00	-11.4	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0392		6.88	4.00	13.3	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0154		3.38	5.00	-32.4*	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1425		1.48	2.00	-26.0	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0324		0.185	2.00	-90.8*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0184		3.50	5.00	-30.1*	20.0

FORM V
PCBS INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2902.D DFTPP Injection Date: 08/30/2016

Instrument ID: CMSX DFTPP Injection Time: 09:14

Analysis Batch No.: 447681

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
127	40 - 60 % of mass 198	56.9
197	Less than 1 % of mass 198	0.0
198	Base peak, 100 % Relative abundance	100.0
199	5 - 9 % of mass 198	6.7
275	10 - 30% of mass 198	23.4
365	Greater than 1% of mass 198	3.2
441	Present but less than mass 443	2.5 (28.3) 2
442	Greater than 40% of mass 198	46.8
443	17 - 23% of mass 442	8.9 (19.0) 1

1-Value is % mass 442 2-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
	WDM 680-447681/2	Xh2903.D	08/30/2016	09:45
	CCVIS 680-447681/3	Xh2904.D	08/30/2016	10:16
FMC-27-4-0-3	680-129150-30	Xh2905.D	08/30/2016	10:44
FMC-27-4-12-15	680-129150-31	Xh2906.D	08/30/2016	11:13
FMC-27-4-24-27	680-129150-32	Xh2907.D	08/30/2016	11:42
FMC-27-4-36-39	680-129150-33	Xh2908.D	08/30/2016	12:11
FMC-27-4-48-51	680-129150-34	Xh2909.D	08/30/2016	12:40
FMC-27-4-60-63	680-129150-35	Xh2910.D	08/30/2016	13:08
FMC-27-8-0-3	680-129150-36	Xh2911.D	08/30/2016	13:37
FMC-27-8-12-15	680-129150-37	Xh2912.D	08/30/2016	14:06
FMC-27-8-24-27	680-129150-38	Xh2913.D	08/30/2016	14:35
FMC-27-8-36-39	680-129150-39	Xh2914.D	08/30/2016	15:04
FMC-27-9-0-3	680-129150-48	Xh2916.D	08/30/2016	16:02
FMC-27-8-60-63 MS	680-129150-41 MS	Xh2920.D	08/30/2016	17:58
	CCV 680-447681/23	Xh2925.D	08/30/2016	20:22

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCVIS 680-447681/3 Calibration Date: 08/30/2016 10:16

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2904.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.7074		0.804	1.00	-19.6	20.0
Dichlorobiphenyl	Ave	0.6237	0.5268		0.845	1.00	-15.5	20.0
Trichlorobiphenyl	Ave	0.3972	0.3489		0.878	1.00	-12.2	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2299		1.70	2.00	-14.8	20.0
Pentachlorobiphenyl	Ave	0.2059	0.1897		1.84	2.00	-7.9	20.0
Hexachlorobiphenyl	Ave	0.1988	0.1800		1.81	2.00	-9.5	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1585		2.68	3.00	-10.6	20.0
Octachlorobiphenyl	Ave	0.1462	0.1279		2.62	3.00	-12.5	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0400		7.02	4.00	15.7	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0180		3.96	5.00	-20.8*	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1447		1.50	2.00	-24.8	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0578		0.330	2.00	-83.5*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0212		4.01	5.00	-19.7	20.0

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCV 680-447681/23 Calibration Date: 08/30/2016 20:22

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh2925.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.8655		0.984	1.00	-1.6	20.0
Dichlorobiphenyl	Ave	0.6237	0.6450		1.03	1.00	3.4	20.0
Trichlorobiphenyl	Ave	0.3972	0.4329		1.09	1.00	9.0	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2857		2.12	2.00	5.9	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2277		2.21	2.00	10.6	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2091		2.10	2.00	5.1	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1798		3.04	3.00	1.4	20.0
Octachlorobiphenyl	Ave	0.1462	0.1401		2.88	3.00	-4.2	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0391		6.86	4.00	13.0	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0161		3.53	5.00	-29.3*	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1622		1.69	2.00	-15.7	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0229		0.130	2.00	-93.5*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0186		3.52	5.00	-29.5*	20.0

FORM V
PCBS INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh3102.D DFTPP Injection Date: 08/31/2016

Instrument ID: CMSX DFTPP Injection Time: 10:07

Analysis Batch No.: 447879

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
127	40 - 60 % of mass 198	56.0
197	Less than 1 % of mass 198	0.0
198	Base peak, 100 % Relative abundance	100.0
199	5 - 9 % of mass 198	6.5
275	10 - 30% of mass 198	24.0
365	Greater than 1% of mass 198	3.4
441	Present but less than mass 443	8.1 (99.8) 2
442	Greater than 40% of mass 198	46.0
443	17 - 23% of mass 442	8.2 (17.7) 1

1-Value is % mass 442 2-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
	WDM 680-447879/2	Xh3103.D	08/31/2016	10:38
	CCVIS 680-447879/3	Xh3104.D	08/31/2016	11:09
FMC-27-3-48-51	680-129150-17	Xh3105.D	08/31/2016	11:38
FMC-27-6-24-27	680-129150-20	Xh3106.D	08/31/2016	12:07
FMC-27-9-48-51	680-129150-52	Xh3107.D	08/31/2016	12:36
FMC-27-8-48-51	680-129150-40	Xh3109.D	08/31/2016	13:04
	CCV 680-447879/9	Xh3111.D	08/31/2016	14:08

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCVIS 680-447879/3 Calibration Date: 08/31/2016 11:09

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh3104.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.7924		0.901	1.00	-9.9	20.0
Dichlorobiphenyl	Ave	0.6237	0.5638		0.904	1.00	-9.6	20.0
Trichlorobiphenyl	Ave	0.3972	0.4373		1.10	1.00	10.1	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2756		2.04	2.00	2.1	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2222		2.16	2.00	7.9	20.0
Hexachlorobiphenyl	Ave	0.1988	0.2081		2.09	2.00	4.6	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1860		3.15	3.00	4.9	20.0
Octachlorobiphenyl	Ave	0.1462	0.1563		3.21	3.00	6.9	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0483		8.47	4.00	39.6*	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0203		4.45	5.00	-11.0	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1563		1.62	2.00	-18.8	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0246		0.140	2.00	-93.0*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0238		4.51	5.00	-9.9	20.0

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab Sample ID: CCV 680-447879/9 Calibration Date: 08/31/2016 14:08

Instrument ID: CMSX Calib Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calib End Date: 08/18/2016 16:04

Lab File ID: Xh3111.D Conc. Units: ug/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Monochlorobiphenyl	Ave	0.8797	0.7601		0.864	1.00	-13.6	20.0
Dichlorobiphenyl	Ave	0.6237	0.5465		0.876	1.00	-12.4	20.0
Trichlorobiphenyl	Ave	0.3972	0.4152		1.05	1.00	4.5	20.0
Tetrachlorobiphenyl	Ave	0.2698	0.2597		1.93	2.00	-3.7	20.0
Pentachlorobiphenyl	Ave	0.2059	0.2113		2.05	2.00	2.6	20.0
Hexachlorobiphenyl	Ave	0.1988	0.1961		1.97	2.00	-1.4	20.0
Heptachlorobiphenyl	Ave	0.1773	0.1799		3.04	3.00	1.5	20.0
Octachlorobiphenyl	Ave	0.1462	0.1413		2.90	3.00	-3.3	20.0
Nonachlorobiphenyl	Ave	0.0346	0.0419		7.35	4.00	21.1*	20.0
DCB Decachlorobiphenyl	Ave	0.0228	0.0185		4.05	5.00	-19.1	20.0
gamma-BHC-13C6 (Surr)	Ave	0.1925	0.1547		1.61	2.00	-19.6	50.0
4,4'-DDT-13C12 (Surr)	Ave	0.3504	0.0225		0.128	2.00	-93.6*	50.0
Decachlorobiphenyl-13C12	Ave	0.0264	0.0209		3.96	5.00	-20.8*	20.0

FORM IV
PCBS METHOD BLANK SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2606.D Lab Sample ID: MB 680-447321/21-A

Matrix: Solid Date Extracted: 08/26/2016 11:03

Instrument ID: CMSX Date Analyzed: 08/26/2016 18:49

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 680-447321/22-A	Xh2607.D	08/26/2016 19:18
FMC-27-1-0-3 MS	680-129150-1 MS	Xh2608.D	08/26/2016 19:46
FMC-27-1-0-3 MSD	680-129150-1 MSD	Xh2609.D	08/26/2016 20:15
FMC-27-1-0-3	680-129150-1	Xh2610.D	08/26/2016 20:44
FMC-27-1-12-15	680-129150-2	Xh2611.D	08/26/2016 21:13
FMC-27-1-24-27	680-129150-3	Xh2612.D	08/26/2016 21:42
FMC-27-1-36-39	680-129150-4	Xh2613.D	08/26/2016 22:11
FMC-27-1-48-51	680-129150-5	Xh2614.D	08/26/2016 22:39
FMC-27-1-60-63	680-129150-6	Xh2615.D	08/26/2016 23:08
FMC-27-2-0-3	680-129150-7	Xh2616.D	08/26/2016 23:37
FMC-27-2-12-15	680-129150-8	Xh2617.D	08/27/2016 00:05
FMC-27-2-36-39	680-129150-10	Xh2619.D	08/27/2016 01:03
FMC-27-2-48-51	680-129150-11	Xh2620.D	08/27/2016 01:32
FMC-27-2-60-63	680-129150-12	Xh2621.D	08/27/2016 02:01
FMC-27-3-0-3	680-129150-13	Xh2622.D	08/27/2016 02:29
FMC-27-3-12-15	680-129150-14	Xh2623.D	08/27/2016 02:58
FMC-27-3-24-27	680-129150-15	Xh2624.D	08/27/2016 03:27
FMC-27-3-36-39	680-129150-16	Xh2634.D	08/27/2016 08:21
FMC-27-6-0-3	680-129150-18	Xh2636.D	08/27/2016 09:18
FMC-27-6-12-15	680-129150-19	Xh2637.D	08/27/2016 09:47
FMC-27-2-24-27	680-129150-9	Xh2829.D	08/29/2016 21:06
FMC-27-3-48-51	680-129150-17	Xh3105.D	08/31/2016 11:38
FMC-27-6-24-27	680-129150-20	Xh3106.D	08/31/2016 12:07

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 680-447321/21-A
Matrix: Solid
Lab File ID: Xh2606.D
Analysis Method: 680
Date Collected:
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.07(g)
Date Analyzed: 08/26/2016 18:49
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	0.83	U	17	0.83
25512-42-9	Dichlorobiphenyl	0.35	U	3.3	0.35
28655-71-2	Heptachlorobiphenyl	0.50	U	10	0.50
26601-64-9	Hexachlorobiphenyl	0.33	U	6.7	0.33
27323-18-8	Monochlorobiphenyl	0.19	U	3.3	0.19
53742-07-7	Nonachlorobiphenyl	3.3	U	17	3.3
55722-26-4	Octachlorobiphenyl	0.53	U	10	0.53
25429-29-2	Pentachlorobiphenyl	0.34	U	6.7	0.34
26914-33-0	Tetrachlorobiphenyl	0.37	U	6.7	0.37
25323-68-6	Trichlorobiphenyl	0.17	U	3.3	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	92		10-134

FORM III
PCBS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2607.D

Lab ID: LCS 680-447321/22-A Client ID:

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Dichlorobiphenyl	66.2	55.7	84	30-130	
Heptachlorobiphenyl	199	190	96	40-140	
Hexachlorobiphenyl	132	124	94	40-140	
Monochlorobiphenyl	66.2	53.2	80	30-130	
Nonachlorobiphenyl	331	636	192	30-130	*
Octachlorobiphenyl	199	199	100	40-140	
Pentachlorobiphenyl	132	124	93	40-140	
Tetrachlorobiphenyl	132	117	88	40-140	
Trichlorobiphenyl	66.2	60.0	91	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM III
PCBS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2608.D

Lab ID: 680-129150-1 MS Client ID: FMC-27-1-0-3 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Dichlorobiphenyl	142	0.75 U	107	76	30-130	
Heptachlorobiphenyl	426	1.1 U	323	76	40-140	
Hexachlorobiphenyl	284	16	241	79	40-140	
Monochlorobiphenyl	142	0.40 U	104	73	30-130	
Nonachlorobiphenyl	709	7.0 U	1010	143	30-130	F1
Octachlorobiphenyl	426	1.1 U	320	75	40-140	
Pentachlorobiphenyl	284	26	246	77	40-140	
Tetrachlorobiphenyl	284	0.79 U	226	79	40-140	
Trichlorobiphenyl	142	0.36 U	117	82	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM III
PCBS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2609.D

Lab ID: 680-129150-1 MSD Client ID: FMC-27-1-0-3 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Dichlorobiphenyl	141	112	79	4	50	30-130	
Heptachlorobiphenyl	424	323	76	0	50	40-140	
Hexachlorobiphenyl	283	220	72	9	50	40-140	
Monochlorobiphenyl	141	105	74	1	50	30-130	
Nonachlorobiphenyl	706	1020	144	0	50	30-130	F1
Octachlorobiphenyl	424	323	76	1	50	40-140	
Pentachlorobiphenyl	283	229	72	7	50	40-140	
Tetrachlorobiphenyl	283	232	82	3	50	40-140	
Trichlorobiphenyl	141	117	83	0	50	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM IV
PCBS METHOD BLANK SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2639.D Lab Sample ID: MB 680-447324/21-A

Matrix: Solid Date Extracted: 08/26/2016 13:11

Instrument ID: CMSX Date Analyzed: 08/27/2016 10:45

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 680-447324/22-A	Xh2640.D	08/27/2016 11:14
FMC-27-6-36-39 MSD	680-129150-21 MSD	Xh2642.D	08/27/2016 12:11
FMC-27-6-36-39	680-129150-21	Xh2643.D	08/27/2016 12:40
FMC-27-6-48-51	680-129150-22	Xh2644.D	08/27/2016 13:09
FMC-27-5-0-3	680-129150-24	Xh2646.D	08/27/2016 14:07
FMC-27-5-12-15	680-129150-25	Xh2647.D	08/27/2016 14:36
FMC-27-5-24-27	680-129150-26	Xh2648.D	08/27/2016 15:05
FMC-27-5-36-39	680-129150-27	Xh2649.D	08/27/2016 15:34
FMC-27-5-48-51	680-129150-28	Xh2650.D	08/27/2016 16:03
FMC-27-5-60-63	680-129150-29	Xh2651.D	08/27/2016 16:32
FMC-27-6-56-59	680-129150-23	Xh2830.D	08/29/2016 21:35
FMC-27-6-36-39 MS	680-129150-21 MS	Xh2831.D	08/29/2016 22:04
FMC-27-4-0-3	680-129150-30	Xh2905.D	08/30/2016 10:44
FMC-27-4-12-15	680-129150-31	Xh2906.D	08/30/2016 11:13
FMC-27-4-24-27	680-129150-32	Xh2907.D	08/30/2016 11:42
FMC-27-4-36-39	680-129150-33	Xh2908.D	08/30/2016 12:11
FMC-27-4-48-51	680-129150-34	Xh2909.D	08/30/2016 12:40
FMC-27-4-60-63	680-129150-35	Xh2910.D	08/30/2016 13:08
FMC-27-8-0-3	680-129150-36	Xh2911.D	08/30/2016 13:37
FMC-27-8-12-15	680-129150-37	Xh2912.D	08/30/2016 14:06
FMC-27-8-24-27	680-129150-38	Xh2913.D	08/30/2016 14:35
FMC-27-8-36-39	680-129150-39	Xh2914.D	08/30/2016 15:04
FMC-27-8-48-51	680-129150-40	Xh3109.D	08/31/2016 13:04

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 680-447324/21-A
Matrix: Solid
Lab File ID: Xh2639.D
Analysis Method: 680
Date Collected:
Extract. Method: 680
Date Extracted: 08/26/2016 13:11
Sample wt/vol: 30.14(g)
Date Analyzed: 08/27/2016 10:45
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447435
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	0.83	U	17	0.83
25512-42-9	Dichlorobiphenyl	0.35	U	3.3	0.35
28655-71-2	Heptachlorobiphenyl	0.50	U	10	0.50
26601-64-9	Hexachlorobiphenyl	0.33	U	6.7	0.33
27323-18-8	Monochlorobiphenyl	0.19	U	3.3	0.19
53742-07-7	Nonachlorobiphenyl	3.3	U	17	3.3
55722-26-4	Octachlorobiphenyl	0.53	U	10	0.53
25429-29-2	Pentachlorobiphenyl	0.34	U	6.7	0.34
26914-33-0	Tetrachlorobiphenyl	0.37	U	6.7	0.37
25323-68-6	Trichlorobiphenyl	0.17	U	3.3	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	65		10-134

FORM III
PCBS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2640.D

Lab ID: LCS 680-447324/22-A Client ID:

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Dichlorobiphenyl	66.6	53.3	80	30-130	
Heptachlorobiphenyl	200	185	93	40-140	
Hexachlorobiphenyl	133	122	92	40-140	
Monochlorobiphenyl	66.6	47.5	71	30-130	
Nonachlorobiphenyl	333	559	168	30-130	*
Octachlorobiphenyl	200	180	90	40-140	
Pentachlorobiphenyl	133	125	94	40-140	
Tetrachlorobiphenyl	133	111	83	40-140	
Trichlorobiphenyl	66.6	59.2	89	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM III
PCBS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2831.D

Lab ID: 680-129150-21 MS Client ID: FMC-27-6-36-39 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Dichlorobiphenyl	109	0.57 U	69.0	63	30-130	*
Heptachlorobiphenyl	328	10 J	213	62	40-140	*
Hexachlorobiphenyl	219	48	178	60	40-140	*
Monochlorobiphenyl	109	0.31 U	71.5	65	30-130	*
Nonachlorobiphenyl	546	5.4 U	586	107	30-130	*
Octachlorobiphenyl	328	0.87 U	194	59	40-140	*
Pentachlorobiphenyl	219	59	193	61	40-140	*
Tetrachlorobiphenyl	219	25	148	57	40-140	*
Trichlorobiphenyl	109	3.9 J	79.5	69	30-130	*

Column to be used to flag recovery and RPD values

FORM III 680

FORM III
PCBS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2642.D

Lab ID: 680-129150-21 MSD Client ID: FMC-27-6-36-39 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Dichlorobiphenyl	109	81.8	75	17	50	30-130	
Heptachlorobiphenyl	328	192	55	10	50	40-140	
Hexachlorobiphenyl	219	139	42	25	50	40-140	
Monochlorobiphenyl	109	93.5	86	27	50	30-130	
Nonachlorobiphenyl	546	510	93	14	50	30-130	
Octachlorobiphenyl	328	176	54	9	50	40-140	
Pentachlorobiphenyl	219	147	40	27	50	40-140	
Tetrachlorobiphenyl	219	149	57	1	50	40-140	
Trichlorobiphenyl	109	86.5	76	8	50	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM IV
PCBS METHOD BLANK SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Lab File ID: Xh2812.D Lab Sample ID: MB 680-447398/21-A

Matrix: Solid Date Extracted: 08/26/2016 16:28

Instrument ID: CMSX Date Analyzed: 08/29/2016 12:55

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 680-447398/22-A	Xh2813.D	08/29/2016 13:24
FMC-27-8-60-63 MSD	680-129150-41 MSD	Xh2815.D	08/29/2016 14:22
FMC-27-8-60-63	680-129150-41	Xh2816.D	08/29/2016 14:51
FMC-27-7-0-3	680-129150-42	Xh2817.D	08/29/2016 15:20
FMC-27-7-12-15	680-129150-43	Xh2818.D	08/29/2016 15:48
FMC-27-7-24-27	680-129150-44	Xh2819.D	08/29/2016 16:17
FMC-27-7-36-39	680-129150-45	Xh2820.D	08/29/2016 16:46
FMC-27-7-48-51	680-129150-46	Xh2821.D	08/29/2016 17:15
FMC-27-7-60-63	680-129150-47	Xh2822.D	08/29/2016 17:44
FMC-27-9-12-15	680-129150-49	Xh2824.D	08/29/2016 18:42
FMC-27-9-24-27	680-129150-50	Xh2825.D	08/29/2016 19:10
FMC-27-9-36-39	680-129150-51	Xh2826.D	08/29/2016 19:39
FMC-27-9-60-63	680-129150-53	Xh2828.D	08/29/2016 20:37
FMC-27-9-0-3	680-129150-48	Xh2916.D	08/30/2016 16:02
FMC-27-8-60-63 MS	680-129150-41 MS	Xh2920.D	08/30/2016 17:58
FMC-27-9-48-51	680-129150-52	Xh3107.D	08/31/2016 12:36

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID:
Lab Sample ID: MB 680-447398/21-A
Matrix: Solid
Lab File ID: Xh2812.D
Analysis Method: 680
Date Collected:
Extract. Method: 680
Date Extracted: 08/26/2016 16:28
Sample wt/vol: 30.14(g)
Date Analyzed: 08/29/2016 12:55
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture:
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447503
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	0.83	U	17	0.83
25512-42-9	Dichlorobiphenyl	0.35	U	3.3	0.35
28655-71-2	Heptachlorobiphenyl	0.50	U	10	0.50
26601-64-9	Hexachlorobiphenyl	0.33	U	6.7	0.33
27323-18-8	Monochlorobiphenyl	0.19	U	3.3	0.19
53742-07-7	Nonachlorobiphenyl	3.3	U	17	3.3
55722-26-4	Octachlorobiphenyl	0.53	U	10	0.53
25429-29-2	Pentachlorobiphenyl	0.34	U	6.7	0.34
26914-33-0	Tetrachlorobiphenyl	0.37	U	6.7	0.37
25323-68-6	Trichlorobiphenyl	0.17	U	3.3	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	87		10-134

FORM III
PCBS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2813.D

Lab ID: LCS 680-447398/22-A Client ID:

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Dichlorobiphenyl	66.3	39.6	60	30-130	*
Heptachlorobiphenyl	199	149	75	40-140	*
Hexachlorobiphenyl	133	95.0	72	40-140	*
Monochlorobiphenyl	66.3	35.9	54	30-130	*
Nonachlorobiphenyl	331	521	157	30-130	*
Octachlorobiphenyl	199	149	75	40-140	*
Pentachlorobiphenyl	133	95.4	72	40-140	*
Tetrachlorobiphenyl	133	84.3	64	40-140	*
Trichlorobiphenyl	66.3	43.9	66	30-130	*

Column to be used to flag recovery and RPD values

FORM III 680

FORM III
PCBS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2920.D

Lab ID: 680-129150-41 MS Client ID: FMC-27-8-60-63 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
Dichlorobiphenyl	132	0.69 U	70.7	53	30-130	
Heptachlorobiphenyl	397	1.9 J	184	46	40-140	
Hexachlorobiphenyl	264	10 J	140	49	40-140	
Monochlorobiphenyl	132	0.38 U	83.1	63	30-130	
Nonachlorobiphenyl	661	6.5 U	499	75	30-130	
Octachlorobiphenyl	397	1.0 U	170	43	40-140	
Pentachlorobiphenyl	264	18	147	49	40-140	
Tetrachlorobiphenyl	264	5.5 J	146	53	40-140	
Trichlorobiphenyl	132	0.34 U	77.2	58	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM III
PCBS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: Xh2815.D

Lab ID: 680-129150-41 MSD Client ID: FMC-27-8-60-63 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Dichlorobiphenyl	132	74.0	56	5	50	30-130	
Heptachlorobiphenyl	396	228	57	22	50	40-140	
Hexachlorobiphenyl	264	156	55	11	50	40-140	
Monochlorobiphenyl	132	81.9	62	1	50	30-130	
Nonachlorobiphenyl	659	693	105	33	50	30-130	
Octachlorobiphenyl	396	226	57	28	50	40-140	
Pentachlorobiphenyl	264	163	55	10	50	40-140	
Tetrachlorobiphenyl	264	152	56	4	50	40-140	
Trichlorobiphenyl	132	84.5	64	9	50	30-130	

Column to be used to flag recovery and RPD values

FORM III 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Instrument ID: CMSX Calibration Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calibration End Date: 08/18/2016 16:04

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		88812	10.82	90014	16.97		
UPPER LIMIT		133218	11.32	135021	17.47		
LOWER LIMIT		44406	10.32	45007	16.47		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVIS 680-447433/3		116317	10.81	114043	16.95		
MB 680-447321/21-A		106379	10.81	96453	16.95		
LCS 680-447321/22-A		109542	10.80	95723	16.95		
680-129150-1 MS	FMC-27-1-0-3 MS	109758	10.81	97991	16.95		
680-129150-1 MSD	FMC-27-1-0-3 MSD	103200	10.81	87047	16.95		
680-129150-1	FMC-27-1-0-3	109900	10.81	97878	16.95		
680-129150-2	FMC-27-1-12-15	132485	10.81	115669	16.95		
680-129150-3	FMC-27-1-24-27	122088	10.81	99368	16.95		
680-129150-4	FMC-27-1-36-39	125527	10.81	102789	16.95		
680-129150-8	FMC-27-2-12-15	107845	10.81	104851	16.95		
680-129150-10	FMC-27-2-36-39	117882	10.81	109607	16.97		
CCV 680-447433/24		132792	10.80	113921	16.95		
CCVIS 680-447435/3		133928*	10.81	111139	16.95		
680-129150-16	FMC-27-3-36-39	131465	10.82	121695	16.99		
680-129150-18	FMC-27-6-0-3	126848	10.81	101874	16.97		
680-129150-19	FMC-27-6-12-15	136175	10.81	97895	16.97		
MB 680-447324/21-A		117291	10.81	86291	16.95		
LCS 680-447324/22-A		126828	10.81	100334	16.95		
680-129150-21 MSD	FMC-27-6-36-39 MSD	121263	10.83	105661	16.99		
680-129150-21	FMC-27-6-36-39	136771*	10.83	120145	16.99		
680-129150-22	FMC-27-6-48-51	139072	10.82	106491	16.99		
680-129150-24	FMC-27-5-0-3	130994	10.82	102825	16.97		
680-129150-25	FMC-27-5-12-15	139057	10.82	106505	16.97		
680-129150-26	FMC-27-5-24-27	139141	10.82	92366	16.97		
680-129150-27	FMC-27-5-36-39	138270	10.82	104901	16.97		
680-129150-28	FMC-27-5-48-51	141202	10.82	111585	16.97		
680-129150-29	FMC-27-5-60-63	137036	10.82	100758	16.97		
CCV 680-447435/23		161551*	10.81	108888	16.97		
CCVIS 680-447503/3		75118	10.76	76181	16.91		
MB 680-447398/21-A		82992	10.76	74282	16.91		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Instrument ID: CMSX Calibration Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calibration End Date: 08/18/2016 16:04

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		88812	10.82	90014	16.97		
UPPER LIMIT		133218	11.32	135021	17.47		
LOWER LIMIT		44406	10.32	45007	16.47		
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 680-447398/22-A		93313	10.76	103946*	16.91		
680-129150-41 MSD	FMC-27-8-60-63 MSD	83878	10.76	91297	16.91		
680-129150-41	FMC-27-8-60-63	106651	10.76	105845*	16.93		
680-129150-42	FMC-27-7-0-3	88271	10.76	93715	16.91		
680-129150-43	FMC-27-7-12-15	94489	10.76	91413	16.91		
680-129150-44	FMC-27-7-24-27	97261	10.76	104789*	16.91		
680-129150-45	FMC-27-7-36-39	88618	10.76	93632	16.91		
680-129150-46	FMC-27-7-48-51	92452	10.76	88976	16.91		
680-129150-47	FMC-27-7-60-63	90851	10.76	88765	16.91		
680-129150-49	FMC-27-9-12-15	100907	10.76	104640*	16.91		
680-129150-50	FMC-27-9-24-27	99577	10.76	107465*	16.93		
680-129150-51	FMC-27-9-36-39	81671	10.78	94240	16.93		
680-129150-53	FMC-27-9-60-63	93213	10.76	95477	16.93		
680-129150-9	FMC-27-2-24-27	92880	10.76	88201	16.91		
680-129150-23	FMC-27-6-56-59	84308	10.76	82389	16.91		
680-129150-21 MS	FMC-27-6-36-39 MS	107574	10.79	109744*	16.94		
CCV 680-447503/24		92589	10.76	93175	16.91		
CCVIS 680-447681/3		92606	10.76	101105	16.91		
680-129150-30	FMC-27-4-0-3	83537	10.76	82903	16.91		
680-129150-31	FMC-27-4-12-15	92057	10.76	93565	16.91		
680-129150-32	FMC-27-4-24-27	87137	10.76	85723	16.91		
680-129150-33	FMC-27-4-36-39	126273	10.76	129223	16.93		
680-129150-34	FMC-27-4-48-51	98190	10.76	98962	16.93		
680-129150-35	FMC-27-4-60-63	87625	10.78	81097	16.93		
680-129150-36	FMC-27-8-0-3	89011	10.76	88528	16.91		
680-129150-37	FMC-27-8-12-15	89626	10.76	91371	16.93		
680-129150-38	FMC-27-8-24-27	99386	10.76	87912	16.93		
680-129150-39	FMC-27-8-36-39	91503	10.76	93427	16.93		
680-129150-48	FMC-27-9-0-3	86110	10.76	80163	16.91		
680-129150-41 MS	FMC-27-8-60-63 MS	101439	10.78	95661	16.93		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Instrument ID: CMSX Calibration Start Date: 08/18/2016 12:57

GC Column: HP-5MS ID: 0.25(mm) Calibration End Date: 08/18/2016 16:04

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		88812	10.82	90014	16.97		
UPPER LIMIT		133218	11.32	135021	17.47		
LOWER LIMIT		44406	10.32	45007	16.47		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 680-447681/23		97693	10.76	85408	16.93		
CCVIS 680-447879/3		79676	10.76	73835	16.93		
680-129150-17	FMC-27-3-48-51	75302	10.78	76724	16.93		
680-129150-20	FMC-27-6-24-27	89085	10.78	94961	16.93		
680-129150-52	FMC-27-9-48-51	76903	10.76	73078	16.93		
680-129150-40	FMC-27-8-48-51	86994	10.76	82721	16.93		
CCV 680-447879/9		75746	10.76	73266	16.93		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Sample No.: CCVIS 680-447433/3 Date Analyzed: 08/26/2016 17:51

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm)

Lab File ID (Standard): Xh2604.D Heated Purge: (Y/N) N

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		116317	10.81	114043	16.95		
UPPER LIMIT		151212	11.31	148256	17.45		
LOWER LIMIT		81422	10.31	79830	16.45		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 680-447321/21-A		106379	10.81	96453	16.95		
LCS 680-447321/22-A		109542	10.80	95723	16.95		
680-129150-1 MS	FMC-27-1-0-3 MS	109758	10.81	97991	16.95		
680-129150-1 MSD	FMC-27-1-0-3 MSD	103200	10.81	87047	16.95		
680-129150-1	FMC-27-1-0-3	109900	10.81	97878	16.95		
680-129150-2	FMC-27-1-12-15	132485	10.81	115669	16.95		
680-129150-3	FMC-27-1-24-27	122088	10.81	99368	16.95		
680-129150-4	FMC-27-1-36-39	125527	10.81	102789	16.95		
680-129150-5	FMC-27-1-48-51	115289	10.81	105292	16.95		
680-129150-6	FMC-27-1-60-63	113005	10.81	94544	16.95		
680-129150-7	FMC-27-2-0-3	108964	10.81	100644	16.95		
680-129150-8	FMC-27-2-12-15	107845	10.81	104851	16.95		
680-129150-10	FMC-27-2-36-39	117882	10.81	109607	16.97		
680-129150-11	FMC-27-2-48-51	118425	10.81	96600	16.95		
680-129150-12	FMC-27-2-60-63	129145	10.81	121302	16.95		
680-129150-13	FMC-27-3-0-3	132706	10.81	116973	16.97		
680-129150-14	FMC-27-3-12-15	126045	10.81	109220	16.97		
680-129150-15	FMC-27-3-24-27	120733	10.82	121535	16.97		
CCV 680-447433/24		132792	10.80	113921	16.95		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 70%-130% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Sample No.: CCVIS 680-447435/3 Date Analyzed: 08/27/2016 07:23

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm)

Lab File ID (Standard): Xh2632.D Heated Purge: (Y/N) N

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		133928 *	10.81	111139	16.95		
UPPER LIMIT		174106	11.31	144481	17.45		
LOWER LIMIT		93750	10.31	77797	16.45		
LAB SAMPLE ID	CLIENT SAMPLE ID						
680-129150-16	FMC-27-3-36-39	131465	10.82	121695	16.99		
680-129150-18	FMC-27-6-0-3	126848	10.81	101874	16.97		
680-129150-19	FMC-27-6-12-15	136175	10.81	97895	16.97		
MB 680-447324/21-A		117291	10.81	86291	16.95		
LCS 680-447324/22-A		126828	10.81	100334	16.95		
680-129150-21 MSD	FMC-27-6-36-39 MSD	121263	10.83	105661	16.99		
680-129150-21	FMC-27-6-36-39	136771*	10.83	120145	16.99		
680-129150-22	FMC-27-6-48-51	139072	10.82	106491	16.99		
680-129150-24	FMC-27-5-0-3	130994	10.82	102825	16.97		
680-129150-25	FMC-27-5-12-15	139057	10.82	106505	16.97		
680-129150-26	FMC-27-5-24-27	139141	10.82	92366	16.97		
680-129150-27	FMC-27-5-36-39	138270	10.82	104901	16.97		
680-129150-28	FMC-27-5-48-51	141202	10.82	111585	16.97		
680-129150-29	FMC-27-5-60-63	137036	10.82	100758	16.97		
CCV 680-447435/23		161551*	10.81	108888	16.97		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 70%-130% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Sample No.: CCVIS 680-447503/3 Date Analyzed: 08/29/2016 12:26

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm)

Lab File ID (Standard): Xh2810.D Heated Purge: (Y/N) N

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		75118	10.76	76181	16.91		
UPPER LIMIT		97653	11.26	99035	17.41		
LOWER LIMIT		52583	10.26	53327	16.41		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 680-447398/21-A		82992	10.76	74282	16.91		
LCS 680-447398/22-A		93313	10.76	103946*	16.91		
680-129150-41 MSD	FMC-27-8-60-63 MSD	83878	10.76	91297	16.91		
680-129150-41	FMC-27-8-60-63	106651	10.76	105845*	16.93		
680-129150-42	FMC-27-7-0-3	88271	10.76	93715	16.91		
680-129150-43	FMC-27-7-12-15	94489	10.76	91413	16.91		
680-129150-44	FMC-27-7-24-27	97261	10.76	104789*	16.91		
680-129150-45	FMC-27-7-36-39	88618	10.76	93632	16.91		
680-129150-46	FMC-27-7-48-51	92452	10.76	88976	16.91		
680-129150-47	FMC-27-7-60-63	90851	10.76	88765	16.91		
680-129150-49	FMC-27-9-12-15	100907	10.76	104640*	16.91		
680-129150-50	FMC-27-9-24-27	99577	10.76	107465*	16.93		
680-129150-51	FMC-27-9-36-39	81671	10.78	94240	16.93		
680-129150-53	FMC-27-9-60-63	93213	10.76	95477	16.93		
680-129150-9	FMC-27-2-24-27	92880	10.76	88201	16.91		
680-129150-23	FMC-27-6-56-59	84308	10.76	82389	16.91		
680-129150-21 MS	FMC-27-6-36-39 MS	107574	10.79	109744*	16.94		
CCV 680-447503/24		92589	10.76	93175	16.91		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 70%-130% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Sample No.: CCVIS 680-447681/3 Date Analyzed: 08/30/2016 10:16

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm)

Lab File ID (Standard): Xh2904.D Heated Purge: (Y/N) N

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		92606	10.76	101105	16.91		
UPPER LIMIT		120388	11.26	131437	17.41		
LOWER LIMIT		64824	10.26	70774	16.41		
LAB SAMPLE ID	CLIENT SAMPLE ID						
680-129150-30	FMC-27-4-0-3	83537	10.76	82903	16.91		
680-129150-31	FMC-27-4-12-15	92057	10.76	93565	16.91		
680-129150-32	FMC-27-4-24-27	87137	10.76	85723	16.91		
680-129150-33	FMC-27-4-36-39	126273	10.76	129223	16.93		
680-129150-34	FMC-27-4-48-51	98190	10.76	98962	16.93		
680-129150-35	FMC-27-4-60-63	87625	10.78	81097	16.93		
680-129150-36	FMC-27-8-0-3	89011	10.76	88528	16.91		
680-129150-37	FMC-27-8-12-15	89626	10.76	91371	16.93		
680-129150-38	FMC-27-8-24-27	99386	10.76	87912	16.93		
680-129150-39	FMC-27-8-36-39	91503	10.76	93427	16.93		
680-129150-48	FMC-27-9-0-3	86110	10.76	80163	16.91		
680-129150-41 MS	FMC-27-8-60-63 MS	101439	10.78	95661	16.93		
CCV 680-447681/23		97693	10.76	85408	16.93		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 70%-130% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Sample No.: CCVIS 680-447879/3 Date Analyzed: 08/31/2016 11:09

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm)

Lab File ID (Standard): Xh3104.D Heated Purge: (Y/N) N

Calibration ID: 47649

		PHN		CRY			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		79676	10.76	73835	16.93		
UPPER LIMIT		103579	11.26	95986	17.43		
LOWER LIMIT		55773	10.26	51685	16.43		
LAB SAMPLE ID	CLIENT SAMPLE ID						
680-129150-17	FMC-27-3-48-51	75302	10.78	76724	16.93		
680-129150-20	FMC-27-6-24-27	89085	10.78	94961	16.93		
680-129150-52	FMC-27-9-48-51	76903	10.76	73078	16.93		
680-129150-40	FMC-27-8-48-51	86994	10.76	82721	16.93		
CCV 680-447879/9		75746	10.76	73266	16.93		

PHN = Phenanthrene-d10
CRY = Chrysene-d12

Area Limit = 70%-130% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 680

FORM II
PCBS SURROGATE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): HP-5MS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	13CDCB #
FMC-27-1-0-3	680-129150-1	67
FMC-27-1-12-15	680-129150-2	57
FMC-27-1-24-27	680-129150-3	71
FMC-27-1-36-39	680-129150-4	62
FMC-27-1-48-51	680-129150-5	66
FMC-27-1-60-63	680-129150-6	52
FMC-27-2-0-3	680-129150-7	47
FMC-27-2-12-15	680-129150-8	41
FMC-27-2-24-27	680-129150-9	53
FMC-27-2-36-39	680-129150-10	44
FMC-27-2-48-51	680-129150-11	47
FMC-27-2-60-63	680-129150-12	37
FMC-27-3-0-3	680-129150-13	52
FMC-27-3-12-15	680-129150-14	52
FMC-27-3-24-27	680-129150-15	50
FMC-27-3-36-39	680-129150-16	48
FMC-27-3-48-51	680-129150-17	52
FMC-27-6-0-3	680-129150-18	41
FMC-27-6-12-15	680-129150-19	50
FMC-27-6-24-27	680-129150-20	71
FMC-27-6-36-39	680-129150-21	32
FMC-27-6-48-51	680-129150-22	37
FMC-27-6-56-59	680-129150-23	50
FMC-27-5-0-3	680-129150-24	27
FMC-27-5-12-15	680-129150-25	32
FMC-27-5-24-27	680-129150-26	45
FMC-27-5-36-39	680-129150-27	50
FMC-27-5-48-51	680-129150-28	46
FMC-27-5-60-63	680-129150-29	42
FMC-27-4-0-3	680-129150-30	39
FMC-27-4-12-15	680-129150-31	52
FMC-27-4-24-27	680-129150-32	47
FMC-27-4-36-39	680-129150-33	41
FMC-27-4-48-51	680-129150-34	37
FMC-27-4-60-63	680-129150-35	42

QC LIMITS

13CDCB = Decachlorobiphenyl-13C12 10-134

Column to be used to flag recovery values

FORM II 680

FORM II
PCBS SURROGATE RECOVERY

Lab Name: TestAmerica Savannah Job No.: 680-129150-1

SDG No.:

Matrix: Solid Level: Low

GC Column (1): HP-5MS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	13CDCB #
FMC-27-8-0-3	680-129150-36	38
FMC-27-8-12-15	680-129150-37	39
FMC-27-8-24-27	680-129150-38	50
FMC-27-8-36-39	680-129150-39	40
FMC-27-8-48-51	680-129150-40	45
FMC-27-8-60-63	680-129150-41	45 *
FMC-27-7-0-3	680-129150-42	49
FMC-27-7-12-15	680-129150-43	42
FMC-27-7-24-27	680-129150-44	45 *
FMC-27-7-36-39	680-129150-45	57
FMC-27-7-48-51	680-129150-46	51
FMC-27-7-60-63	680-129150-47	54
FMC-27-9-0-3	680-129150-48	52
FMC-27-9-12-15	680-129150-49	49 *
FMC-27-9-24-27	680-129150-50	48 *
FMC-27-9-36-39	680-129150-51	42
FMC-27-9-48-51	680-129150-52	46
FMC-27-9-60-63	680-129150-53	38
	MB 680-447321/21-A	92
	MB 680-447324/21-A	65
	MB 680-447398/21-A	87
	LCS 680-447321/22-A	90
	LCS 680-447324/22-A	68
	LCS 680-447398/22-A	72 *
FMC-27-1-0-3 MS	680-129150-1 MS	60
FMC-27-6-36-39 MS	680-129150-21 MS	43 *
FMC-27-8-60-63 MS	680-129150-41 MS	31
FMC-27-1-0-3 MSD	680-129150-1 MSD	63
FMC-27-6-36-39 MSD	680-129150-21 MSD	35
FMC-27-8-60-63 MSD	680-129150-41 MSD	47

13CDCB = Decachlorobiphenyl-13C12

QC LIMITS
10-134

Column to be used to flag recovery values

FORM II 680

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah
Job No.: 680-129150-1
SDG No.:
Client Sample ID: FMC-27-1-0-3
Lab Sample ID: 680-129150-1
Matrix: Solid
Lab File ID: Xh2610.D
Analysis Method: 680
Date Collected: 08/22/2016 11:15
Extract. Method: 680
Date Extracted: 08/26/2016 11:03
Sample wt/vol: 30.00(g)
Date Analyzed: 08/26/2016 20:44
Con. Extract Vol.: 1(mL)
Dilution Factor: 1
Injection Volume: 2(uL)
Level: (low/med) Low
% Moisture: 53.0
GPC Cleanup:(Y/N) N
Analysis Batch No.: 447433
Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
2051-24-3	DCB Decachlorobiphenyl	1.8	U	36	1.8
25512-42-9	Dichlorobiphenyl	0.75	U	7.0	0.75
28655-71-2	Heptachlorobiphenyl	1.1	U	21	1.1
26601-64-9	Hexachlorobiphenyl	16		14	0.70
27323-18-8	Monochlorobiphenyl	0.40	U	7.0	0.40
53742-07-7	Nonachlorobiphenyl	7.0	U F1 *	36	7.0
55722-26-4	Octachlorobiphenyl	1.1	U	21	1.1
25429-29-2	Pentachlorobiphenyl	26		14	0.72
26914-33-0	Tetrachlorobiphenyl	0.79	U	14	0.79
25323-68-6	Trichlorobiphenyl	0.36	U	7.0	0.36

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00281	Decachlorobiphenyl-13C12	67		10-134

Sample Calculation - Page 2

TestAmerica Savannah
Target Compound Quantitation Report

Data File:	\\ChromNA\Savannah\ChromData\CMSX\20160826-32522.b\Xh2610.D				
Lims ID:	680-129150-A-1-A				
Client ID:	FMC-27-1-0-3				
Sample Type:	Client				
Inject. Date:	26-Aug-2016 20:44:30	ALS Bottle#:	8	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	680-129150-A-1-A				
Misc. Info.:	680-0032522-009				
Operator ID:		Instrument ID:	CMSX		
Method:	\\ChromNA\Savannah\ChromData\CMSX\20160826-32522.b\680_CMSX.m				
Limit Group:	680 - AQ				
Last Update:	29-Aug-2016 08:25:57	Calib Date:	18-Aug-2016 16:04:30		
Integrator:	RTE	ID Type:	RT Order ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Savannah\ChromData\CMSX\20160817-32288.b\Xh1810.D				
Column 1 :	HP-5MS (0.25 mm)		Det: MS SCAN		
Process Host:	XAWRK013				

First Level Reviewer: davisn Date: 29-Aug-2016 08:25:57

Compound	Sig	RT	EXP RT	DLT RT	Q	Response	On-Col Amt ug/ml	Flags
* 5 Phenanthrene-d10	188	10.805	10.805	0.0	99	109900	0.7500	
A 27 Total Pentachlorobiphenyls	326	14.567	12.726	-16.408	0	9882	0.3678	
A 28 Total Hexachlorobiphenyls	360	15.853	13.897	-17.810	0	6026	0.2322	
* 15 Chrysene-d12	240	16.954	16.954	0.0	100	97878	0.7500	
$ 22 Decachlorobiphenyl-13C12	510	20.125	20.125	0.0	32	5739	1.67	

Reagents:

SM-680istd_00036 Amount Added: 30.00 Units: uL Run Reagent

Concentration = (9882 / 97878) x (0.7500 ug/mL / 0.2059) = 0.3678

0.3678 ug/mL / 30.0g x (1 / 0.47) x 1 mL x (1000 g / 1 kg) = 26.09 ug/kg

WorkSheet Quantitation Report

Sig	RT	Lower RT	Upper RT	Q	Response	On-Col Amt ug/ml	Ratio Range	Ratio	Flags
* 5 Phenanthrene-d10									
188	10.805	10.805	0.0	99	109900	0.7500			
189	10.805	10.805	0.0		16570		5.9- 7.5	6.6	
A 27 Total Pentachlorobiphenyls									
326	13.702	12.726	-16.408	23	1257	0.0468			
324	13.702				875		1.4- 1.8	1.4	
254	13.702				1442		41.9- 121.9	0.6	
256	13.702				1372		38.2- 118.2	0.6	
326	14.031	12.726	-16.408	17	436	0.0162			
324	14.031				284		1.4- 1.8	1.5	
254	14.031				650		41.9- 121.9	0.4	
326	14.135	12.726	-16.408	12	1979	0.0736			
324	14.135				1325		1.4- 1.8	1.5	
254	14.135				1612		41.9- 121.9	0.8	
256	14.135				1754		38.2- 118.2	0.8	
258	14.135				499		0.0- 65.4	2.7	
326	14.238	12.726	-16.408	21	964	0.0359			
324	14.238				601		1.4- 1.8	1.6	
256	14.238				613		38.2- 118.2	1.0	
326	14.809	12.726	-16.408	21	2787	0.1037			
324	14.809				1770		1.4- 1.8	1.6	
254	14.809				1809		41.9- 121.9	1.0	
256	14.809				1519		38.2- 118.2	1.2	
258	14.809				462		0.0- 65.4	3.8	
326	15.281	12.726	-16.408	1	1878	0.0699			
324	15.281				1157		1.4- 1.8	1.6	
254	15.281				1642		41.9- 121.9	0.7	
256	15.281				861		38.2- 118.2	1.3	
326	15.770	12.726	-16.408	1	581	0.0216			
324	15.770				397		1.4- 1.8	1.5	
256	15.770				479		38.2- 118.2	0.8	
A 28 Total Hexachlorobiphenyls									
360	14.757	13.897	-17.810	18	269	0.0104			
362	14.757				198		1.0- 1.4	1.4	
288	14.740				898		61.3- 61.3	0.2	
290	14.757				503		220.6- 220.6	0.4	
292	14.757				5734		0.0- 0.0	0.0	
360	15.051	13.897	-17.810	19	586	0.0226			
362	15.051				448		1.0- 1.4	1.3	
288	15.016				812		61.3- 61.3	0.6	

Sig	RT	Lower RT	Upper RT	Q	Response	On-Col Amt ug/ml	Ratio Range	Ratio	Flags
360	15.698	13.897	-17.810	1	1987	0.0766			
362	15.698				1623		1.0- 1.4	1.2	
288	15.698				1645		61.3- 61.3	1.0	
290	15.698				2271		220.6- 220.6	0.7	
360	15.934	13.897	-17.810	1	359	0.0138			
362	15.934				338		1.0- 1.4	1.1	
288	15.915				337		61.3- 61.3	1.0	
290	15.915				243		220.6- 220.6	1.4	
360	16.206	13.897	-17.810	1	2114	0.0815			
362	16.206				1668		1.0- 1.4	1.3	
288	16.187				1242		61.3- 61.3	1.3	
360	16.678	13.897	-17.810	1	711	0.0274			
362	16.678				637		1.0- 1.4	1.1	
290	16.678				452		220.6- 220.6	1.4	
* 15 Chrysene-d12									
240	16.954	16.954	0.0	100	97878	0.7500			
241	16.954	16.954	0.0		20194		4.3- 5.9	4.8	
$ 22 Decachlorobiphenyl-13C12									
510	20.125	20.125	0.0	32	5739	1.67			
512	20.125	20.125	0.0		4585		0.9- 1.3	1.3	

Reagents:

SM-680istd_00036 Amount Added: 30.00 Units: uL Run Reagent

FORM VI
PCBS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Savannah Job No.: 680-129150-1 Analy Batch No.: 446137

SDG No.:

Instrument ID: CMSX GC Column: HP-5MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/18/2016 12:57 Calibration End Date: 08/18/2016 16:04 Calibration ID: 47649

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 680-446137/7	Xh1810.D
Level 2	IC 680-446137/6	Xh1809.D
Level 3	ICISAV 680-446137/3	Xh1806.D
Level 4	IC 680-446137/5	Xh1808.D
Level 5	IC 680-446137/4	Xh1807.D

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	LVL 5		B	M1	M2								
Monochlorobiphenyl	1.0211	0.7705	0.7014	0.9274	0.9780	Ave		0.8797				15.6		20.0			
Dichlorobiphenyl	0.6818	0.5727	0.5140	0.6413	0.7085	Ave		0.6237				12.8		20.0			
Trichlorobiphenyl	0.4167	0.3717	0.3328	0.4094	0.4552	Ave		0.3972				11.7		20.0			
PCB-104			0.2701			Ave		0.2701						30.0			
Tetrachlorobiphenyl	0.2889	0.2476	0.2230	0.2810	0.3085	Ave		0.2698				12.7		20.0			
Pentachlorobiphenyl	0.2075	0.1926	0.1780	0.2154	0.2360	Ave		0.2059				10.7		20.0			
PCB-77			0.3347			Ave		0.3347						30.0			
Hexachlorobiphenyl	0.2044	0.1889	0.1761	0.2022	0.2226	Ave		0.1988				8.8		20.0			
Heptachlorobiphenyl	0.1809	0.1687	0.1578	0.1796	0.1996	Ave		0.1773				8.8		20.0			
Octachlorobiphenyl	0.1468	0.1409	0.1336	0.1469	0.1628	Ave		0.1462				7.4		20.0			
PCB-208			0.0439			Ave		0.0439						30.0			
Nonachlorobiphenyl			0.0346			Ave		0.0228				4.9		20.0			
DCB Decachlorobiphenyl	0.0232	0.0224	0.0216	0.0222	0.0245	Ave		0.0228				4.9		20.0			
gamma-BHC-13C6 (Surr)	0.2057	0.1825	0.1589	0.2015	0.2137	Ave		0.1925				11.4		50.0			
4,4'-DDT-13C12 (Surr)	0.2764	0.3225	0.3234	0.3857	0.4439	Ave		0.3504				18.6		50.0			
Decachlorobiphenyl-13C12	0.0259	0.0273	0.0245	0.0257	0.0283	Ave		0.0264				5.6		20.0			

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