Lockheed Martin Corporation
6801 Rockledge Drive MP: CCT-246
Bethesda, MD 20817
Telephone 301-548-2209

January 4, 2019

VIA PRIVATE CARRIER

Mr. James R. Carroll
Program Administrator
Land Restoration Program
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230

Subject: Transmittal of the 2018 Block E Storm Drain Monitoring Report
Lockheed Martin Corporation – Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Mr. Carroll:

For your information, please find enclosed two hard copies with a CD of the above-referenced document. This report describes the results from the continued monitoring of the storm drain system in Block E in accordance with Lockheed Martin's Submittal entitled *Protecting the Middle River Complex Sediment Remedy from PCBs in Storm Drains* (Lockheed Martin, 2017). The document demonstrates that one manhole in Block E will be cleaned in the spring 2019 to prevent migration of impacted sediment to Dark Head Cove.

I am available for your questions; my office phone is (301) 548-2209.

Sincerely,

Thomas D. Blackman
Project Lead, Environmental Remediation

cc: (via email without enclosure)
Gary Schold, MDE
Mark Mank, MDE
Christine Kline, Lockheed Martin
Norman Varney, Lockheed Martin
Michael Martin, Tetra Tech
Cannon Silver, CDM Smith

cc: (via mail with enclosure)
Ruth Prince, EPA
Tom Green, LMCPI
Mike Musheno, LMCPI

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Jann Richardson, Lockheed Martin
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Christopher Keller, LMCPI
Glen Harriel, LMCPI

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January 4, 2019 **VIA PRIVATE CARRIER**

Ms. Ruth Prince, PhD Toxicologist
3LC10, Office of Remediation
Land and Chemicals Division
U.S. Environmental Protection Agency, Region III
1650 Arch St.
Philadelphia, Pennsylvania 19103-2029

Subject: Transmittal of the 2018 Block E Storm Drain Monitoring Report
Lockheed Martin Corporation – Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Ms. Prince:

For your information, please find enclosed two hard copies with a CD of the above-referenced document. This report describes the results from the continued monitoring of the storm drain system in Block E in accordance with Lockheed Martin's Submittal entitled *Protecting the Middle River Complex Sediment Remedy from PCBs in Storm Drains* (Lockheed Martin, 2017). The document demonstrates that one manhole in Block E will be cleaned in the spring 2019 to prevent migration of impacted sediment to Dark Head Cove.

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2018 BLOCK E STORM DRAIN MONITORING REPORT
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
2323 EASTERN BOULEVARD
MIDDLE RIVER, MARYLAND

Prepared for:
Lockheed Martin Corporation

Prepared by:
Tetra Tech, Inc.

January 2019

Approved by:
Lockheed Martin, Inc.

Revision: 0

Michael Martin, P.G.
Regional Manager

Josh Mullis
Project Geologist

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ACRONYMS

ESH	environment, safety and health
HASP	health and safety plan
IDW	investigation-derived waste
LMCPI	LMC Properties, Inc.
Lockheed Martin	Lockheed Martin Corporation
mg/kg	milligrams per kilogram
MRC	Middle River Complex
PCB	polychlorinated biphenyl
PPE	personal protective equipment
PRG	preliminary remedial goal
QA	quality assurance
QC	quality control
Tetra Tech	Tetra Tech, Inc.
TOC	total organic carbon
TSS	total suspended solids
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
WMP	waste management plan

SECTION 1
INTRODUCTION

On behalf of Lockheed Martin Corporation (Lockheed Martin), Tetra Tech Inc. (Tetra Tech) has prepared this report summarizing additional storm drain monitoring of accumulated sediment in the Block E storm drain system. The project consists of two tasks. First, manholes and inlets along storm drain lines 006 and 008 of the Block E storm drain system were visually inspected and photographed to document the depth of sediment accumulation, influent and effluent pipe characteristics (i.e., material and diameter), and the presence or absence of debris and sediment. Second, in accordance with Lockheed Martin's submittal entitled *Protecting the Middle River Complex Sediment Remedy from PCBs in Storm Drains* (Lockheed Martin, 2017), additional storm drain monitoring of sediment accumulation in IL-1, IL-2, IL-3 (alternately identified as MH-10), and MH-9 was conducted.

The objective of this study was to monitor for sediment accumulation in the storm drain system, and to collect and analyze sediment samples for polychlorinated biphenyls (PCBs) if sufficient sediment had accumulated. Per the plan (Lockheed Martin, 2017), if an increasing trend in polychlorinated biphenyl concentrations is identified, then additional storm drain cleaning will be conducted to prevent their release to Dark Head Cove, which is adjacent to the Middle River Complex (MRC) in Middle, River, Maryland (Figure 1-1).

This report is organized into the following sections: (1) Introduction, (2) Background, (3) Investigation Approach and Methodology, (4) Results, and (5) References. Tables and figures are at the end of the report following Section 5.

SECTION 2
BACKGROUND

Various field activities have been completed to assess sediment transport by stormwater in the Block E storm-drain system, to further develop the area's conceptual site model. The stormwater-management system in this area was originally created during the construction of former Building D, and several significant modifications were made to the drainage system relatively soon thereafter, presumably due to poor stormwater management as designed. The building has since been demolished, and polychlorinated biphenyl (PCB) contamination has been found in subsurface soil. The current configuration of the storm drain system is only marginally effective, and PCB-contaminated sediment and debris have been detected in Block E storm drains. Flow-through piping leading to Outfalls 005E and 005W has been blocked to prevent migration of impacted sediment to Dark Head Cove (Tetra Tech, 2016a). However, stormwater that discharges at Outfalls 006 and 008 continues to flow through the storm drain system(s), prompting studies to determine whether impacted sediment is migrating to Dark Head Cove.

Previous studies have focused on accumulating sediments that may move in the system as stormwater flow increases during storm events. The investigation for the *Block E 2016 Storm Drain Assessment Report* (Tetra Tech, 2017a) entailed the following activities:

- visual inspected manholes and inlets along storm-drain lines leading to Outfalls 006 and 008
- collected water samples at inlets and manholes, and subsequently analyzed them for total suspended solids (TSS) by United States Environmental Protection Agency (USEPA) SW846 Method 2540, and for total organic carbon (TOC) by USEPA Method 9060
- installed Hach FL900-series flow meters, initiated 30-day monitoring at IL-1, IL-5, IL-9, IL-12, IL-15, IL-25, and MH-09, and installed a rain gauge near IL-5 to record rain over one month
- installed sandbag sediment traps in CB-04, CB-06, CB-08, IL-1, IL-2, IL-7, IL-8, IL-9, IL-12, IL-21, IL-24, and IL-25 to promote sediment deposition and facilitate future collection and analysis of sediment samples

- collected 16 samples from manholes and inlets having sufficient sediment, and from locations where sandbags had been placed
- sent samples to TestAmerica for PCB Aroclor analysis by United States Environmental Protection Agency (USEPA) Method 8082A

Previous study (Tetra Tech 2017a, 2017b) results led to the development of a sampling strategy to be conducted until Block E remediation was implemented. This sampling strategy is defined in the March 2017 document *Protecting the Middle River Complex Sediment Remedy from PCBs in Storm Drains* (Lockheed Martin, 2017). In October 2017, Tetra Tech inspected the manholes and inlets of the storm-drain systems in and around Block E. Storm-drain system components for Outfalls 006 and 008 were inspected, and sediment samples were collected from the features mentioned above (if a sufficient quantity of sediment was present) and analyzed for PCBs. Figure 2-1 illustrates the location of the inspected manholes and inlets in Block E. The following tasks were completed during the October 2017 investigation:

- inspected locations of 30 storm drain manholes and inlets to determine accessibility
  - accessed 27 storm-drain manholes and inlets that could be opened
  - recorded stormwater and sediment depths, observations, and photographed conditions
- collected sediment samples (at designated manholes and inlets), and submitted sediment samples to an offsite laboratory for PCB analysis by USEPA Method 8082A:
  - sampled sediment in one manhole designated for sampling (MH-09) where accumulated sediment was sufficient
  - no samples were collected from the remaining four designated manholes and inlets proposed for sampling in the downstream end of the storm drain system, either because they lacked sufficient sediment for sampling (i.e., inlets IL-1, IL-2, and IL-3) or because they were found to be influenced by tidal water fluctuations (and therefore possible sediment backflow from Dark Head Cove; [i.e., new manhole, MH-1A])

Approximately two inches of accumulated sediment was observed in manhole MH-09 in October 2017. Sample concentrations of Aroclor-1260 at MH-09 were an order of magnitude higher than its preliminary remedial goal (PRG) of 10 milligrams per kilogram (mg/kg), a screening level established for industrial exposure to Block E soil. The PCB concentrations at MH-09 also exceeded the 0.676 mg/kg action level established for sediment remediation in Dark Head Cove. Sediment accumulation in MH-09 since the last clean out (December 2016), and PCB

exceedances detected in October 2017, prompted the cleaning of this manhole to prevent further sediment migration to the cove. Cleaning of MH-09 conducted on April 11, 2018 included the removal of water, sediment, and debris; the removed material was placed into drums that were subsequently removed by Clean Harbors. The drums were then transported to the Clean Harbors facility in La Porte, Texas. The April 2018 cleaning of MH-09 is fully documented in the *Block E MH-09 Storm Drain Cleaning Report* (Tetra Tech, 2018b). The information reported herein details the subsequent round of storm drain monitoring and inspections, completed in September 2018.

SECTION 3
INVESTIGATION APPROACH AND METHODOLOGY

3.1 SITE ACCESS, NOTIFICATIONS, AND PERMITS

Before starting any field work, the assigned Tetra Tech field personnel became familiar with the site-specific health and safety plan (HASP) and the respective "Safe Work" permits and emergency response plan included in the HASP. Tetra Tech conducted mandatory health and safety tailgate meetings before each day's fieldwork. The Tetra Tech site health and safety officer also documented the topics covered and personnel in attendance. Safety requirements are addressed in detail in the site-specific Tetra Tech HASP (Tetra Tech, 2016b). Tetra Tech also followed the Middle River Complex (MRC) site waste management plan (WMP) (Tetra Tech, 2017c) that conforms to *Lockheed Martin Energy, Environment, Safety, and Health (EESH) Remediation Waste Management Procedure No. EROP 03, Revision 4* (Lockheed Martin, 2009).

Tetra Tech provided notification and coordinated access arrangements through Lockheed Martin Security and EMCOR (site maintenance). MRC tenants were informed and updated about the proposed investigation activities at the LMC Properties, Inc., (LMCPI) bi-weekly meetings. Site access and documentation conformed to the provisions of Lockheed Martin's *Remediation Contractor's Environment, Safety and Health (ESH) Handbook* (Lockheed Martin, 2016).

3.2 FIELD METHODOLOGY AND INVESTGATION APPROACH

Catch basins, inlets, and manholes illustrated in Figure 2-1 were visually inspected on September 19, 2018 to record their present condition; these features were monitored from outside the inlet structure to identify sediment accumulation. Twenty-nine storm-drain features were accessible; inspection involved measuring dimensions of the features, classifying construction material, and evaluating sediment accumulation. IL-4 and IL-14, two inlets previously inaccessible due to cemented on lids, were able to be inspected due to the dislodging of each inlet cover using a sledgehammer. Both protective lids were not damaged and successfully put back in place after inspections were complete. "Storm Drain Inspection Forms" (Appendix A) were completed to

document conditions at each storm-drain feature and outfall; these forms contain photographs, the date and time of the inspection, the personnel completing the inspection, and any other notable observations.

The scope included sample collection at downstream locations IL-1, IL-2, IL-3 (alternately identified as MH-10), and/or MH-09, where sufficient sediment volume (i.e., four ounces) was present for laboratory analysis of polychlorinated biphenyls (PCBs). Upon inspection, only MH-09 contained the required sediment volume; therefore, a parent sample and corresponding duplicate sample were collected from sediment within MH-09. Tidal surface water from Outfall 008 inundates the storm drain system as far upgradient as MH-1A; therefore, although this sampling point was originally scoped for sample collection (Lockheed Martin, 2017) and had accumulated sediment, it was eliminated from the monitoring program due to its tidal influence (Lockheed Martin, 2018).

The samples were collected on September 19, 2018 by lowering a clean stainless-steel spoon with an extended handle into the manhole and transferring the sediment directly to laboratory-supplied glass jars. Samples were submitted to TestAmerica, Inc. (Test America) for PCB analysis under a standard, 21-day turn-around time. Chain-of-custody forms and sediment sample log sheets created during the sampling event are in Appendix B.

3.3 INVESTIGATION-DERIVED WASTE

Investigation-derived waste (IDW) was not generated during this field effort. Personal protective equipment (PPE) worn by sampling personnel was be placed in trash bags that were placed in a facility trash receptacle to be disposed of as general refuse.

3.4 SAMPLING REQUIREMENTS

3.4.1 Sample Nomenclature and Handling

The sediment sample collected from manhole location MH-09 during this investigation was identified using a unique sample identification tag. The sample identification tag consisted of the location (MH-09, for the manhole location), followed by the six-digit date of collection (-091818). The duplicate sample collected carried a similar identification tag: MH for manhole, followed by

"DUP" for duplicate, and the six-digit date of collection (-091918). All sampling information was recorded on a field log form (see Appendix B).

Proper chain of custody procedures were followed throughout all phases of sample collection and handling to establish the evidentiary integrity of sample containers. These protocols were used to demonstrate that the samples were handled and transferred in a manner that would eliminate (or detect) possible tampering. Sample containers were released under signature from the laboratory and were accepted under signature by the sampler(s) or responsible individual who maintains custody until the sample containers were transferred to the sampler(s). Transport containers returning to the laboratory were sealed with strapping tape and a tamper-proof custody seal. The custody seal contained the signature of the individual releasing the transport container, along with the date and time.

3.4.2 Sample Collection and Documentation

Log sheets were used in the field to document sample collection details. The following types of sampling information will be recorded on the field-sampling log sheets:

- site name
- date and time
- sample personnel
- chain-of-custody number
- sample type (grab or composite sample)
- sample media
- sample identification number
- sample analysis
- sample container requirements
- field observation notes

3.4.3 Sample Packaging and Shipping

Samples were prepared for shipping using the following guidelines:

- Place properly identified sample container, with lid securely fastened, in a plastic bag (i.e., Ziploc-type bag), and seal bag.
- Place sample in a sturdy cooler that has been lined with a large plastic bag (i.e., a garbage bag). Tape drain plugs on coolers shut.

- Place a temperature check indicator (provided by the laboratory) in each cooler to be shipped.
- Pack with sufficient cushioning materials, such as bubble wrap, to minimize the possibility of the containers breaking.
- Pack sample containers in ice to cool samples to 0 to 4°C.
- Seal the large liner bag by taping or knotting its open end.
- Place a signed copy of the chain-of-custody form in a large Ziploc-type bag and tape it inside the lid of the shipping cooler.
- Close and seal the outside of shipping cooler using strapping tape. Place custody seals across the lid and body of cooler and under strapping tape to prevent tampering while in transit. No United States Department of Transportation (USDOT) marking is required.

3.5 LABORATORY AND DATA VALIDATION

Tetra Tech used a laboratory accredited in the State of Maryland (TestAmerica, North Canton, Ohio) for the sample analyses. Sediment samples were analyzed for PCBs by United States Environmental Protection Agency (USEPA) Method 8082A. All data provided by the laboratory was validated for all quality assurance (QA)/quality control (QC) parameters including accuracy, precision, completeness, and comparability, in accordance with USEPA Region 3 Level M2 and IM1 protocols. In addition, oversight of the laboratory QA/QC were as proactive as possible to ensure valid data were produced during the sampling event, and laboratory methodology, method compliance, and any corrective actions were also evaluated. The full data validation report is attached as Appendix C.

SECTION 4
RESULTS

During inspection activities on September 19, 2018, manhole and inlet features were recorded and photographed on the attached inspection logs (Table 4-1 and Appendix A). Little to no change was observed in the condition or features of the 27 manhole/inlets inspected since the previous (October 2017) inspection (see Table 4-1). However, two previously inaccessible inlets (IL-4 and IL-14) were accessed by dislodging the cemented-on covers to each manhole. The covers were placed back onto the inlets with no damage after inspections were complete. Inlet IL-11 remains the only inaccessible inlet (of 30 manhole and inlet features inspected) due to its cemented-on concrete lid. In addition, the inlet cover and reservoir at IL-20 and the subgrade near IL-23 were collapsed and deteriorated; therefore, these inlets were not opened.

Approximately one inch of accumulated sediment was observed in manhole MH-09, and primary and duplicate samples were collected and analysed. Figure 4-1 designates the manholes and inlets where sampling was considered and performed and illustrates polychlorinated biphenyl (PCB) Aroclors detected in September 2018.

As shown in Table 4-2 and the validated data report (Appendix C), Aroclor-1260 was the only polychlorinated biphenyl (PCB) detected in September 2018. Aroclor-1260 exceedances were detected at manhole MH-09 in both the original sample (140 milligrams per kilogram [mg/kg]) and the duplicate sample (190 mg/kg). These concentrations are more than an order of magnitude (ten times) higher than the 10 mg/kg preliminary remedial goal (PRG established for industrial exposure to Aroclor-1260 in Block E soil). These concentrations also exceed the sediment remedial goal (0.676 mg/kg) established during the sediment remedial action implemented in Dark Head Cove. Aroclor results from previous sediment samples collected at location MH-09 are compared to current results in Table 4-3.

Manhole MH-09 acts as a sump or sediment accumulation point because its inlet pipe is at a lower elevation than its outlet pipe. This configuration may be due to a historical stormwater system

reconfiguration or to retrofits that occurred during former factory operation. Standing water has been observed at MH-09 during previous field work (October 2017) and inspections (2016); the water level was typically observed to be at the lower edge of the outlet pipe, while the inlet pipe was submerged. Similar to past inspections, 18 inches of standing water (up to the lower edge of the outlet pipe) were observed in MH-09 during the September 2018 monitoring round.

The accumulation of sediment in MH-09 since its last cleaning in April 2018, and the Aroclor 1260 detections above screening levels in September 2018, requires continued cleaning of this manhole to prevent further migration of impacted sediment to Dark Head Cove. The next cleanout will occur in the spring 2019, with the next monitoring to be conducted later in the same year. Tetra Tech will provide documentation of the cleanout after completions including a description of the removal process and all waste characterization, handling and disposal information.

SECTION 5
REFERENCES

Lockheed Martin Corporation (Lockheed Martin), 2008. E*nterprise Operations (EO)-28 and Lockheed Martin Minimum Requirements for Intrusive Fieldwork Work Plans.*

Lockheed Martin Corporation (Lockheed Martin), 2009. *Energy, Environment, Safety, and Health (EESH) Remediation Waste Management Procedure No: EROP-03, Revision 4* (effective April 17, 2009).

Lockheed Martin Corporation (Lockheed Martin), 2016. *Remediation Contractor's ESH Handbook*, Revision 2, effective May 1.

Lockheed Martin Corporation (Lockheed Martin), 2017. *Protecting the Middle River Complex Sediment Remedy from PCBs in Storm Drains,* Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Letter report prepared by Lockheed Martin Corporation, Bethesda, Maryland. March.

Lockheed Martin Corporation (Lockheed Martin), 2018a. *Block E Storm Drain Monitoring Report,* Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Letter report prepared by Lockheed Martin Corporation, Bethesda, Maryland. February.

Lockheed Martin Corporation (Lockheed Martin), 2018b. *Block E MH-09 Storm Drain Cleaning Report,* Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Letter report prepared by Lockheed Martin Corporation, Bethesda, Maryland. June.

Tetra Tech, Inc. (Tetra Tech), 2016a. *Outfall 005 Storm-Drain Plugging Technical Memorandum,* Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. June.

Tetra Tech, Inc. (Tetra Tech), 2016b. *Master Health and Safety Plan, Middle River Complex,* Revision 6, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. January.

Tetra Tech, Inc. (Tetra Tech), 2017a. *Block E 2016 Storm Drain Assessment Report,* Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Letter report prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. August.

Tetra Tech, Inc. (Tetra Tech), 2017b. *Soil Remediation Investigation Addendum Report,* Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Letter report prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. February.

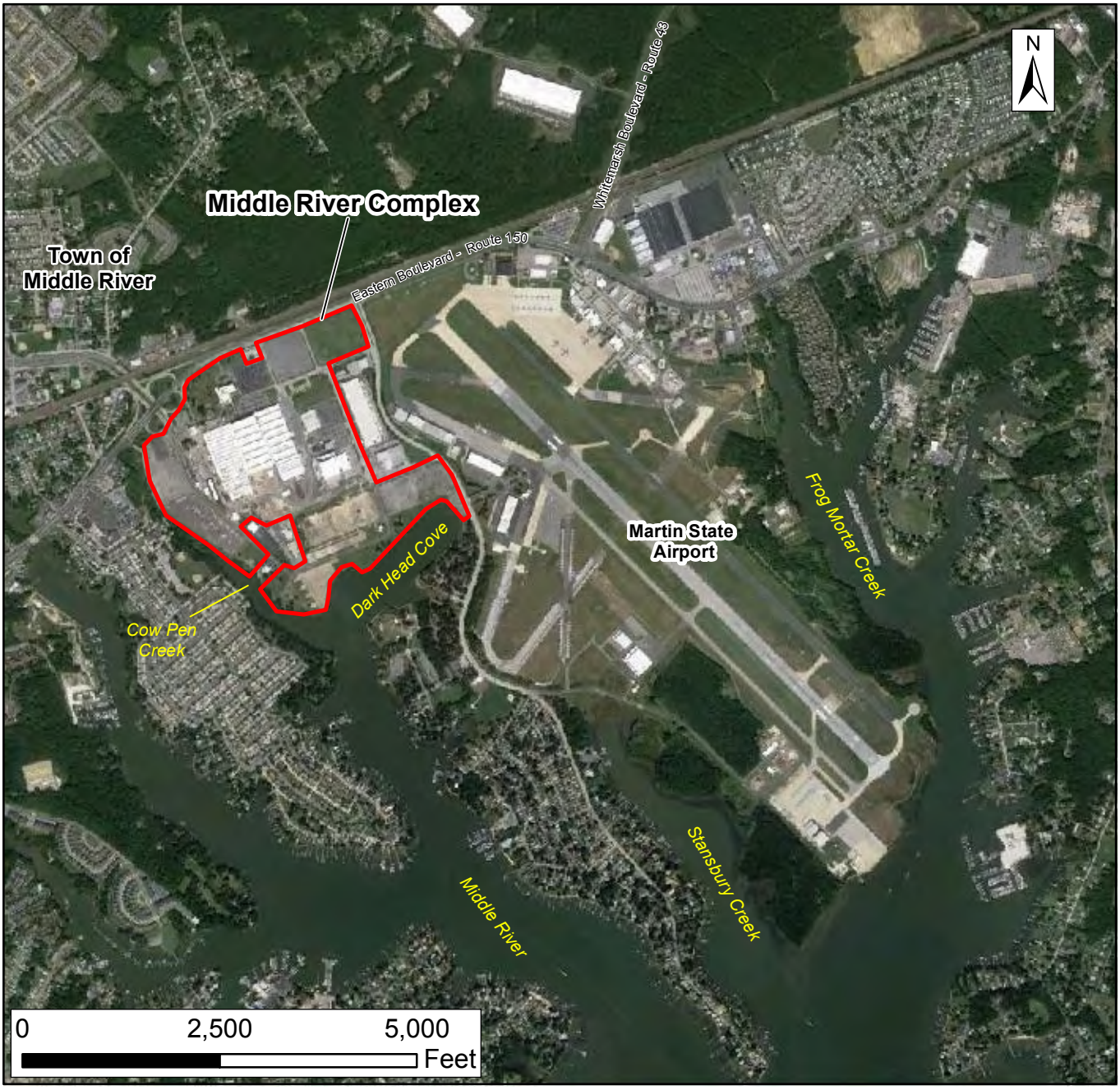
Tetra Tech, Inc. (Tetra Tech), 2017c. *Waste Management Plan*, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard Middle River, Maryland. Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. December.

FIGURES

Figure 1-1 Middle River Complex Location Map

Figure 2-1 Storm Drain Sediment Accumulation Monitoring Locations, September 2018, Block E

Figure 4-1 Storm Drain Sampling Results, September 2018, Block E



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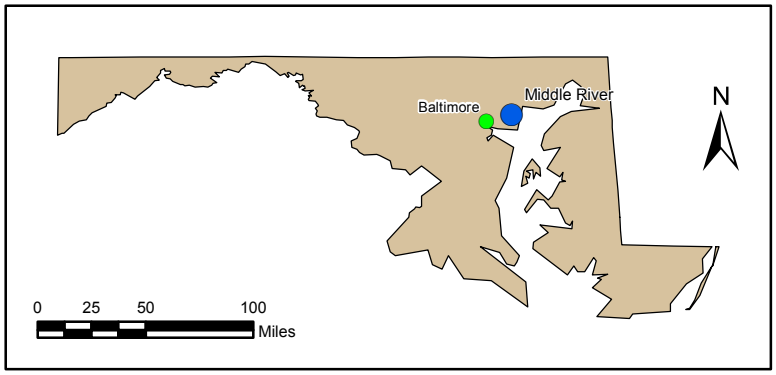

FIGURE 1-1

MIDDLE RIVER COMPLEX LOCATION MAP

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	CREATED BY:
5/1/13	MP

TETRA TECH

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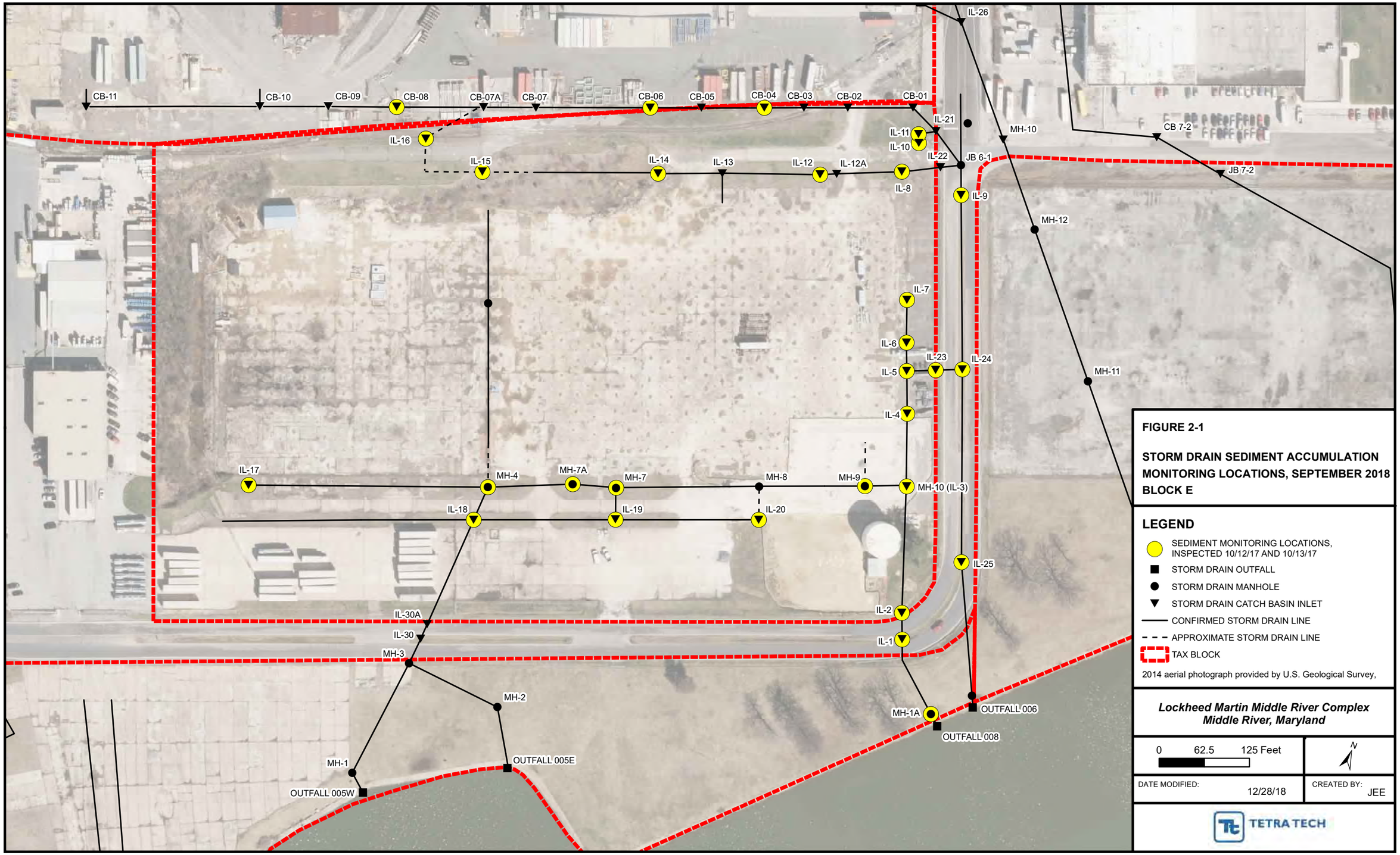

FIGURE 2-1

STORM DRAIN SEDIMENT ACCUMULATION MONITORING LOCATIONS, SEPTEMBER 2018 BLOCK E

LEGEND

- SEDIMENT MONITORING LOCATIONS, INSPECTED 10/12/17 AND 10/13/17
- STORM DRAIN OUTFALL
- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN INLET
- CONFIRMED STORM DRAIN LINE
- APPROXIMATE STORM DRAIN LINE
- TAX BLOCK

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

Lockheed Martin Middle River Complex
Middle River, Maryland

0 62.5 125 Feet

N

DATE MODIFIED: 12/28/18

CREATED BY: JEE

TETRA TECH

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12/28/18 -- JEE

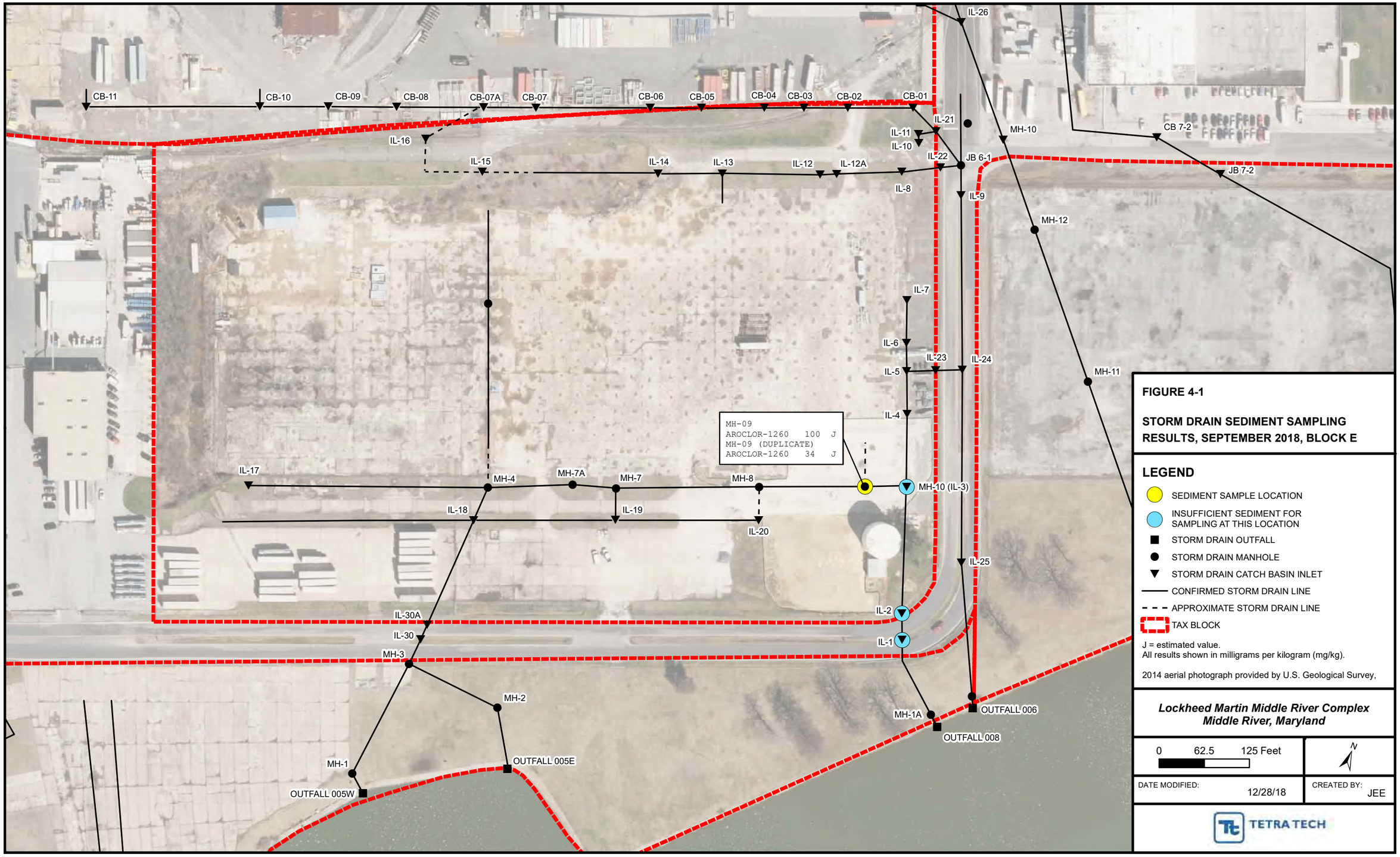


FIGURE 4-1

STORM DRAIN SEDIMENT SAMPLING RESULTS, SEPTEMBER 2018, BLOCK E

LEGEND

- SEDIMENT SAMPLE LOCATION
- INSUFFICIENT SEDIMENT FOR SAMPLING AT THIS LOCATION
- STORM DRAIN OUTFALL
- STORM DRAIN MANHOLE
- STORM DRAIN CATCH BASIN INLET
- CONFIRMED STORM DRAIN LINE
- APPROXIMATE STORM DRAIN LINE
- TAX BLOCK

J = estimated value.
All results shown in milligrams per kilogram (mg/kg).

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

Lockheed Martin Middle River Complex
Middle River, Maryland

0 62.5 125 Feet

N

DATE MODIFIED: 12/28/18

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\block_e_storm_drain_tags_oct2017.mxd)
12/28/18 -- JEE

TABLES

Table 4-1 Comparison of Sediment Accumulation Monitoring and Inspection Results, Block E Storm Drains, June 2016, October 2017, and September 2018 Inspections

Table 4-2 Block E Storm Drain Sediment Sampling Results, September 2018 – Polychlorinated Biphenyls

Table 4-3 Block E Manhole (MH-09) Polychlorinated Biphenyl Results, 2013-2018

Table 4-1

Comparison of Sediment Accumulation Monitoring and Inspection Results, Block E Storm Drains
June 2016, October 2017, and September 2018 Inspections

Location	Depth of sediment accumulation (June 2016)	Depth of sediment accumulation (October 2017)	Sample collected October 2017? (designated locations)	Notes October 2017	Depth of sediment accumulation (September 2018)	Sample collected September 2018? (designated locations)	Notes September 2018
CB-4	No sediment	No sediment	NA	None	No sediment	NA	None
CB-6	No sediment	No sediment	NA	None	No sediment	NA	None
CB-8	No sediment	No sediment	NA	None	No sediment	NA	None
IL-1	No sediment	No sediment	No	None	No sediment	No	None
IL-2	No sediment	No sediment	No	None	No sediment	No	None
IL-4	No sediment	No sediment	NA	Metal slatted lid is cemented in place around edges. Wood debris visible at inlet bottom.	No sediment	NA	Metal lid removed from cement to reveal a brick-lined structure too narrow to determine piping
IL-5	<0.5 inches	<0.5 inches	NA	None	No sediment	NA	None
IL-6	No sediment		NA	None	No sediment	NA	None
IL-7	<0.5 inches	No sediment	NA	None	No sediment	NA	None
IL-8	No sediment	No sediment	NA	None	No sediment	NA	None
IL-9	No sediment	No sediment	NA	None	No sediment	NA	None
IL-10	>2 inches	<0.5 inches	NA	None	<1 inch	NA	None
IL-11	Cannot access inlet below lid due to cemented-on concrete lid						
IL-12	No sediment	No sediment	NA	None	No sediment	NA	None
IL-14	Unable to remove lid from cover frame			None	No sediment	NA	Lid removed revealing brick-lined structure; inlet from IL-15 and outlet to IL-13 with an additional six-inch corrugated metal pipe to the southeast
IL-15	1-3 inches	1-3 inches	NA	Bricks and rocks at bottom of inlet.	1-3 inches	NA	Bricks and rocks at inlet bottom.
IL-16	1 inch	<1 inch	NA	None	No sediment	NA	None
IL-17	unknown	2 inches (estimated)	NA	Sediment present under 3 feet standing water; depth not visible	Sediment present under 2 feet of standing water, depth not visible	NA	None
IL-18	unknown	2-4 inches (estimated)	NA	Sediment present under 2 feet standing water; depth not visible	5 inches sediment	NA	27 inches of standing water
IL-19	>2 inches	>4 inches	Yes	Significant debris inside (rubble, metal pipes, rebar, etc.)	Significant debris inside (rubble, metal pipes, rebar, etc.)	NA	None
IL-20	>6 inches	NA	NA	Not accessed due to subsiding/collapsing subgrade next to inlet.	Not accessed due to subsiding and collapsing subgrade next to inlet.	NA	None
IL-23	2 inches	NA	NA	Same as above	Same as above	NA	None
IL-24	No sediment	No sediment	NA	None	No sediment	NA	None

Table 4-1

Comparison of Sediment Accumulation Monitoring and Inspection Results, Block E Storm Drains
June 2016, October 2017, and September 2018 Inspections

Location	Depth of sediment accumulation (June 2016)	Depth of sediment accumulation (October 2017)	Sample collected October 2017? (designated locations)	Notes October 2017	Depth of sediment accumulation (September 2018)	Sample collected September 2018? (designated locations)	Notes September 2018
IL-25	No sediment	No sediment	NA	None	No sediment	NA	None
MH-1A	NA	0.5 inch	Yes; sample not analyzed[1]	None	<0.5 inches	No	None
MH-04	>6 inches	>1 inch	NA	None	No sediment	NA	None
MH-07	6 inches	2 inches	NA	None	3 inches	NA	None
MH-07A	Caved-in vault; filled with debris at bottom.			None	Caved in vault; filled with debris	NA	None
MH-09	2 inches	2 inches	**Yes**	Collected sample and duplicate	**1 inch**	**Yes**	**Collected sample and duplicate**
MH-10 (alt IL-3)	0.5 inches	No sediment	NA	None	No sediment	NA	None

NA – Not applicable or not accessible.

1- Tidal surface water from Outfall 008 inundates the system as far upgradient as MH-1A, so this manhole was eliminated from future monitoring events, and was not sampled during the current monitoring round.

Table 4-2

Block E Storm Drain Sediment Sampling Results,
September 2018 - Polychlorinated Biphenyls
Lockheed Martin Middle River Complex
Middle River, Maryland

Location	Block E Premininary Remedial Goal for Soil	MH-09			
Sample ID		MH-09-091918		MH-DUP-091918	
Sample Date		9/19/2018		9/19/2018	
Polychlorinated biphenyls (mg/kg)					
Aroclor-1016	10	2.6	U	12	U
Aroclor-1221	10	2.8	U	13	U
Aroclor-1232	10	2.7	U	12	U
Aroclor-1242	10	2.2	U	10	U
Aroclor-1248	10	2.8	U	13	U
Aroclor-1254	10	2.7	U	12	U
Aroclor-1260	10	**140**		**190**	
Aroclor-1262	10	3.6	U	17	U
Aroclor-1268	10	2.7	U	12	U

mg/kg = milligrams per kilogram
PRG = preliminary remedial goal
Note: A dilution factor of five was used for MH-DUP-091918
Bold font indicates a concentration that exceeds the industrial soil preliminary remedial goal.

Table 4-3

Block E Manhole (MH-09) Polychlorinated Biphenyl Resuts, 2013-2018
Lockheed Martin Middle River Complex
Middle River, Maryland

LOCATION	Block E	SD-181	E-MH09				
SAMPLE ID	Preliminary	SD-181-0-1	E-SD-MH9-091216	MH-09-101317	MH-09-101317-D	MH-09-091918	MH-09-091918-D
SAMPLE DATE	Goal (Soil)	20131220	20160912	20171013	20171013	20180919	20180919
PCBS (UG/KG)							
AROCLOR-1016	10000	2100 U	290 U	3100 U	760 U	2600 U	12000 U
AROCLOR-1221	10000	2800 U	280 U	2900 U	720 U	2800 U	13000 U
AROCLOR-1232	10000	2500 U	190 U	2000 U	500 U	2700 U	12000 U
AROCLOR-1242	10000	2400 U	240 U	2600 U	630 U	2200 U	10000 U
AROCLOR-1248	10000	1400 U	210 U	2200 U	540 U	2800 U	13000 U
AROCLOR-1254	10000	2100 U	170 U	1800 U	440 U	2700 U	12000 U
AROCLOR-1260	10000	**420000**	**3400**	**100000 J**	**34000 J**	**140000**	**190000**
AROCLOR-1262	10000	NA	97 U	1000 U	250 U	3600 U	17000 U
AROCLOR-1268	10000	NA	240 U	2600 U	630 U	2700 U	12000 U
TOTAL AROCLOR	10000	**420000**	**NA**	**100000**	**34000**	**140000**	**190000**

APPENDICES

Appendix A—2018 Block E Storm Drain Inspection Logs

Appendix B—MH-09 Sample Log Sheet and Chain of Custody Form

Appendix C—Data Validation Report

APPENDIX A—2018 BLOCK E STORM DRAIN INSPECTION LOGS

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:01	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: CB-08	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 26.26 Pipe Material: Reinforced Concrete Pipe (RCP)

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☑ Other: Concrete

Description of Observed Materials:

Photo 1:

Description: Open inlet

Photo 2:

Description: Pipe from CB-09 is 26”

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Appears to be 26” pipe with 5” of concrete accumulated on the bottom. Pipe goes to CB-07

Photo 4:

Description:

Notes:

Grate on one side had previously fallen into hole. Sheet metal covering area. Grate attempted to be removed from manhole but too heavy.

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:10	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: CB-06	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 26.26 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Open inlet

Photo 2:

Description:

Pipe from CB-07 is 26”. Concrete has hardened on the bottom of the pipe

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Pipe to CB-05 is 26”

Photo 4:

Description:

Concrete accumulated in upstream pipe

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:16	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: CB-04	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 26.26 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Inlet

Photo 2:

Description:

Brick and mortar inlet construction

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Pipe from CB-05 is 26” with about 5” of concrete on the bottom

Photo 4:

Description:

Pipe to CB-03 is 26”

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:27	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-16	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 15.15 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Open inlet

Photo 2:

Description:

15” pipe from CB-07

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

15” pipe to IL-15 is blocked with brick and mortar except for a 3x4” opening through which water flows.

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:36	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-15	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 15.15 Pipe Material: RCP

Observations:

Check if Present:

- ☑ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Rock and brick in inlet

Photo 1:

Description:

Main photo

Photo 2:

Description:

Pipe to IL-14 is on top of photo

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Pipe to IL-14 has 15” diameter

Photo 4:

Description:

Upstream pipe to IL-16 has 15” diameter.

Notes:

One 2” pipe located 41” above the inflow pipe, plugged with soil.

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:44	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-14	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 15.15 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Brick lined structure, inlet from IL-15, outlet to IL-13, additional inlet consisting of 6” CMP to the southeast

Photo 1:

Description:

15” RCP from IL-15

Photo 2:

Description:

6” CMP inlet from the southeast, possible just a drain

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

15” RCP outlet to IL-13

Photo 4:

Description:

Notes:

Brick lined structure, inlet from IL-15, outlet to IL-13, additional inlet consisting of 6” CMP to the southeast. 2” of standing water

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 8:58	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-12	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 16.17 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Open inlet

Photo 2:

Description:

16” pipe from IL-13

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

17” pipe to IL-12A

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:03	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-8	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 16.16 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Open inlet

Photo 2:

Description:

Pipe to IL-22 is 16”

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Pipe from IL-12A is 16”.

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:07	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-11	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Unknown

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Cannot see inside inlet

Photo 1:

Description:

Photo 2:

Description:

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:10	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-10	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 12 Pipe Material: Metal

Observations:

Check if Present:

- ☐ Debris
- ☑ Sediment
- ☐ Other:

Description of Observed Materials:

Less than one inch of fine sediment accumulation, only one pipe which flows to IL-11. 9” of standing water

Photo 1:

Description:

Closed inlet

Photo 2:

Description:

Pipe to IL-11 is 12”, Metal.

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:26	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-7	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 15 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Pipe to IL-6 is 15”

Photo 2:

Description:

Bottom of inlet is 3’ below grade.

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Open inlet

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:36	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-6	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Appears to be RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Inaccessible for pipe measurements

Photo 2:

Description:

Brick and mortar construction

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:40	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-5	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 15.18 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

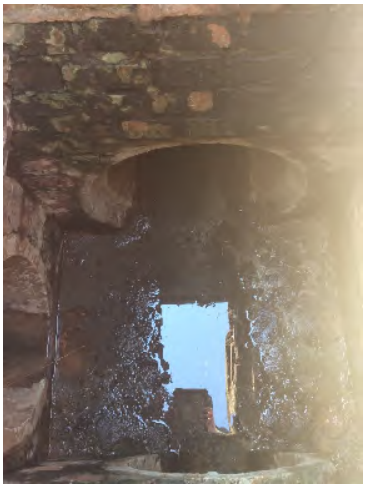
Description of Observed Materials:

Photo 1:

Description:

Pipe from IL-6 is 15”

Photo 2:



Description:

Pipe from IL-4 is 18”

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Storm Drain Inspection Form

Photo 3:

Description:

Pipe from IL-23 is 15”

Photo 4:

Description:

Open inlet

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:42	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-23	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet):
		Pipe Material: Unknown

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Inlet covered with rock/debris from recent pipe installation work.

Photo 2:

Description:

Massive erosion next to inlet where new pipes were installed.

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 9:50	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-4	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: VCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Inlet too small to determine piping

Photo 2:

Description:

Open inlet

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 10:04	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-3/MH-10	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 18.18 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Pipe to IL-2 is 20” and is flush with bottom of manhole.

Photo 2:

Description:

Pipe from IL-4 is 18”, bottom of pipe flush with bottom of manhole

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

15” pipe from MH-09. Bottom of pipe is 2.1’ from bottom of manhole.

Photo 4:

Description:

Inlet covered with storm debris before removal of lid.

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 10:15	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: MH-09	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 00.15 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☑ Sediment
- ☐ Other:

Description of Observed Materials:

Approximately 1” of fine sediment on bottom. Approximately 18” of standing water

Photo 1:

Description:

Open manhole

Photo 2:

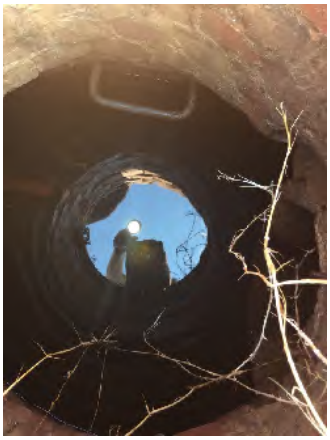
Description:

Outflow pipe to MH-10/IL-3 is 15” RCP

TETRA TECH

Storm Drain Inspection Form

Photo 3:



Description:

Fine sediment on bottom approximately 1” depth

Photo 4:

Description:

Notes:

Bottom lip of outflow pipe is 14 inches above the bottom of the manhole with the water level even with bottom lip. Inflow pipe is unknown. PCB sample collected with duplicate. See Sample Log sheet

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 10:25	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-20	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Unknown

Observations:

Check if Present:

- ☑ Debris
- ☑ Sediment
- ☐ Other:

Description of Observed Materials:

Inlet filled in with brick and debris

Photo 1:

Description:

Open inlet

Photo 2:

Description:

Inlet filled with rock, brick, and debris

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 10:30	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-19	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 12 Pipe Material: RCP

Observations:

Check if Present:

- ☑ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Debris

Photo 2:

Description:

Debris

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

17 inches of debris and sediment. Total depth is 2.7’ from top of manhole. Top of manhole is 1.2’ below grade. Two pipes of estimated diameter of 12” coming from IL-18 and going to IL-20.

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 10:38	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: MH-7	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: See notes

Observations:

Check if Present:

- ☐ Debris
- ☑ Sediment
- ☐ Other:

Description of Observed Materials:

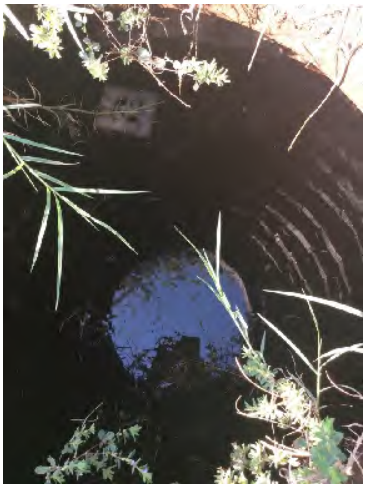
21” of standing water and 3” of sediment

Photo 1:

Description:

Depth of manhole

Photo 2:



Description:

21” of standing water in manhole

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 11:16	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: MH-7A	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Unknown

Observations:

Check if Present:

- ☑ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Concrete and brick debris w/standing water.

Photo 1:

Description:

Open manhole

Photo 2:

Description:

Various concrete and metal debris

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 11:21	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: MH-4	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Unknown, not visible

Observations:

Check if Present:

- ☑ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Water flowing from sheet flow at surface, pipes are blocked at least partially. Significant sediment and debris is observable, could not find pipe opening when prodding sidewalls with rod.

Photo 1:

Description:

2’ diameter concrete manhole

Photo 2:

Description:

Bottom of manhole is 1.5 feet below top of manhole

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

Water flowing from sheet flow at surface, pipes are blocked at least partially. Significant sediment and debris is observable, could not find pipe opening when prodding sidewalls with rod.

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 11:24	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-18	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Unknown

Observations:

Check if Present:

- ☐ Debris
- ☑ Sediment
- ☐ Other:

Description of Observed Materials:

Water is 27” high with 5” of fine sediment

Photo 1:

Description:

Open inlet

Photo 2:

Description:

Water level high

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 11:35	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-17	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): Pipe Material: Unknown

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

22” of standing water. Cannot tell where pipes are located due to standing water

Photo 1:

Description:

Open inlet

Photo 2:

Description:

Water inside inlet

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Photo 4:

Description:

Notes:

Cannot tell where pipes are located due to standing water

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 12:28	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-24	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 30.30 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Top pipe is 15” and comes from IL-23

Photo 2:

Description:

The lower pipe is 30” and comes from IL-9

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

30” pipe to IL-25 shown

Photo 4:

Description:

Open inlet

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 12:33	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-25	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 30.30 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Open inlet

Photo 2:

Description:

Brick and mortar inlet construction

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

30” pipe to outfall-006

Photo 4:

Description:

30” pipe from IL-24

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 12:36	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-2	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 18.18 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Brick and mortar inlet construction

Photo 2:

Description:

Pipe to IL-01 is 18”

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Pipe to IL-3 is 18”

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 12:39	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-1	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 18.18 Pipe Material: VCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Brick and mortar inlet construction.

Photo 2:

Description:

Pipe from the IL-2 is 18”

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

Pipe to OF-008 is 18”

Photo 4:

Description:

Notes:

Pipe from the north could not be confidently determined. Appears to range from 18-20”

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 1:21	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: MH-1A	Storm Drain Line: Outfall-008	Pipe Diameter (inch. Inlet.Outlet): 18.32 Pipe Material: HDPE/RCP

Observations:

Check if Present:

- ☐ Debris
- ☑ Sediment
- ☐ Other:

Description of Observed Materials:

Less than half an inch of sediment, water flowing into pipe from creek and into pipe from IL-1. Not enough to collect sample

Photo 1:

Description:

New manhole lid

Photo 2:

Description:

32” HDPE outlet pipe to Dark Head Cove

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

CMP inflow from IL-1

Photo 4:

Description:

Notes:

TETRA TECH

Storm Drain Inspection Form

Date/Time:	September 19, 2018 at 1:56	Site:	MRC
Personnel:	Mullis	Location:	Block E

MH/IL ID: IL-9	Storm Drain Line: Outfall-006	Pipe Diameter (inch. Inlet.Outlet): 30.30 Pipe Material: RCP

Observations:

Check if Present:

- ☐ Debris
- ☐ Sediment
- ☐ Other:

Description of Observed Materials:

Photo 1:

Description:

Brick and mortar construction

Photo 2:

Description:

Open inlet

TETRA TECH

Storm Drain Inspection Form

Photo 3:

Description:

30” pipe to IL-24

Photo 4:

Description:

30” pipe from JB-1

Notes:

APPENDIX B—MH-09 SAMPLE LOG SHEET AND CHAIN OF CUSTODY FORM

TETRA TECH, INC.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name:	Block E, MRC	Sample ID No. :	MH-09-091918
Project Number:	11207533	Sample Location :	MH-09
Sample Type:	Sediment	Sampled By:	Josh Mullis
Date:	September 19, 2018	COC No.:	

Sampling Data

Time:	14:00
Top Depth (ft. BGS):	
Bottom Depth (ft. BGS):	
PID (ppm):	

☐ Composite ☑ Grab

Description (sand, silt, clay, moisture, etc):

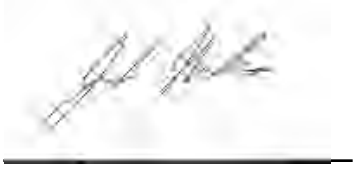
Coarse grained sandy gravel. Wet, odorous.

Analysis	Container Requirements	Preservation	Quantity
PCBs (8082A)	4oz glass jar	Unpres	1
—	—	—	
—	—	—	
—	—	—	
—	—	—	

Observations / Notes / Duplicate Data

Duplicate collected MH-DUP-091918

Signature :



~~TestAmerica Sacramento~~ North Canton, OH
~~880 Riverside Parkway~~ 4101 Shuffel St. N.W.
~~West Sacramento, CA 95605~~
~~Phone: 916.373.5600 Fax:~~

Chain of Custody Record 240275

2.2 | C3.1

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TestAmerica Laboratories, Inc.

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

TAL-8210 (0713)

Client Contact	Project Manager: Amy McGivney	Site Contact: T. Mullis	Date: 9/19/18	COC No:
Company Name: Tetra Tech Inc	Tel/Fax: 301-528-3021	Lab Contact: J. McFadden	Carrier: Fed Ex	1 of 1 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 ☐ 1 week STANDARD ☐ 2 days ☐ 1 day			Lab Sampling:
Project Name: Storm Drain Inspections				Job / SDG No.:
Site: MRC Block E				
PO # ASK PM				

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 8082A	Sample Specific Notes:
MH-09-091918	9/19/18	1130	G	SED	1			X	
MH-DUP-091918	9/19/18	—	G	SED	1			X	

9/19/18

240-101687 Chain of Custody

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: -Sediment Samples collected from Manhole-9 @ MRC Block E for Storm drain inspections

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 Inc	9/20/18 1520		TPL	9-21-18 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

APPENDIX C—DATA VALIDATION REPORT

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **M. MARTIN** **DATE:** **NOVEMBER 14, 2018**

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

SUBJECT: **ORGANIC DATA VALIDATION – PCB**
MRC-BLOCK E – FULL REVIEW
SAMPLE DELIVERY GROUP (SDG) 240-101687-1

SAMPLES: 2 / Solid / PCB

MH-09-091918 MH-DUP-091918

OVERVIEW

The sample set for MRC-Block E, SDG 240-101687-1, consists of two (2) solid environmental samples. The samples were analyzed for polychlorinated biphenyls (PCBs). One field duplicate pair is included in this SDG: MH-09-091918 and MH-DUP-091918.

The samples were collected by Tetra Tech on September 19, 2018, and analyzed by TestAmerica. Analyses were conducted in accordance with SW-846 Method 8082A analytical and reporting protocols.

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

MAJOR PROBLEMS

- None.

MINOR PROBLEMS

- None.

NOTES

Non-detected results were reported to the MDL.

Sample MH-09-091918 was analyzed at a dilution factor of 100.

Sample MH-DUP-091918 was analyzed at a dilution factor of 500.

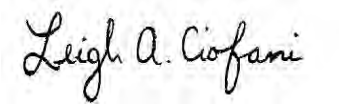
Surrogate percent recoveries %Rs for tetrachloco-m-xylene (TCX) and decachlorobiphenyl (DCB) were greater than laboratory quality control limits for sample MH-09-091918 and 0% for MH-DUP-091918. No qualification was necessary because these samples were analyzed at dilution factors of 100 and 500, respectively.

EXECUTIVE SUMMARY

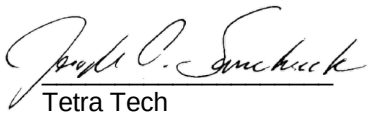
Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the USEPA "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017). The text of this report has been formulated to address only those problem areas affecting data quality.



Tetra Tech
Leigh A. Ciofani
Environmental Scientist/Data Validator



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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

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 detection limit.
J	The result is an estimated quantity. 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.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
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.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

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: 07533	NSAMPLE	MH-09-091918			MH-DUP-091918		
SDG: 240-101687-1	LAB_ID	240-101687-1			240-101687-2		
FRACTION: PCB	SAMP_DATE	9/19/2018			9/19/2018		
MEDIA: SOIL	QC_TYPE	NM			FD		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	84.9			88.7		
	DUP_OF				MH-09-091918		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AROCLOR-1016		2600	U		12000	U	
AROCLOR-1221		2800	U		13000	U	
AROCLOR-1232		2700	U		12000	U	
AROCLOR-1242		2200	U		10000	U	
AROCLOR-1248		2800	U		13000	U	
AROCLOR-1254		2700	U		12000	U	
AROCLOR-1260		140000			190000		
AROCLOR-1262		3600	U		17000	U	
AROCLOR-1268		2700	U		12000	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-101687-1

SDG No.:

Client Sample ID: MH-09-091918 | Lab Sample ID: 240-101687-1

Matrix: Solid | Lab File ID: P2092756.D

Analysis Method: 8082A | Date Collected: 09/19/2018 14:30

Extraction Method: 3540C | Date Extracted: 09/25/2018 09:30

Sample wt/vol: 10.05(g) | Date Analyzed: 09/28/2018 03:35

Con. Extract Vol.: 10(mL) | Dilution Factor: 100

Injection Volume: 1(uL) | GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

% Moisture: 15.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 347579 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	Aroclor-1016	2600	U	5900	2600
11104-28-2	Aroclor-1221	2800	U	5900	2800
11141-16-5	Aroclor-1232	2700	U	5900	2700
53469-21-9	Aroclor-1242	2200	U	5900	2200
12672-29-6	Aroclor-1248	2800	U	5900	2800
11097-69-1	Aroclor-1254	2700	U	5900	2700
11096-82-5	Aroclor-1260	140000		5900	2600
37324-23-5	Aroclor-1262	3600	U	5900	3600
11100-14-4	Aroclor-1268	2700	U	5900	2700

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	130	p X	14-128
2051-24-3	DCB Decachlorobiphenyl	221	X	10-132

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-101687-1

SDG No.:

Client Sample ID: MH-DUP-091918 | Lab Sample ID: 240-101687-2

Matrix: Solid | Lab File ID: P2092757.D

Analysis Method: 8082A | Date Collected: 09/19/2018 00:00

Extraction Method: 3540C | Date Extracted: 09/25/2018 09:30

Sample wt/vol: 10.44(g) | Date Analyzed: 09/28/2018 03:50

Con. Extract Vol.: 10(mL) | Dilution Factor: 500

Injection Volume: 1(uL) | GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

% Moisture: 11.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 347579 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	Aroclor-1016	12000	U	27000	12000
11104-28-2	Aroclor-1221	13000	U	27000	13000
11141-16-5	Aroclor-1232	12000	U	27000	12000
53469-21-9	Aroclor-1242	10000	U	27000	10000
12672-29-6	Aroclor-1248	13000	U	27000	13000
11097-69-1	Aroclor-1254	12000	U	27000	12000
11096-82-5	Aroclor-1260	190000		27000	12000
37324-23-5	Aroclor-1262	17000	U	27000	17000
11100-14-4	Aroclor-1268	12000	U	27000	12000

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	0	X	14-128
2051-24-3	DCB Decachlorobiphenyl	0	X	10-132

APPENDIX C

SUPPORT DOCUMENTATION

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: MRC Block E Storm Drains

Report Number: 240-101687-1

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

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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

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

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT
The samples were received on 9/21/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1° C.

POLYCHLORINATED BIPHENYLS (PCBS)
Samples MH-09-091918 (240-101687-1) and MH-DUP-091918 (240-101687-2) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082A. The samples were prepared on 09/25/2018 and analyzed on 09/28/2018.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required. All of the samples in this data set analyzed for PCBs were subjected to the sulfuric acid cleanup procedure before instrumental analysis, per EPA Method 3665A.

DCB Decachlorobiphenyl and Tetrachloro-m-xylene failed the surrogate recovery criteria high for MH-09-091918 (240-101687-1). DCB Decachlorobiphenyl and Tetrachloro-m-xylene failed the surrogate recovery criteria low for MH-DUP-091918 (240-101687-2).

Samples MH-09-091918 (240-101687-1)[100X] and MH-DUP-091918 (240-101687-2)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following samples were diluted due to abundance of target analytes: MH-09-091918 (240-101687-1) and MH-DUP-091918 (240-101687-2). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

The Aroclors in the continuing calibration verification (CCV) met criteria; however, the Decachlorobiphenyl surrogate failed to meet criteria at -28.2%. After careful evaluation the data is reported. MH-09-091918 (240-101687-1) and MH-DUP-091918 (240-101687-2)

The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: MH-09-091918 (240-101687-1) and MH-DUP-091918 (240-101687-2). Reagents: 3800824, 3792600 and 3715673.

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

PERCENT SOLIDS
Samples MH-09-091918 (240-101687-1) and MH-DUP-091918 (240-101687-2) were analyzed for percent solids in accordance with

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

ASTM Method D2216-80. The samples were analyzed on 09/25/2018.

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

Method Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 240-101687-1
Project/Site: MRC Block E Storm Drains

Method	Method Description	Protocol	Laboratory
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL CAN
Moisture	Percent Moisture	EPA	TAL CAN
3540C	Soxhlet Extraction	SW846	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: MRC Block E Storm Drains

TestAmerica Job ID: 240-101687-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-101687-1	MH-09-091918	Solid	09/19/18 14:30	09/21/18 09:30
240-101687-2	MH-DUP-091918	Solid	09/19/18 00:00	09/21/18 09:30

~~TestAmerica Sacramento~~ North Canton, OH
~~880 Riverside Parkway~~ 4101 Shuffel St. N.W.
~~West Sacramento, CA 95605~~
~~Phone: 916.373.5600 Fax:~~

Chain of Custody Record 240275

2.2 | C3.1

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TestAmerica Laboratories, Inc.
TAL-8210 (0713)

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

Client Contact	Project Manager: Amy McGivney	Site Contact: T. Mullis	Date: 9/19/18	COC No:
Company Name: Tetra Tech Inc	Tel/Fax: 301-528-3021	Lab Contact: J. McFadden	Carrier: Fed Ex	1 of 1 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 ☐ 1 week STANDARD ☐ 2 days ☐ 1 day			Lab Sampling:
Project Name: Storm Drain Inspections				Job / SDG No.:
Site: MRC Block E				
PO # ASA PM				

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 8082A	Sample Specific Notes:
MH-09-091918	9/19/18	1130	G	SED	1			X	
MH-DUP-091918	9/19/18	—	G	SED	1			X	

9/19/18

240-101687 Chain of Custody

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: -Sediment Samples collected from Manhole-9 @ MRC Block E for Storm drain inspections

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 Inc	9/20/18 1520		TPL	9-21-18 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 101687**
Canton Facility

Client TETRA TECH Site Name — Cooler unpacked by: POP

Cooler Received on 9-21-18 Opened on 9-21-18

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.9 °C) Observed Cooler Temp. 2.2 °C Corrected Cooler Temp. 3.1 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# **HC849161**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? ____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: POP

18. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____

FIELD DUPLICATE PRECISION

ORIGINAL ID	DUP ID	FRACTION	ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 50%	ORIGINAL SAMPLE CONC >RL	DUPLICATE SAMPLE CONC >RL	DIFFERENCE >2XRL
MH-09-091918	MH-DUP-091918	PCB	AROCLOR-1260	140000	190000	27000	30.30	FALSE	TRUE	TRUE	FALSE

Method 8082A

Polychlorinated Biphenyls (PCBs) (GC) by Method 8082A

FORM II
PCBS SURROGATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Matrix: Solid Level: Low

GC Column (2): CLP-1 (0.53 ID: 0.53(mm)

Client Sample ID	Lab Sample ID	TCX2	#	DCBP2	#
MH-09-091918	240-101687-1	130 p	X	221	X
MH-DUP-091918	240-101687-2	0	X	0	X
	MB 240-347068/19-A	62		59	
	LCS 240-347068/20-A	80		57	

	QC LIMITS
TCX = Tetrachloro-m-xylene	14-128
DCBP = DCB Decachlorobiphenyl	10-132

Column to be used to flag recovery values

FORM II 8082A

FORM III
PCBS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Matrix: Solid Level: Low Lab File ID: P2092753.D

Lab ID: LCS 240-347068/20-A Client ID:

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC	QC LIMITS REC	#
Aroclor-1016	1000	806	81	47-120	
Aroclor-1260	1000	628	63	46-120	

Column to be used to flag recovery and RPD values

FORM III 8082A

FORM IV
PCBS METHOD BLANK SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: MB 240-347068/19-A

Matrix: Solid Date Extracted: 09/25/2018 09:01

Lab File ID:(1) P2092752.D Lab File ID:(2) P2092752.D

Date Analyzed:(1) 09/28/2018 02:37 Date Analyzed:(2) 09/28/2018 02:37

Instrument ID:(1) A2HP2 Instrument ID:(2) A2HP2

GC Column:(1) CLP-2 (0.53m ID: 0.53(mm) GC Column:(2) CLP-1 (0.53m ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	LCS 240-347068/20-A	09/28/2018 02:52	09/28/2018 02:52
MH-09-091918	240-101687-1	09/28/2018 03:35	09/28/2018 03:35
MH-DUP-091918	240-101687-2	09/28/2018 03:50	09/28/2018 03:50

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-101687-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-347068/19-A

Matrix: Solid | Lab File ID: P2092752.D

Analysis Method: 8082A | Date Collected:

Extraction Method: 3540C | Date Extracted: 09/25/2018 09:01

Sample wt/vol: 10(g) | Date Analyzed: 09/28/2018 02:37

Con. Extract Vol.: 10(mL) | Dilution Factor: 1

Injection Volume: 1(uL) | GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

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

Analysis Batch No.: 347579 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	Aroclor-1016	22	U	50	22
11104-28-2	Aroclor-1221	24	U	50	24
11141-16-5	Aroclor-1232	23	U	50	23
53469-21-9	Aroclor-1242	19	U	50	19
12672-29-6	Aroclor-1248	24	U	50	24
11097-69-1	Aroclor-1254	23	U	50	23
11096-82-5	Aroclor-1260	22	U	50	22
37324-23-5	Aroclor-1262	31	U	50	31
11100-14-4	Aroclor-1268	23	U	50	23

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	62		14-128
2051-24-3	DCB Decachlorobiphenyl	59		10-132

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 17:01 Calibration End Date: 09/05/2018 18:15 Calibration ID: 46822

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/4	P2090504.D
Level 2	STD01 240-343960/5	P2090505.D
Level 3	STD02 240-343960/6	P2090506.D
Level 4	STD05 240-343960/7	P2090507.D
Level 5	STD1 240-343960/8	P2090508.D
Level 6	STD15 240-343960/9	P2090509.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1232 Peak 1	0.0180 0.0155	0.0179	0.0183	0.0166	0.0173	Ave		0.0173				6.3		20.0			
PCB-1232 Peak 2	0.0128 0.0112	0.0119	0.0130	0.0120	0.0129	Ave		0.0123				5.9		20.0			
PCB-1232 Peak 3	0.0274 0.0265	0.0278	0.0287	0.0273	0.0288	Ave		0.0277				3.1		20.0			
PCB-1232 Peak 4	0.0112 0.0109	0.0107	0.0119	0.0114	0.0120	Ave		0.0114				4.6		20.0			
PCB-1232 Peak 5	0.0038 0.0038	0.0033	0.0041	0.0038	0.0041	Ave		0.0038				7.8		20.0			
PCB-1262 Peak 1	0.0383 0.0400	0.0433	0.0444	0.0416	0.0431	Ave		0.0418				5.4		20.0			
PCB-1262 Peak 2	0.0579 0.0559	0.0577	0.0612	0.0571	0.0591	Ave		0.0582				3.2		20.0			
PCB-1262 Peak 3	0.0497 0.0460	0.0474	0.0501	0.0468	0.0488	Ave		0.0481				3.4		20.0			
PCB-1262 Peak 4	0.1131 0.1126	0.1094	0.1189	0.1150	0.1202	Ave		0.1149				3.5		20.0			
PCB-1262 Peak 5	0.0496 0.0454	0.0484	0.0510	0.0475	0.0489	Ave		0.0485				3.9		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 17:01 Calibration End Date: 09/05/2018 18:15 Calibration ID: 46822

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/4	P2090504.D
Level 2	STD01 240-343960/5	P2090505.D
Level 3	STD02 240-343960/6	P2090506.D
Level 4	STD05 240-343960/7	P2090507.D
Level 5	STD1 240-343960/8	P2090508.D
Level 6	STD15 240-343960/9	P2090509.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1232 Peak 1	BNB	Ave	1088589 31219144	2367379	4620065	11181220	20959208	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 2	BNB	Ave	771208 22590191	1567244	3277989	8083963	15559151	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 3	BNB	Ave	1651765 53537160	3680181	7221035	18430649	34841378	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 4	BNB	Ave	677465 22063265	1414444	3002726	7668418	14499283	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 5	BNB	Ave	231840 7620926	434392	1027407	2573991	4985206	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 1	BNB	Ave	2311426 80807319	5725661	11179261	28114677	52098735	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 2	BNB	Ave	3489816 112917254	7625689	15431084	38595872	71538473	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 3	BNB	Ave	2996237 92877395	6262943	12616331	31603322	59091284	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 4	BNB	Ave	6820120 227480005	14466393	29975432	77665996	145449518	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 5	BNB	Ave	2990431 91733147	6398480	12847624	32080312	59213860	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 17:01 Calibration End Date: 09/05/2018 18:15 Calibration ID: 46823

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/4	P2090504.D
Level 2	STD01 240-343960/5	P2090505.D
Level 3	STD02 240-343960/6	P2090506.D
Level 4	STD05 240-343960/7	P2090507.D
Level 5	STD1 240-343960/8	P2090508.D
Level 6	STD15 240-343960/9	P2090509.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1232 Peak 1	0.0195 0.0163	0.0206	0.0201	0.0180	0.0179	Ave		0.0187				8.6		20.0			
PCB-1232 Peak 2	0.0164 0.0129	0.0176	0.0155	0.0145	0.0143	Ave		0.0152				11.0		20.0			
PCB-1232 Peak 3	0.0301 0.0261	0.0300	0.0301	0.0287	0.0285	Ave		0.0289				5.4		20.0			
PCB-1232 Peak 4	0.0119 0.0108	0.0126	0.0114	0.0118	0.0118	Ave		0.0117				5.2		20.0			
PCB-1232 Peak 5	0.0051 0.0051	0.0056	0.0057	0.0056	0.0055	Ave		0.0054				5.1		20.0			
PCB-1262 Peak 1	0.0318 0.0272	0.0310	0.0318	0.0302	0.0298	Ave		0.0303				5.6		20.0			
PCB-1262 Peak 2	0.0482 0.0423	0.0476	0.0497	0.0470	0.0460	Ave		0.0468				5.4		20.0			
PCB-1262 Peak 3	0.0382 0.0348	0.0385	0.0398	0.0378	0.0377	Ave		0.0378				4.4		20.0			
PCB-1262 Peak 4	0.0872 0.0797	0.0898	0.0907	0.0874	0.0860	Ave		0.0868				4.5		20.0			
PCB-1262 Peak 5	0.0629 0.0570	0.0639	0.0657	0.0628	0.0613	Ave		0.0622				4.8		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 17:01 Calibration End Date: 09/05/2018 18:15 Calibration ID: 46823

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/4	P2090504.D
Level 2	STD01 240-343960/5	P2090505.D
Level 3	STD02 240-343960/6	P2090506.D
Level 4	STD05 240-343960/7	P2090507.D
Level 5	STD1 240-343960/8	P2090508.D
Level 6	STD15 240-343960/9	P2090509.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1232 Peak 1	BNB	Ave	939755 25969480	2080363	4050716	9467563	17285919	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 2	BNB	Ave	788214 20483256	1781521	3129329	7648324	13852586	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 3	BNB	Ave	1448200 41527132	3036892	6066615	15069518	27532728	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 4	BNB	Ave	573200 17183220	1277837	2290704	6188283	11392384	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1232 Peak 5	BNB	Ave	245231 8115941	561979	1156121	2949423	5353359	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 1	BNB	Ave	1530068 43389682	3132669	6409736	15859348	28823173	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 2	BNB	Ave	2321752 67405014	4812500	10027490	24694946	44440641	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 3	BNB	Ave	1840470 55410039	3896493	8021239	19865715	36451053	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 4	BNB	Ave	4200132 126901679	9090763	18286086	45959354	83097489	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1262 Peak 5	BNB	Ave	3028399 90752859	6463570	13251161	33018256	59205586	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 18:30 Calibration End Date: 09/05/2018 19:43 Calibration ID: 46830

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/10	P2090510.D
Level 2	STD01 240-343960/11	P2090511.D
Level 3	STD02 240-343960/12	P2090512.D
Level 4	STD05 240-343960/13	P2090513.D
Level 5	STD1 240-343960/14	P2090514.D
Level 6	STD15 240-343960/15	P2090515.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1242 Peak 1	0.0122 0.0119	0.0116	0.0117	0.0117	0.0113	Ave		0.0117				2.4		20.0			
PCB-1242 Peak 2	0.0214 0.0217	0.0213	0.0213	0.0215	0.0209	Ave		0.0213				1.3		20.0			
PCB-1242 Peak 3	0.0487 0.0522	0.0481	0.0484	0.0490	0.0495	Ave		0.0493				3.1		20.0			
PCB-1242 Peak 4	0.0201 0.0215	0.0198	0.0194	0.0205	0.0206	Ave		0.0203				3.6		20.0			
PCB-1242 Peak 5	0.0082 0.0083	0.0072	0.0077	0.0078	0.0079	Ave		0.0078				4.8		20.0			
PCB-1268 Peak 1	0.1398 0.1481	0.1315	0.1343	0.1361	0.1397	Ave		0.1382				4.2		20.0			
PCB-1268 Peak 2	0.1283 0.1363	0.1259	0.1277	0.1280	0.1304	Ave		0.1294				2.8		20.0			
PCB-1268 Peak 3	0.1123 0.1182	0.1080	0.1103	0.1103	0.1138	Ave		0.1121				3.2		20.0			
PCB-1268 Peak 4	0.0452 0.0466	0.0429	0.0445	0.0443	0.0452	Ave		0.0448				2.7		20.0			
PCB-1268 Peak 5	0.3238 0.3564	0.3130	0.3234	0.3264	0.3420	Ave		0.3308				4.7		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 18:30 Calibration End Date: 09/05/2018 19:43 Calibration ID: 46830

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/10	P2090510.D
Level 2	STD01 240-343960/11	P2090511.D
Level 3	STD02 240-343960/12	P2090512.D
Level 4	STD05 240-343960/13	P2090513.D
Level 5	STD1 240-343960/14	P2090514.D
Level 6	STD15 240-343960/15	P2090515.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1242 Peak 1	BNB	Ave	767479 21084350	1533116	3090900	7489194	14532263	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 2	BNB	Ave	1352540 38462328	2807577	5629016	13822113	26721985	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 3	BNB	Ave	3072436 92643936	6353975	12803805	31444586	63475249	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 4	BNB	Ave	1271100 38190975	2613254	5130095	13134946	26367941	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 5	BNB	Ave	514168 14651433	953736	2026255	4995338	10151242	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 1	BNB	Ave	8818338 262723826	17374728	35534788	87355358	179044742	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 2	BNB	Ave	8097159 241797747	16629011	33790888	82183502	167059549	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 3	BNB	Ave	7086076 209773492	14263545	29181969	70812287	145782554	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 4	BNB	Ave	2850924 82599755	5669800	11783432	28449408	57934109	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 5	BNB	Ave	20430129 632364666	41348701	85594863	209543953	438308669	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 18:30 Calibration End Date: 09/05/2018 19:43 Calibration ID: 46831

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/10	P2090510.D
Level 2	STD01 240-343960/11	P2090511.D
Level 3	STD02 240-343960/12	P2090512.D
Level 4	STD05 240-343960/13	P2090513.D
Level 5	STD1 240-343960/14	P2090514.D
Level 6	STD15 240-343960/15	P2090515.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1242 Peak 1	0.0137 0.0109	0.0129	0.0138	0.0136	0.0126	Ave		0.0129				8.5		20.0			
PCB-1242 Peak 2	0.0273 0.0205	0.0258	0.0256	0.0242	0.0229	Ave		0.0244				10.0		20.0			
PCB-1242 Peak 3	0.0545 0.0438	0.0527	0.0515	0.0496	0.0486	Ave		0.0501				7.5		20.0			
PCB-1242 Peak 4	0.0222 0.0180	0.0216	0.0215	0.0206	0.0199	Ave		0.0206				7.3		20.0			
PCB-1242 Peak 5	0.0112 0.0095	0.0114	0.0114	0.0108	0.0106	Ave		0.0108				6.7		20.0			
PCB-1268 Peak 1	0.1131 0.0904	0.1077	0.1062	0.1014	0.0999	Ave		0.1031				7.6		20.0			
PCB-1268 Peak 2	0.1078 0.0873	0.1038	0.1024	0.0981	0.0965	Ave		0.0993				7.2		20.0			
PCB-1268 Peak 3	0.0934 0.0755	0.0902	0.0890	0.0848	0.0839	Ave		0.0861				7.3		20.0			
PCB-1268 Peak 4	0.0370 0.0309	0.0372	0.0362	0.0358	0.0348	Ave		0.0353				6.6		20.0			
PCB-1268 Peak 5	0.2557 0.2089	0.2450	0.2450	0.2351	0.2341	Ave		0.2373				6.7		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 18:30 Calibration End Date: 09/05/2018 19:43 Calibration ID: 46831

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/10	P2090510.D
Level 2	STD01 240-343960/11	P2090511.D
Level 3	STD02 240-343960/12	P2090512.D
Level 4	STD05 240-343960/13	P2090513.D
Level 5	STD1 240-343960/14	P2090514.D
Level 6	STD15 240-343960/15	P2090515.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1242 Peak 1	BNB	Ave	689115 17042312	1327340	2841230	6773328	12538755	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 2	BNB	Ave	1376995 32087228	2662102	5274838	12064456	22786220	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 3	BNB	Ave	2743712 68543989	5436998	10605112	24739906	48322360	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 4	BNB	Ave	1118094 28231146	2229726	4434823	10265925	19818324	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1242 Peak 5	BNB	Ave	562667 14807605	1171323	2341338	5388672	10565064	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 1	BNB	Ave	5695355 141417251	11103377	21886103	50577911	99334905	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 2	BNB	Ave	5431721 136601248	10703093	21111063	48929698	95982879	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 3	BNB	Ave	4703653 118116149	9299056	18334940	42306876	83448116	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 4	BNB	Ave	1862911 48326364	3837640	7464022	17851272	34572404	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1268 Peak 5	BNB	Ave	12877579 326857673	25260920	50495995	117318350	232855636	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 19:58 Calibration End Date: 09/05/2018 21:11 Calibration ID: 46838

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/16	P2090516.D
Level 2	STD01 240-343960/17	P2090517.D
Level 3	STD02 240-343960/18	P2090518.D
Level 4	STD05 240-343960/19	P2090519.D
Level 5	STD1 240-343960/20	P2090520.D
Level 6	STD15 240-343960/21	P2090521.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1248 Peak 1	0.0111 0.0107	0.0110	0.0106	0.0107	0.0112	Ave		0.0109				2.3		20.0			
PCB-1248 Peak 2	0.0322 0.0309	0.0319	0.0308	0.0303	0.0318	Ave		0.0313				2.4		20.0			
PCB-1248 Peak 3	0.0289 0.0296	0.0287	0.0286	0.0276	0.0295	Ave		0.0288				2.5		20.0			
PCB-1248 Peak 4	0.0208 0.0234	0.0223	0.0226	0.0227	0.0240	Ave		0.0227				4.7		20.0			
PCB-1248 Peak 5	0.0141 0.0147	0.0144	0.0143	0.0142	0.0153	Ave		0.0145				3.1		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 19:58 Calibration End Date: 09/05/2018 21:11 Calibration ID: 46838

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/16	P2090516.D
Level 2	STD01 240-343960/17	P2090517.D
Level 3	STD02 240-343960/18	P2090518.D
Level 4	STD05 240-343960/19	P2090519.D
Level 5	STD1 240-343960/20	P2090520.D
Level 6	STD15 240-343960/21	P2090521.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1248 Peak 1	BNB	Ave	706874 21200150	1510816	2987195	7156828	14214184	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 2	BNB	Ave	2042783 61029699	4377361	8710649	20243717	40578071	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 3	BNB	Ave	1832315 58462504	3935221	8082625	18481968	37610943	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 4	BNB	Ave	1322527 46221548	3062354	6407837	15205364	30546057	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 5	BNB	Ave	894544 29097330	1980123	4042784	9499596	19539488	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 19:58 Calibration End Date: 09/05/2018 21:11 Calibration ID: 46839

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/16	P2090516.D
Level 2	STD01 240-343960/17	P2090517.D
Level 3	STD02 240-343960/18	P2090518.D
Level 4	STD05 240-343960/19	P2090519.D
Level 5	STD1 240-343960/20	P2090520.D
Level 6	STD15 240-343960/21	P2090521.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1248 Peak 1	0.0158 0.0119	0.0147	0.0137	0.0129	0.0117	Ave		0.0134				12.0		20.0			
PCB-1248 Peak 2	0.0359 0.0309	0.0347	0.0334	0.0318	0.0299	Ave		0.0328				7.0		20.0			
PCB-1248 Peak 3	0.0253 0.0219	0.0252	0.0239	0.0227	0.0212	Ave		0.0234				7.3		20.0			
PCB-1248 Peak 4	0.0324 0.0283	0.0317	0.0308	0.0290	0.0274	Ave		0.0299				6.6		20.0			
PCB-1248 Peak 5	0.0163 0.0142	0.0160	0.0151	0.0144	0.0138	Ave		0.0150				6.7		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 19:58 Calibration End Date: 09/05/2018 21:11 Calibration ID: 46839

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/16	P2090516.D
Level 2	STD01 240-343960/17	P2090517.D
Level 3	STD02 240-343960/18	P2090518.D
Level 4	STD05 240-343960/19	P2090519.D
Level 5	STD1 240-343960/20	P2090520.D
Level 6	STD15 240-343960/21	P2090521.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1248 Peak 1	BNB	Ave	772480 17828645	1544657	2921930	6558910	12271846	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 2	BNB	Ave	1756660 46488087	3643118	7147205	16121410	31503047	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 3	BNB	Ave	1238732 32998079	2641768	5110594	11511535	22321373	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 4	BNB	Ave	1584028 42593645	3327499	6578035	14704731	28852994	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1248 Peak 5	BNB	Ave	798180 21393247	1676965	3217865	7316694	14509999	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 21:26 Calibration End Date: 09/05/2018 22:39 Calibration ID: 46846

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/22	P2090522.D
Level 2	STD01 240-343960/23	P2090523.D
Level 3	STD02 240-343960/24	P2090524.D
Level 4	STD05 240-343960/25	P2090525.D
Level 5	STD1 240-343960/26	P2090526.D
Level 6	STD15 240-343960/27	P2090527.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1221 Peak 1	0.0093 0.0075	0.0092	0.0085	0.0081	0.0081	Ave		0.0085				8.1		20.0			
PCB-1221 Peak 2	0.0049 0.0045	0.0050	0.0050	0.0049	0.0049	Ave		0.0049				4.1		20.0			
PCB-1221 Peak 3	0.0222 0.0185	0.0220	0.0217	0.0205	0.0200	Ave		0.0208				6.9		20.0			
PCB-1254 Peak 1	0.0240 0.0215	0.0238	0.0232	0.0228	0.0227	Ave		0.0230				4.0		20.0			
PCB-1254 Peak 2	0.0490 0.0459	0.0477	0.0463	0.0476	0.0486	Ave		0.0475				2.6		20.0			
PCB-1254 Peak 3	0.0356 0.0356	0.0356	0.0353	0.0369	0.0375	Ave		0.0361				2.5		20.0			
PCB-1254 Peak 4	0.0317 0.0307	0.0337	0.0331	0.0324	0.0324	Ave		0.0324				3.2		20.0			
PCB-1254 Peak 5	0.0478 0.0470	0.0480	0.0492	0.0492	0.0495	Ave		0.0485				2.1		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 21:26 Calibration End Date: 09/05/2018 22:39 Calibration ID: 46846

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/22	P2090522.D
Level 2	STD01 240-343960/23	P2090523.D
Level 3	STD02 240-343960/24	P2090524.D
Level 4	STD05 240-343960/25	P2090525.D
Level 5	STD1 240-343960/26	P2090526.D
Level 6	STD15 240-343960/27	P2090527.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1221 Peak 1	BNB	Ave	646054 16596251	1255071	2349512	5643369	11325683	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1221 Peak 2	BNB	Ave	344272 9822870	676093	1393569	3433232	6786030	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1221 Peak 3	BNB	Ave	1546515 40676670	2995051	6024899	14275272	27952175	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 1	BNB	Ave	1671822 47187529	3240096	6446756	15865958	31723662	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 2	BNB	Ave	3406727 100818948	6500878	12884216	33116238	67890010	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 3	BNB	Ave	2480342 78201890	4851670	9814861	25683330	52456713	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 4	BNB	Ave	2209053 67601804	4595417	9208206	22541339	45341029	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 5	BNB	Ave	3327645 103449119	6533314	13670878	34254649	69229118	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 21:26 Calibration End Date: 09/05/2018 22:39 Calibration ID: 46847

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/22	P2090522.D
Level 2	STD01 240-343960/23	P2090523.D
Level 3	STD02 240-343960/24	P2090524.D
Level 4	STD05 240-343960/25	P2090525.D
Level 5	STD1 240-343960/26	P2090526.D
Level 6	STD15 240-343960/27	P2090527.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1221 Peak 1	0.0164 0.0083	0.0136	0.0119	0.0094	0.0090	Lin1	0.0005	0.0083							0.9960		0.9900
PCB-1221 Peak 2	0.0067 0.0052	0.0066	0.0070	0.0060	0.0056	Ave		0.0062				11.5		20.0			
PCB-1221 Peak 3	0.0256 0.0191	0.0244	0.0243	0.0221	0.0204	Ave		0.0227				11.2		20.0			
PCB-1254 Peak 1	0.0309 0.0233	0.0294	0.0283	0.0265	0.0251	Ave		0.0272				10.3		20.0			
PCB-1254 Peak 2	0.0421 0.0377	0.0411	0.0460	0.0422	0.0405	Ave		0.0416				6.5		20.0			
PCB-1254 Peak 3	0.0329 0.0287	0.0334	0.0324	0.0319	0.0307	Ave		0.0317				5.5		20.0			
PCB-1254 Peak 4	0.0366 0.0307	0.0353	0.0348	0.0336	0.0326	Ave		0.0339				6.2		20.0			
PCB-1254 Peak 5	0.0431 0.0356	0.0425	0.0411	0.0392	0.0382	Ave		0.0399				7.1		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 21:26 Calibration End Date: 09/05/2018 22:39 Calibration ID: 46847

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/22	P2090522.D
Level 2	STD01 240-343960/23	P2090523.D
Level 3	STD02 240-343960/24	P2090524.D
Level 4	STD05 240-343960/25	P2090525.D
Level 5	STD1 240-343960/26	P2090526.D
Level 6	STD15 240-343960/27	P2090527.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1221 Peak 1	BNB	Lin1	867409 13764313	1417353	2489148	4931518	9701642	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1221 Peak 2	BNB	Ave	355656 8665539	687574	1462484	3139842	5963156	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1221 Peak 3	BNB	Ave	1349553 31768030	2550994	5075981	11610442	21923864	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 1	BNB	Ave	1630712 38836929	3070222	5911878	13921810	26881713	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 2	BNB	Ave	2221420 62751254	4287613	9613685	22190316	43404463	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 3	BNB	Ave	1738985 47761977	3486488	6765148	16757356	32873645	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 4	BNB	Ave	1930907 51028568	3688388	7271078	17659196	34910030	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1254 Peak 5	BNB	Ave	2274609 59343999	4433768	8582966	20623493	40920785	0.0500 1.50	0.100	0.200	0.500	1.00

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 22:54 Calibration End Date: 09/06/2018 00:07 Calibration ID: 46854

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/28	P2090528.D
Level 2	STD01 240-343960/29	P2090529.D
Level 3	STD02 240-343960/30	P2090530.D
Level 4	STD05 240-343960/31	P2090531.D
Level 5	STD1 240-343960/32	P2090532.D
Level 6	STD15 240-343960/33	P2090533.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1016 Peak 1	0.0159 0.0132	0.0147	0.0140	0.0137	0.0132	Ave		0.0141				7.5		20.0			
PCB-1016 Peak 2	0.0280 0.0245	0.0269	0.0281	0.0260	0.0250	Ave		0.0264				5.8		20.0			
PCB-1016 Peak 3	0.0624 0.0605	0.0602	0.0601	0.0609	0.0606	Ave		0.0608				1.4		20.0			
PCB-1016 Peak 4	0.0256 0.0247	0.0248	0.0252	0.0251	0.0248	Ave		0.0250				1.4		20.0			
PCB-1016 Peak 5	0.0250 0.0238	0.0253	0.0246	0.0246	0.0241	Ave		0.0246				2.2		20.0			
PCB-1260 Peak 1	0.0333 0.0308	0.0328	0.0314	0.0316	0.0310	Ave		0.0318				3.2		20.0			
PCB-1260 Peak 2	0.0587 0.0531	0.0555	0.0544	0.0538	0.0535	Ave		0.0548				3.8		20.0			
PCB-1260 Peak 3	0.0608 0.0593	0.0603	0.0596	0.0593	0.0597	Ave		0.0598				1.0		20.0			
PCB-1260 Peak 4	0.0905 0.0932	0.0906	0.0901	0.0919	0.0933	Ave		0.0916				1.6		20.0			
PCB-1260 Peak 5	0.0426 0.0422	0.0418	0.0411	0.0422	0.0424	Ave		0.0421				1.3		20.0			
Tetrachloro-m-xylene	0.9387 0.8498	0.8866	0.8646	0.8814	0.8912	Ave		0.8854				3.4		20.0			
DCB Decachlorobiphenyl	0.9073 0.7432	0.8658	0.8274	0.8096	0.7986	Ave		0.8253				6.9		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 22:54 Calibration End Date: 09/06/2018 00:07 Calibration ID: 46854

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/28	P2090528.D
Level 2	STD01 240-343960/29	P2090529.D
Level 3	STD02 240-343960/30	P2090530.D
Level 4	STD05 240-343960/31	P2090531.D
Level 5	STD1 240-343960/32	P2090532.D
Level 6	STD15 240-343960/33	P2090533.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1016 Peak 1	BNB	Ave	1070205 28147342	2005871	3940300	9491729	18424688	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 2	BNB	Ave	1880633 52220419	3674308	7933162	17997955	34943608	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 3	BNB	Ave	4188447 129063548	8207562	16937572	42123199	84611311	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 4	BNB	Ave	1721360 52687093	3385263	7094016	17387591	34617403	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 5	BNB	Ave	1677224 50821900	3443973	6933573	17027236	33615332	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 1	BNB	Ave	2237531 65800084	4473562	8862181	21853750	43289005	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 2	BNB	Ave	3942011 113190471	7571203	15331901	37219107	74632309	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 3	BNB	Ave	4082185 126415071	8225986	16793999	41034808	83390200	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 4	BNB	Ave	6073161 198778523	12356645	25403344	63572072	130299347	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 5	BNB	Ave	2862449 89972695	5705482	11586238	29185280	59211421	0.0500 1.50	0.100	0.200	0.500	1.00
Tetrachloro-m-xylene	BNB	Ave	3151127 120860497	6045104	12191518	30479123	62196517	0.00250 0.100	0.00500	0.0100	0.0250	0.0500
DCB Decachlorobiphenyl	BNB	Ave	3045816 105702634	5902830	11667234	27994488	55733894	0.00250 0.100	0.00500	0.0100	0.0250	0.0500

Curve Type Legend:
Ave = Average ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 22:54 Calibration End Date: 09/06/2018 00:07 Calibration ID: 46855

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/28	P2090528.D
Level 2	STD01 240-343960/29	P2090529.D
Level 3	STD02 240-343960/30	P2090530.D
Level 4	STD05 240-343960/31	P2090531.D
Level 5	STD1 240-343960/32	P2090532.D
Level 6	STD15 240-343960/33	P2090533.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1016 Peak 1	0.0160 0.0140	0.0156	0.0167	0.0151	0.0138	Ave		0.0152				7.6		20.0			
PCB-1016 Peak 2	0.0336 0.0270	0.0321	0.0309	0.0296	0.0271	Ave		0.0301				8.9		20.0			
PCB-1016 Peak 3	0.0689 0.0593	0.0660	0.0644	0.0624	0.0588	Ave		0.0633				6.2		20.0			
PCB-1016 Peak 4	0.0254 0.0242	0.0267	0.0269	0.0255	0.0239	Ave		0.0254				4.9		20.0			
PCB-1016 Peak 5	0.0144 0.0130	0.0147	0.0142	0.0136	0.0129	Ave		0.0138				5.3		20.0			
PCB-1260 Peak 1	0.0352 0.0308	0.0340	0.0328	0.0320	0.0304	Ave		0.0325				5.7		20.0			
PCB-1260 Peak 2	0.0402 0.0345	0.0386	0.0371	0.0361	0.0344	Ave		0.0368				6.2		20.0			
PCB-1260 Peak 3	0.0351 0.0302	0.0340	0.0329	0.0320	0.0302	Ave		0.0324				6.2		20.0			
PCB-1260 Peak 4	0.0776 0.0715	0.0773	0.0756	0.0742	0.0712	Ave		0.0746				3.7		20.0			
PCB-1260 Peak 5	0.0530 0.0494	0.0534	0.0522	0.0513	0.0493	Ave		0.0514				3.5		20.0			
Tetrachloro-m-xylene	1.0034 0.8633	0.9790	0.9602	0.9433	0.8991	Ave		0.9414				5.5		20.0			
DCB Decachlorobiphenyl	0.7388 0.5754	0.7059	0.6828	0.6472	0.6160	Ave		0.6610				9.1		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 Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-2 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 22:54 Calibration End Date: 09/06/2018 00:07 Calibration ID: 46855

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/28	P2090528.D
Level 2	STD01 240-343960/29	P2090529.D
Level 3	STD02 240-343960/30	P2090530.D
Level 4	STD05 240-343960/31	P2090531.D
Level 5	STD1 240-343960/32	P2090532.D
Level 6	STD15 240-343960/33	P2090533.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/UL)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
PCB-1016 Peak 1	BNB	Ave	821891 21498418	1603515	3477558	7725475	14303076	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 2	BNB	Ave	1725442 41445807	3299151	6424122	15121208	28169391	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 3	BNB	Ave	3534352 91220698	6770944	13413748	31854979	61049827	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 4	BNB	Ave	1305696 37160712	2743566	5597133	13004188	24778804	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1016 Peak 5	BNB	Ave	739868 19975503	1505563	2955132	6957335	13419204	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 1	BNB	Ave	1808299 47334758	3488505	6819748	16347096	31564422	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 2	BNB	Ave	2064583 53030843	3959223	7727306	18409167	35740831	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 3	BNB	Ave	1800715 46447486	3495135	6849829	16329821	31343810	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 4	BNB	Ave	3981169 109907887	7939480	15739723	37863019	73834136	0.0500 1.50	0.100	0.200	0.500	1.00
PCB-1260 Peak 5	BNB	Ave	2720418 75963078	5484714	10867682	26185129	51124243	0.0500 1.50	0.100	0.200	0.500	1.00
Tetrachloro-m-xylene	BNB	Ave	2574322 88463264	5025044	9993257	24082589	46647569	0.00250 0.100	0.00500	0.0100	0.0250	0.0500
DCB Decachlorobiphenyl	BNB	Ave	1895447 58959751	3623091	7106397	16522126	31956636	0.00250 0.100	0.00500	0.0100	0.0250	0.0500

Curve Type Legend:
Ave = Average ISTD

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/34 Calibration Date: 09/06/2018 00:22

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090534.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1221 Peak 1	Ave	0.0085	0.0093		0.548	0.500	9.6	20.0
PCB-1221 Peak 2	Ave	0.0049	0.0056		0.574	0.500	14.8	20.0
PCB-1221 Peak 3	Ave	0.0208	0.0230		0.551	0.500	10.2	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/34 Calibration Date: 09/06/2018 00:22

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090534.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1221 Peak 1	1.98	1.97	2.00
PCB-1221 Peak 2	2.12	2.10	2.14
PCB-1221 Peak 3	2.16	2.14	2.18

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/34 Calibration Date: 09/06/2018 00:22

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090534.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1221 Peak 1	Lin1		0.0097		0.523	0.500	4.6	20.0
PCB-1221 Peak 2	Ave	0.0062	0.0065		0.529	0.500	5.8	20.0
PCB-1221 Peak 3	Ave	0.0227	0.0245		0.541	0.500	8.3	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/34 Calibration Date: 09/06/2018 00:22

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090534.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1221 Peak 1	2.48	2.46	2.50
PCB-1221 Peak 2	2.62	2.60	2.64
PCB-1221 Peak 3	2.68	2.66	2.70

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/35 Calibration Date: 09/06/2018 00:36

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090535.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1232 Peak 1	Ave	0.0173	0.0147		0.427	0.500	-14.7	20.0
PCB-1232 Peak 2	Ave	0.0123	0.0115		0.469	0.500	-6.1	20.0
PCB-1232 Peak 3	Ave	0.0277	0.0272		0.490	0.500	-2.0	20.0
PCB-1232 Peak 4	Ave	0.0114	0.0122		0.538	0.500	7.6	20.0
PCB-1232 Peak 5	Ave	0.0038	0.0041		0.541	0.500	8.2	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/35 Calibration Date: 09/06/2018 00:36

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090535.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1232 Peak 1	2.16	2.14	2.17
PCB-1232 Peak 2	2.49	2.47	2.51
PCB-1232 Peak 3	2.92	2.91	2.94
PCB-1232 Peak 4	3.05	3.03	3.07
PCB-1232 Peak 5	3.28	3.27	3.31

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/35 Calibration Date: 09/06/2018 00:36

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090535.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1232 Peak 1	Ave	0.0187	0.0159		0.424	0.500	-15.1	20.0
PCB-1232 Peak 2	Ave	0.0152	0.0158		0.519	0.500	3.8	20.0
PCB-1232 Peak 3	Ave	0.0289	0.0267		0.461	0.500	-7.7	20.0
PCB-1232 Peak 4	Ave	0.0117	0.0111		0.474	0.500	-5.2	20.0
PCB-1232 Peak 5	Ave	0.0054	0.0052		0.473	0.500	-5.3	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/35 Calibration Date: 09/06/2018 00:36

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090535.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1232 Peak 1	2.68	2.66	2.70
PCB-1232 Peak 2	3.08	3.07	3.10
PCB-1232 Peak 3	3.53	3.51	3.55
PCB-1232 Peak 4	3.66	3.64	3.68
PCB-1232 Peak 5	3.90	3.88	3.92

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/36 Calibration Date: 09/06/2018 00:51

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090536.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1242 Peak 1	Ave	0.0117	0.0109		0.466	0.500	-6.7	20.0
PCB-1242 Peak 2	Ave	0.0213	0.0203		0.475	0.500	-4.9	20.0
PCB-1242 Peak 3	Ave	0.0493	0.0481		0.487	0.500	-2.5	20.0
PCB-1242 Peak 4	Ave	0.0203	0.0211		0.518	0.500	3.7	20.0
PCB-1242 Peak 5	Ave	0.0078	0.0084		0.535	0.500	6.9	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/36 Calibration Date: 09/06/2018 00:51

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090536.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1242 Peak 1	2.16	2.14	2.18
PCB-1242 Peak 2	2.49	2.47	2.51
PCB-1242 Peak 3	2.92	2.91	2.95
PCB-1242 Peak 4	3.05	3.03	3.07
PCB-1242 Peak 5	3.29	3.27	3.31

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/36 Calibration Date: 09/06/2018 00:51

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090536.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1242 Peak 1	Ave	0.0129	0.0120		0.464	0.500	-7.3	20.0
PCB-1242 Peak 2	Ave	0.0244	0.0248		0.508	0.500	1.5	20.0
PCB-1242 Peak 3	Ave	0.0501	0.0475		0.473	0.500	-5.3	20.0
PCB-1242 Peak 4	Ave	0.0206	0.0191		0.463	0.500	-7.4	20.0
PCB-1242 Peak 5	Ave	0.0108	0.0105		0.488	0.500	-2.5	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/36 Calibration Date: 09/06/2018 00:51

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090536.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1242 Peak 1	2.68	2.66	2.70
PCB-1242 Peak 2	3.09	3.07	3.10
PCB-1242 Peak 3	3.53	3.51	3.55
PCB-1242 Peak 4	3.66	3.64	3.68
PCB-1242 Peak 5	3.90	3.88	3.92

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/37 Calibration Date: 09/06/2018 01:05

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 19:58

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 21:11

Lab File ID: P2090537.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1248 Peak 1	Ave	0.0109	0.0120		0.553	0.500	10.5	20.0
PCB-1248 Peak 2	Ave	0.0313	0.0367		0.586	0.500	17.2	20.0
PCB-1248 Peak 3	Ave	0.0288	0.0331		0.574	0.500	14.7	20.0
PCB-1248 Peak 4	Ave	0.0227	0.0277		0.611	0.500	22.3*	20.0
PCB-1248 Peak 5	Ave	0.0145	0.0158		0.543	0.500	8.5	20.0

Average %D < 20%

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/37 Calibration Date: 09/06/2018 01:05

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 19:58

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 21:11

Lab File ID: P2090537.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1248 Peak 1	2.49	2.47	2.51
PCB-1248 Peak 2	3.44	3.42	3.46
PCB-1248 Peak 3	3.84	3.83	3.86
PCB-1248 Peak 4	4.05	4.03	4.07
PCB-1248 Peak 5	4.42	4.40	4.44

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/37 Calibration Date: 09/06/2018 01:05

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 19:58

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 21:11

Lab File ID: P2090537.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1248 Peak 1	Ave	0.0134	0.0126		0.469	0.500	-6.2	20.0
PCB-1248 Peak 2	Ave	0.0328	0.0411		0.627	0.500	25.4*	20.0
PCB-1248 Peak 3	Ave	0.0234	0.0267		0.570	0.500	14.1	20.0
PCB-1248 Peak 4	Ave	0.0299	0.0372		0.621	0.500	24.3*	20.0
PCB-1248 Peak 5	Ave	0.0150	0.0164		0.549	0.500	9.8	20.0

Average %D < 20%

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/37 Calibration Date: 09/06/2018 01:05

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 19:58

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 21:11

Lab File ID: P2090537.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1248 Peak 1	3.08	3.07	3.10
PCB-1248 Peak 2	3.53	3.51	3.55
PCB-1248 Peak 3	4.11	4.10	4.14
PCB-1248 Peak 4	4.53	4.51	4.55
PCB-1248 Peak 5	5.17	5.15	5.19

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/38 Calibration Date: 09/06/2018 01:20

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090538.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1254 Peak 1	Ave	0.0230	0.0168		0.366	0.500	-26.8*	20.0
PCB-1254 Peak 2	Ave	0.0475	0.0470		0.494	0.500	-1.2	20.0
PCB-1254 Peak 3	Ave	0.0361	0.0354		0.490	0.500	-2.1	20.0
PCB-1254 Peak 4	Ave	0.0324	0.0338		0.521	0.500	4.3	20.0
PCB-1254 Peak 5	Ave	0.0485	0.0524		0.540	0.500	8.0	20.0

Average %D < 20% ✓

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/38 Calibration Date: 09/06/2018 01:20

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090538.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1254 Peak 1	3.80	3.78	3.82
PCB-1254 Peak 2	4.42	4.40	4.44
PCB-1254 Peak 3	4.70	4.68	4.72
PCB-1254 Peak 4	4.88	4.87	4.90
PCB-1254 Peak 5	5.15	5.13	5.17

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/38 Calibration Date: 09/06/2018 01:20

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090538.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1254 Peak 1	Ave	0.0272	0.0262		0.480	0.500	-4.0	20.0
PCB-1254 Peak 2	Ave	0.0416	0.0414		0.498	0.500	-0.4	20.0
PCB-1254 Peak 3	Ave	0.0317	0.0321		0.507	0.500	1.4	20.0
PCB-1254 Peak 4	Ave	0.0339	0.0348		0.513	0.500	2.6	20.0
PCB-1254 Peak 5	Ave	0.0399	0.0423		0.530	0.500	5.9	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/38 Calibration Date: 09/06/2018 01:20

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2090538.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1254 Peak 1	4.52	4.50	4.54
PCB-1254 Peak 2	5.17	5.15	5.19
PCB-1254 Peak 3	5.38	5.36	5.40
PCB-1254 Peak 4	5.69	5.67	5.71
PCB-1254 Peak 5	5.86	5.84	5.88

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/39 Calibration Date: 09/06/2018 01:34

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2090539.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	0.0141	0.0150		0.530	0.500	5.9	20.0
PCB-1016 Peak 2	Ave	0.0264	0.0269		0.508	0.500	1.7	20.0
PCB-1016 Peak 3	Ave	0.0608	0.0614		0.505	0.500	1.1	20.0
PCB-1016 Peak 4	Ave	0.0250	0.0262		0.523	0.500	4.7	20.0
PCB-1016 Peak 5	Ave	0.0246	0.0255		0.520	0.500	4.0	20.0
PCB-1260 Peak 1	Ave	0.0318	0.0356		0.559	0.500	11.8	20.0
PCB-1260 Peak 2	Ave	0.0548	0.0597		0.544	0.500	8.9	20.0
PCB-1260 Peak 3	Ave	0.0598	0.0643		0.537	0.500	7.4	20.0
PCB-1260 Peak 4	Ave	0.0916	0.1022		0.558	0.500	11.5	20.0
PCB-1260 Peak 5	Ave	0.0421	0.0471		0.560	0.500	11.9	20.0
Tetrachloro-m-xylene	Ave	0.8854	0.9590		0.0271	0.0250	8.3	20.0
DCB Decachlorobiphenyl	Ave	0.8253	0.8694		0.0263	0.0250	5.3	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/39 Calibration Date: 09/06/2018 01:34

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2090539.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1016 Peak 1	2.16	2.14	2.17
PCB-1016 Peak 2	2.49	2.47	2.51
PCB-1016 Peak 3	2.93	2.91	2.94
PCB-1016 Peak 4	3.05	3.03	3.07
PCB-1016 Peak 5	3.44	3.42	3.46
PCB-1260 Peak 1	4.61	4.59	4.63
PCB-1260 Peak 2	4.88	4.87	4.90
PCB-1260 Peak 3	5.15	5.13	5.17
PCB-1260 Peak 4	5.77	5.75	5.78
PCB-1260 Peak 5	6.01	5.99	6.03
Tetrachloro-m-xylene	1.82	1.80	1.84
DCB Decachlorobiphenyl	6.94	6.92	6.95

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/39 Calibration Date: 09/06/2018 01:34

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2090539.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	0.0152	0.0170		0.559	0.500	11.7	20.0
PCB-1016 Peak 2	Ave	0.0301	0.0281		0.467	0.500	-6.6	20.0
PCB-1016 Peak 3	Ave	0.0633	0.0634		0.501	0.500	0.1	20.0
PCB-1016 Peak 4	Ave	0.0254	0.0270		0.531	0.500	6.2	20.0
PCB-1016 Peak 5	Ave	0.0138	0.0141		0.510	0.500	2.0	20.0
PCB-1260 Peak 1	Ave	0.0325	0.0324		0.498	0.500	-0.5	20.0
PCB-1260 Peak 2	Ave	0.0368	0.0394		0.535	0.500	7.1	20.0
PCB-1260 Peak 3	Ave	0.0324	0.0346		0.533	0.500	6.6	20.0
PCB-1260 Peak 4	Ave	0.0746	0.0804		0.539	0.500	7.8	20.0
PCB-1260 Peak 5	Ave	0.0514	0.0537		0.522	0.500	4.5	20.0
Tetrachloro-m-xylene	Ave	0.9414	1.036		0.0275	0.0250	10.1	20.0
DCB Decachlorobiphenyl	Ave	0.6610	0.7011		0.0265	0.0250	6.1	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/39 Calibration Date: 09/06/2018 01:34

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2090539.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1016 Peak 1	2.68	2.66	2.70
PCB-1016 Peak 2	3.09	3.07	3.10
PCB-1016 Peak 3	3.53	3.51	3.55
PCB-1016 Peak 4	3.66	3.64	3.68
PCB-1016 Peak 5	3.90	3.88	3.92
PCB-1260 Peak 1	5.35	5.33	5.37
PCB-1260 Peak 2	5.55	5.53	5.56
PCB-1260 Peak 3	5.94	5.92	5.96
PCB-1260 Peak 4	6.41	6.39	6.43
PCB-1260 Peak 5	6.71	6.69	6.73
Tetrachloro-m-xylene	2.19	2.17	2.20
DCB Decachlorobiphenyl	7.64	7.63	7.66

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/40 Calibration Date: 09/06/2018 01:49

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090540.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1262 Peak 1	Ave	0.0418	0.0378		0.452	0.500	-9.6	20.0
PCB-1262 Peak 2	Ave	0.0582	0.0519		0.447	0.500	-10.7	20.0
PCB-1262 Peak 3	Ave	0.0481	0.0430		0.447	0.500	-10.6	20.0
PCB-1262 Peak 4	Ave	0.1149	0.1043		0.454	0.500	-9.2	20.0
PCB-1262 Peak 5	Ave	0.0485	0.0429		0.443	0.500	-11.4	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/40 Calibration Date: 09/06/2018 01:49

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090540.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1262 Peak 1	4.88	4.86	4.90
PCB-1262 Peak 2	5.26	5.24	5.28
PCB-1262 Peak 3	5.48	5.46	5.50
PCB-1262 Peak 4	5.77	5.75	5.78
PCB-1262 Peak 5	6.05	6.03	6.06

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/40 Calibration Date: 09/06/2018 01:49

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090540.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1262 Peak 1	Ave	0.0303	0.0277		0.457	0.500	-8.5	20.0
PCB-1262 Peak 2	Ave	0.0468	0.0436		0.466	0.500	-6.7	20.0
PCB-1262 Peak 3	Ave	0.0378	0.0351		0.465	0.500	-7.0	20.0
PCB-1262 Peak 4	Ave	0.0868	0.0803		0.463	0.500	-7.5	20.0
PCB-1262 Peak 5	Ave	0.0622	0.0576		0.463	0.500	-7.5	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/40 Calibration Date: 09/06/2018 01:49

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2090540.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1262 Peak 1	5.55	5.53	5.56
PCB-1262 Peak 2	5.94	5.93	5.96
PCB-1262 Peak 3	6.19	6.18	6.21
PCB-1262 Peak 4	6.41	6.39	6.43
PCB-1262 Peak 5	6.71	6.69	6.73

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/41 Calibration Date: 09/06/2018 02:04

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090541.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1268 Peak 1	Ave	0.1382	0.1557		0.563	0.500	12.7	20.0
PCB-1268 Peak 2	Ave	0.1294	0.1653		0.639	0.500	27.7*	20.0
PCB-1268 Peak 3	Ave	0.1121	0.1126		0.502	0.500	0.4	20.0
PCB-1268 Peak 4	Ave	0.0448	0.0514		0.574	0.500	14.7	20.0
PCB-1268 Peak 5	Ave	0.3308	0.3175		0.480	0.500	-4.0	20.0

Average %D < 20%

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/41 Calibration Date: 09/06/2018 02:04

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090541.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1268 Peak 1	6.05	6.03	6.07
PCB-1268 Peak 2	6.08	6.06	6.10
PCB-1268 Peak 3	6.24	6.23	6.27
PCB-1268 Peak 4	6.55	6.53	6.57
PCB-1268 Peak 5	6.78	6.76	6.80

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/41 Calibration Date: 09/06/2018 02:04

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090541.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1268 Peak 1	Ave	0.1031	0.1177		0.571	0.500	14.2	20.0
PCB-1268 Peak 2	Ave	0.0993	0.1247		0.628	0.500	25.6*	20.0
PCB-1268 Peak 3	Ave	0.0861	0.0866		0.503	0.500	0.6	20.0
PCB-1268 Peak 4	Ave	0.0353	0.0405		0.573	0.500	14.7	20.0
PCB-1268 Peak 5	Ave	0.2373	0.2264		0.477	0.500	-4.6	20.0

Average %D < 20%

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: ICV 240-343960/41 Calibration Date: 09/06/2018 02:04

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-2 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2090541.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1268 Peak 1	6.71	6.69	6.73
PCB-1268 Peak 2	6.74	6.73	6.77
PCB-1268 Peak 3	6.95	6.93	6.97
PCB-1268 Peak 4	7.18	7.16	7.20
PCB-1268 Peak 5	7.44	7.42	7.46

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/3 Calibration Date: 09/27/2018 21:05

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2092729.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	0.0141	0.0136		0.481	0.500	-3.8	20.0
PCB-1016 Peak 2	Ave	0.0264	0.0258		0.488	0.500	-2.4	20.0
PCB-1016 Peak 3	Ave	0.0608	0.0607		0.500	0.500	-0.0	20.0
PCB-1016 Peak 4	Ave	0.0250	0.0251		0.501	0.500	0.2	20.0
PCB-1016 Peak 5	Ave	0.0246	0.0249		0.506	0.500	1.2	20.0
PCB-1260 Peak 1	Ave	0.0318	0.0346		0.543	0.500	8.7	20.0
PCB-1260 Peak 2	Ave	0.0548	0.0579		0.528	0.500	5.7	20.0
PCB-1260 Peak 3	Ave	0.0598	0.0642		0.536	0.500	7.2	20.0
PCB-1260 Peak 4	Ave	0.0916	0.0971		0.530	0.500	6.0	20.0
PCB-1260 Peak 5	Ave	0.0421	0.0445		0.529	0.500	5.8	20.0
Tetrachloro-m-xylene	Ave	0.8854	0.8575		0.0242	0.0250	-3.1	20.0
DCB Decachlorobiphenyl	Ave	0.8253	0.8181		0.0248	0.0250	-0.9	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/3 Calibration Date: 09/27/2018 21:05

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2092729.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1016 Peak 1	2.14	2.12	2.16
PCB-1016 Peak 2	2.47	2.45	2.48
PCB-1016 Peak 3	2.90	2.88	2.92
PCB-1016 Peak 4	3.03	3.01	3.05
PCB-1016 Peak 5	3.42	3.40	3.44
PCB-1260 Peak 1	4.58	4.56	4.60
PCB-1260 Peak 2	4.86	4.84	4.88
PCB-1260 Peak 3	5.12	5.10	5.14
PCB-1260 Peak 4	5.74	5.72	5.76
PCB-1260 Peak 5	5.98	5.97	6.00
Tetrachloro-m-xylene	1.81	1.79	1.82
DCB Decachlorobiphenyl	6.91	6.89	6.93

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/4 Calibration Date: 09/27/2018 21:20

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2092730.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1232 Peak 1	Ave	0.0173	0.0172		0.498	0.500	-0.5	20.0
PCB-1232 Peak 2	Ave	0.0123	0.0125		0.509	0.500	1.7	20.0
PCB-1232 Peak 3	Ave	0.0277	0.0282		0.508	0.500	1.5	20.0
PCB-1232 Peak 4	Ave	0.0114	0.0118		0.518	0.500	3.7	20.0
PCB-1232 Peak 5	Ave	0.0038	0.0043		0.559	0.500	11.9	20.0
PCB-1262 Peak 1	Ave	0.0418	0.0450		0.539	0.500	7.7	20.0
PCB-1262 Peak 2	Ave	0.0582	0.0599		0.515	0.500	2.9	20.0
PCB-1262 Peak 3	Ave	0.0481	0.0506		0.526	0.500	5.1	20.0
PCB-1262 Peak 4	Ave	0.1149	0.1219		0.531	0.500	6.2	20.0
PCB-1262 Peak 5	Ave	0.0485	0.0498		0.514	0.500	2.8	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/4 Calibration Date: 09/27/2018 21:20

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 17:01

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 18:15

Lab File ID: P2092730.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1232 Peak 1	2.14	2.12	2.16
PCB-1232 Peak 2	2.47	2.45	2.49
PCB-1232 Peak 3	2.90	2.88	2.92
PCB-1232 Peak 4	3.03	3.01	3.05
PCB-1232 Peak 5	3.26	3.24	3.28
PCB-1262 Peak 1	4.86	4.84	4.88
PCB-1262 Peak 2	5.23	5.21	5.25
PCB-1262 Peak 3	5.46	5.44	5.47
PCB-1262 Peak 4	5.74	5.72	5.76
PCB-1262 Peak 5	6.02	6.00	6.04

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/5 Calibration Date: 09/27/2018 21:34

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2092731.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1242 Peak 1	Ave	0.0117	0.0116		0.493	0.500	-1.4	20.0
PCB-1242 Peak 2	Ave	0.0213	0.0213		0.499	0.500	-0.2	20.0
PCB-1242 Peak 3	Ave	0.0493	0.0495		0.502	0.500	0.3	20.0
PCB-1242 Peak 4	Ave	0.0203	0.0207		0.508	0.500	1.6	20.0
PCB-1242 Peak 5	Ave	0.0078	0.0085		0.545	0.500	9.0	20.0
PCB-1268 Peak 1	Ave	0.1382	0.1417		0.512	0.500	2.5	20.0
PCB-1268 Peak 2	Ave	0.1294	0.1330		0.514	0.500	2.7	20.0
PCB-1268 Peak 3	Ave	0.1121	0.1147		0.512	0.500	2.3	20.0
PCB-1268 Peak 4	Ave	0.0448	0.0462		0.515	0.500	3.1	20.0
PCB-1268 Peak 5	Ave	0.3308	0.3426		0.518	0.500	3.6	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/5 Calibration Date: 09/27/2018 21:34

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 18:30

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 19:43

Lab File ID: P2092731.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1242 Peak 1	2.14	2.12	2.16
PCB-1242 Peak 2	2.47	2.45	2.48
PCB-1242 Peak 3	2.90	2.88	2.92
PCB-1242 Peak 4	3.03	3.01	3.05
PCB-1242 Peak 5	3.26	3.24	3.28
PCB-1268 Peak 1	6.02	6.00	6.04
PCB-1268 Peak 2	6.05	6.03	6.07
PCB-1268 Peak 3	6.22	6.20	6.24
PCB-1268 Peak 4	6.52	6.50	6.54
PCB-1268 Peak 5	6.76	6.74	6.78

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/6 Calibration Date: 09/27/2018 21:49

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 19:58

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 21:11

Lab File ID: P2092732.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1248 Peak 1	Ave	0.0109	0.0111		0.508	0.500	1.6	20.0
PCB-1248 Peak 2	Ave	0.0313	0.0312		0.498	0.500	-0.5	20.0
PCB-1248 Peak 3	Ave	0.0288	0.0288		0.499	0.500	-0.1	20.0
PCB-1248 Peak 4	Ave	0.0227	0.0230		0.507	0.500	1.5	20.0
PCB-1248 Peak 5	Ave	0.0145	0.0156		0.538	0.500	7.7	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/6 Calibration Date: 09/27/2018 21:49

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 19:58

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 21:11

Lab File ID: P2092732.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1248 Peak 1	2.46	2.45	2.48
PCB-1248 Peak 2	3.42	3.40	3.43
PCB-1248 Peak 3	3.82	3.80	3.84
PCB-1248 Peak 4	4.02	4.00	4.04
PCB-1248 Peak 5	4.39	4.37	4.41

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/7 Calibration Date: 09/27/2018 22:03

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2092733.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1221 Peak 1	Ave	0.0085	0.0084		0.495	0.500	-1.1	20.0
PCB-1221 Peak 2	Ave	0.0049	0.0054		0.552	0.500	10.3	20.0
PCB-1221 Peak 3	Ave	0.0208	0.0211		0.506	0.500	1.3	20.0
PCB-1254 Peak 1	Ave	0.0230	0.0239		0.520	0.500	4.0	20.0
PCB-1254 Peak 2	Ave	0.0475	0.0538		0.566	0.500	13.2	20.0
PCB-1254 Peak 3	Ave	0.0361	0.0409		0.566	0.500	13.2	20.0
PCB-1254 Peak 4	Ave	0.0324	0.0360		0.556	0.500	11.3	20.0
PCB-1254 Peak 5	Ave	0.0485	0.0545		0.562	0.500	12.3	20.0

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCV 240-347579/7 Calibration Date: 09/27/2018 22:03

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 21:26

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/05/2018 22:39

Lab File ID: P2092733.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1221 Peak 1	1.97	1.95	1.99
PCB-1221 Peak 2	2.10	2.08	2.12
PCB-1221 Peak 3	2.14	2.12	2.16
PCB-1254 Peak 1	3.78	3.76	3.79
PCB-1254 Peak 2	4.39	4.38	4.41
PCB-1254 Peak 3	4.67	4.65	4.69
PCB-1254 Peak 4	4.86	4.84	4.87
PCB-1254 Peak 5	5.12	5.10	5.14

FORM VII
PCBS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCVIS 240-347579/28 Calibration Date: 09/28/2018 03:06

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2092754.D Conc. Units: ng/uL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
PCB-1016 Peak 1	Ave	0.0141	0.0136		0.482	0.500	-3.6	20.0
PCB-1016 Peak 2	Ave	0.0264	0.0259		0.490	0.500	-2.1	20.0
PCB-1016 Peak 3	Ave	0.0608	0.0612		0.504	0.500	0.7	20.0
PCB-1016 Peak 4	Ave	0.0250	0.0251		0.501	0.500	0.2	20.0
PCB-1016 Peak 5	Ave	0.0246	0.0249		0.507	0.500	1.4	20.0
PCB-1260 Peak 1	Ave	0.0318	0.0288		0.453	0.500	-9.4	20.0
PCB-1260 Peak 2	Ave	0.0548	0.0451		0.412	0.500	-17.7	20.0
PCB-1260 Peak 3	Ave	0.0598	0.0488		0.407	0.500	-18.5	20.0
PCB-1260 Peak 4	Ave	0.0916	0.0679		0.371	0.500	-25.9*	20.0
PCB-1260 Peak 5	Ave	0.0421	0.0314		0.373	0.500	-25.3*	20.0
Tetrachloro-m-xylene	Ave	0.8854	0.8639		0.0244	0.0250	-2.4	20.0
DCB Decachlorobiphenyl	Ave	0.8253	0.5927		0.0180	0.0250	-28.2*	20.0

Average Aroclor-1260 %D < 20% ✓

FORM VII
PCBS CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Lab Sample ID: CCVIS 240-347579/28 Calibration Date: 09/28/2018 03:06

Instrument ID: A2HP2 Calib Start Date: 09/05/2018 22:54

GC Column: CLP-1 (0.53mm) ID: 0.53(mm) Calib End Date: 09/06/2018 00:07

Lab File ID: P2092754.D

Analyte	RT	RT WINDOW	
		FROM	TO
PCB-1016 Peak 1	2.14	2.12	2.16
PCB-1016 Peak 2	2.47	2.45	2.49
PCB-1016 Peak 3	2.90	2.88	2.92
PCB-1016 Peak 4	3.03	3.01	3.05
PCB-1016 Peak 5	3.42	3.40	3.44
PCB-1260 Peak 1	4.58	4.56	4.60
PCB-1260 Peak 2	4.86	4.84	4.88
PCB-1260 Peak 3	5.12	5.10	5.14
PCB-1260 Peak 4	5.74	5.72	5.76
PCB-1260 Peak 5	5.99	5.97	6.00
Tetrachloro-m-xylene	1.81	1.79	1.83
DCB Decachlorobiphenyl	6.91	6.89	6.93

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Sample No.: STD05 240-343960/31 Date Analyzed: 09/05/2018 23:38

Instrument ID: A2HP2 GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

Lab File ID (Standard): P2090531.D Heated Purge: (Y/N) N

Calibration ID: 46854

		BNB					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		69160257	1.24				
UPPER LIMIT		138320514	1.74				
LOWER LIMIT		34580129	0.74				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 240-343960/34		69996158	1.24				
ICV 240-343960/35		70872449	1.24				
ICV 240-343960/36		71939380	1.24				
ICV 240-343960/37		71193944	1.24				
ICV 240-343960/38		73907578	1.24				
ICV 240-343960/39		66883623	1.24				
ICV 240-343960/40		76651910	1.24				
ICV 240-343960/41		75022062	1.24				
CCVIS 240-347579/28		76953042	1.22				

BNB = 1-Bromo-2-nitrobenzene

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

Column used to flag values outside QC limits

FORM VIII 8082A

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Sample No.: STD05 240-343960/31 Date Analyzed: 09/05/2018 23:38

Instrument ID: A2HP2 GC Column: CLP-2 (0.53mm) ID: 0.53(mm)

Lab File ID (Standard): P2090531.D Heated Purge: (Y/N) N

Calibration ID: 46855

		BNB					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		51060536	1.38				
UPPER LIMIT		102121072	1.88				
LOWER LIMIT		25530268	0.88				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 240-343960/34		52492474	1.38				
ICV 240-343960/35		53366179	1.38				
ICV 240-343960/36		53641456	1.38				
ICV 240-343960/37		53643191	1.38				
ICV 240-343960/38		54443317	1.38				
ICV 240-343960/39		49479088	1.38				
ICV 240-343960/40		56082802	1.38				
ICV 240-343960/41		55428685	1.38				
CCV 240-347579/4		74699749	1.22				

BNB = 1-Bromo-2-nitrobenzene

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

Column used to flag values outside QC limits

FORM VIII 8082A

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Sample No.: CCV 240-347579/3 Date Analyzed: 09/27/2018 21:05

Instrument ID: A2HP2 GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

Lab File ID (Standard): P2092729.D Heated Purge: (Y/N) N

Calibration ID: 46854

		BNB					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		76961041	1.22				
UPPER LIMIT		153922082	1.72				
LOWER LIMIT		38480521	0.72				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-347579/4		74699749	1.22				
CCV 240-347579/5		74234498	1.22				
CCV 240-347579/6		75058992	1.22				
CCV 240-347579/7		78893104	1.22				
MB 240-347068/19-A		84661391	1.22				
LCS 240-347068/20-A		77228010	1.22				

BNB = 1-Bromo-2-nitrobenzene

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

Column used to flag values outside QC limits

FORM VIII 8082A

FORM VIII
PCBS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Sample No.: CCVIS 240-347579/28 Date Analyzed: 09/28/2018 03:06

Instrument ID: A2HP2 GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

Lab File ID (Standard): P2092754.D Heated Purge: (Y/N) N

Calibration ID: 46854

		BNB					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		76953042	1.22				
UPPER LIMIT		153906084	1.72				
LOWER LIMIT		38476521	0.72				
LAB SAMPLE ID	CLIENT SAMPLE ID						
240-101687-1	MH-09-091918	81212604	1.22				
240-101687-2	MH-DUP-091918	82503179	1.22				

BNB = 1-Bromo-2-nitrobenzene

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

Column used to flag values outside QC limits

FORM VIII 8082A

FORM X
IDENTIFICATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Client Sample ID: MH-09-091918 Lab Sample ID: 240-101687-1

Instrument ID (1): A2HP2 Instrument ID (2): A2HP2

Date Analyzed (1): 09/28/2018 03:35 Date Analyzed (2): 09/28/2018 03:35

GC Column (1): CLP-2 (0.53mm ID: 0.53(mm) GC Column (2): CLP-1 (0.53mm ID: 0.53(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
Aroclor-1260	1	1	5.30	5.28	5.32	133000	120000	15.1
		2	5.50	5.48	5.52	148000		
		3	5.89	5.88	5.91	106000		
		4	6.36	6.34	6.38	117000		
		5	6.66	6.64	6.68	106000		
	2	1	4.58	4.56	4.60	150000	140000	
		2	4.86	4.84	4.88	163000		
		3	5.12	5.10	5.14	156000		
		4	5.74	5.72	5.76	114000		
		5	5.98	5.97	6.00	127000		

FORM X
IDENTIFICATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-101687-1

SDG No.:

Client Sample ID: MH-DUP-091918 Lab Sample ID: 240-101687-2

Instrument ID (1): A2HP2 Instrument ID (2): A2HP2

Date Analyzed (1): 09/28/2018 03:50 Date Analyzed (2): 09/28/2018 03:50

GC Column (1): CLP-2 (0.53mm ID: 0.53(mm) GC Column (2): CLP-1 (0.53mm ID: 0.53(mm)

ANALYTE	COL	PEAK	RT	RT WINDOW		CONCENTRATION		RPD
				FROM	TO	PEAK	MEAN	
Aroclor-1260	1	1	5.30	5.28	5.32	194000	170000	8.5
		2	5.50	5.48	5.52	208000		
		3	5.89	5.88	5.91	147000		
		4	6.36	6.34	6.38	162000		
		5	6.66	6.64	6.68	143000		
	2	1	4.58	4.56	4.60	195000	190000	
		2	4.86	4.84	4.88	205000		
		3	5.12	5.10	5.14	210000		
		4	5.74	5.72	5.76	152000		
		5	5.99	5.97	6.00	167000		

SAMPLE IDENTIFICATION	MH-09-091918
COMPOUND	AROCLOR-1260
AVERAGE CONCENTRATION	1.21
DILUTION FACTOR	100
VOLUME FINAL EXTRACT (ml)	10
WEIGHT OF SAMPLE (g)	10.05
PERCENT SOLIDS	0.849
CONCENTRATION =	**141954.68** µg/Kg
GC COLUMN 1	
RESPONSE 1	66189345
RESPONSE 2	123589206
RESPONSE 3	129324619
RESPONSE 4	144538185
RESPONSE 5	74070439
RESPONSE FACTOR 1	0.0318
RESPONSE FACTOR 2	0.0548
RESPONSE FACTOR 3	0.0598
RESPONSE FACTOR 4	0.0916
RESPONSE FACTOR 5	0.0421
INTERNAL STANDARD RESPONSE	81212604
INTERNAL STANDARD CONCENTRATION	0.05
CONCENTRATION 1	1.28
CONCENTRATION 2	1.39
CONCENTRATION 3	1.33
CONCENTRATION 4	0.97
CONCENTRATION 5	1.08
AVERAGE (µg/L)	1.21

FORM I
PCBS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-101687-1

SDG No.:

Client Sample ID: MH-09-091918 | Lab Sample ID: 240-101687-1

Matrix: Solid | Lab File ID: P2092756.D

Analysis Method: 8082A | Date Collected: 09/19/2018 14:30

Extraction Method: 3540C | Date Extracted: 09/25/2018 09:30

Sample wt/vol: 10.05(g) | Date Analyzed: 09/28/2018 03:35

Con. Extract Vol.: 10(mL) | Dilution Factor: 100

Injection Volume: 1(uL) | GC Column: CLP-1 (0.53mm) ID: 0.53(mm)

% Moisture: 15.1 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 347579 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
12674-11-2	Aroclor-1016	2600	U	5900	2600
11104-28-2	Aroclor-1221	2800	U	5900	2800
11141-16-5	Aroclor-1232	2700	U	5900	2700
53469-21-9	Aroclor-1242	2200	U	5900	2200
12672-29-6	Aroclor-1248	2800	U	5900	2800
11097-69-1	Aroclor-1254	2700	U	5900	2700
11096-82-5	Aroclor-1260	140000		5900	2600
37324-23-5	Aroclor-1262	3600	U	5900	3600
11100-14-4	Aroclor-1268	2700	U	5900	2700

CAS NO.	SURROGATE	%REC	Q	LIMITS
877-09-8	Tetrachloro-m-xylene	130	p X	14-128
2051-24-3	DCB Decachlorobiphenyl	221	X	10-132

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A2HP2\20180927-80319.b\P2092756.D
Lims ID: 240-101687-B-1-A
Client ID: MH-09-091918
Sample Type: Client
Inject. Date: 28-Sep-2018 03:35:47 ALS Bottle#: 56 Worklist Smp#: 30
Injection Vol: 1.0 uL Dil. Factor: 100.0000
Sample Info: 240-0080319-030
Operator ID: Instrument ID: A2HP2

Method: \\ChromNA\Canton\ChromData\A2HP2\20180927-80319.b\PCB2 IS.m
Limit Group: GC 8082A IS
Last Update: 28-Sep-2018 06:58:25 Calib Date: 06-Sep-2018 00:07:27
Integrator: Falcon
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A2HP2\20180905-79561.b\P2090533.D

Column 1 : Det: GC ECD1A
Column 2 : Det: GC ecd2b
Process Host: XAWRK021

First Level Reviewer: hassl Date: 28-Sep-2018 06:53:07

Col	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ng/ul	Flags
S 1 Polychlorinated biphenyls, Total						
1		1.000			ND	
* 2 1-Bromo-2-nitrobenzene						
1	1.223	1.224	-0.001	81212604	0.0500	
2	1.356	1.356	0.000	50056333	0.0500	
$ 3 Tetrachloro-m-xylene						
1	1.806	1.806	0.000	374737	0.000261	
2	2.151	2.150	0.001	563493	0.000598	
					RPD = 78.59	
4 PCB-1221						
1		1.967			ND	
1		2.100				
1		2.136				
2		2.442				
2		2.580				
2		2.639				

Col	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ng/ul	Flags
6	PCB-1232					U
1		2.136			ND	
1		2.466				
1		2.902				
1		3.026				
1		3.261				
2		2.639				
2		3.039				
2		3.485				
2		3.615				
2		3.853				
5	PCB-1016					U
1		2.137			ND	
1		2.466				
1		2.903				
1		3.028				
1		3.416				
2		2.639				
2		3.040				
2		3.486				
2		3.615				
2		3.854				
7	PCB-1242					U
1		2.137			ND	
1		2.465				
1		2.902				
1		3.027				
1		3.261				
2		2.639				
2		3.040				
2		3.485				
2		3.615				
2		3.854				
8	PCB-1248					U
1		2.464			ND	
1		3.415				
1		3.818				
1		4.023				
1		4.393				
2		3.038				
2		3.482				
2		4.066				
2		4.474				
2		5.115				

Col	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ng/ul	Flags
9 PCB-1254						U
1		3.775			ND	
1		4.394				
1		4.673				
1		4.855				
1		5.120				
2		4.469				
2		5.115				
2		5.330				
2		5.641				
2		5.811				
10 PCB-1260						M
1	4.578	4.579	-0.001	66189345	1.28	M
1	4.856	4.857	-0.001	123589206	1.39	M
1	5.119	5.120	-0.001	129324619	1.33	M
1	5.739	5.740	-0.001	144538185	0.9715	
1	5.984	5.985	-0.001	74070439	1.08	
		Average of Peak Amounts =			1.21	
2	5.299	5.300	-0.001	36981151	1.14	
2	5.496	5.497	-0.001	46554027	1.26	
2	5.893	5.894	-0.001	29381011	0.9055	
2	6.362	6.363	-0.001	74625107	1.00	
2	6.663	6.663	0.000	46485379	0.9027	
		Average of Peak Amounts =			1.04	
					RPD = 15.06	
11 PCB-1262						U
1		4.856			ND	
1		5.231				
1		5.455				
1		5.738				
1		6.018				
2		5.496				
2		5.894				
2		6.145				
2		6.361				
2		6.661				
12 PCB-1268						U
1		6.019			ND	
1		6.052				
1		6.218				
1		6.519				
1		6.756				
2		6.659				
2		6.697				
2		6.903				
2		7.134				
2		7.393				
$ 13 DCB Decachlorobiphenyl						
1	6.910	6.911	-0.001	592409	0.000442	
2	7.595	7.597	-0.002	170427	0.000258	
					RPD = 52.72	

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

Lab Name: TestAmerica Canton Job No.: 240-101687-1 Analy Batch No.: 343960

SDG No.:

Instrument ID: A2HP2 GC Column: CLP-1 (0.53 ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 09/05/2018 22:54 Calibration End Date: 09/06/2018 00:07 Calibration ID: 46854

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD005 240-343960/28	P2090528.D
Level 2	STD01 240-343960/29	P2090529.D
Level 3	STD02 240-343960/30	P2090530.D
Level 4	STD05 240-343960/31	P2090531.D
Level 5	STD1 240-343960/32	P2090532.D
Level 6	STD15 240-343960/33	P2090533.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
PCB-1016 Peak 1	0.0159 0.0132	0.0147	0.0140	0.0137	0.0132	Ave		0.0141				7.5		20.0			
PCB-1016 Peak 2	0.0280 0.0245	0.0269	0.0281	0.0260	0.0250	Ave		0.0264				5.8		20.0			
PCB-1016 Peak 3	0.0624 0.0605	0.0602	0.0601	0.0609	0.0606	Ave		0.0608				1.4		20.0			
PCB-1016 Peak 4	0.0256 0.0247	0.0248	0.0252	0.0251	0.0248	Ave		0.0250				1.4		20.0			
PCB-1016 Peak 5	0.0250 0.0238	0.0253	0.0246	0.0246	0.0241	Ave		0.0246				2.2		20.0			
PCB-1260 Peak 1	0.0333 0.0308	0.0328	0.0314	0.0316	0.0310	Ave		0.0318				3.2		20.0			
PCB-1260 Peak 2	0.0587 0.0531	0.0555	0.0544	0.0538	0.0535	Ave		0.0548				3.8		20.0			
PCB-1260 Peak 3	0.0608 0.0593	0.0603	0.0596	0.0593	0.0597	Ave		0.0598				1.0		20.0			
PCB-1260 Peak 4	0.0905 0.0932	0.0906	0.0901	0.0919	0.0933	Ave		0.0916				1.6		20.0			
PCB-1260 Peak 5	0.0426 0.0422	0.0418	0.0411	0.0422	0.0424	Ave		0.0421				1.3		20.0			
Tetrachloro-m-xylene	0.9387 0.8498	0.8866	0.8646	0.8814	0.8912	Ave		0.8854				3.4		20.0			
DCB Decachlorobiphenyl	0.9073 0.7432	0.8658	0.8274	0.8096	0.7986	Ave		0.8253				6.9		20.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

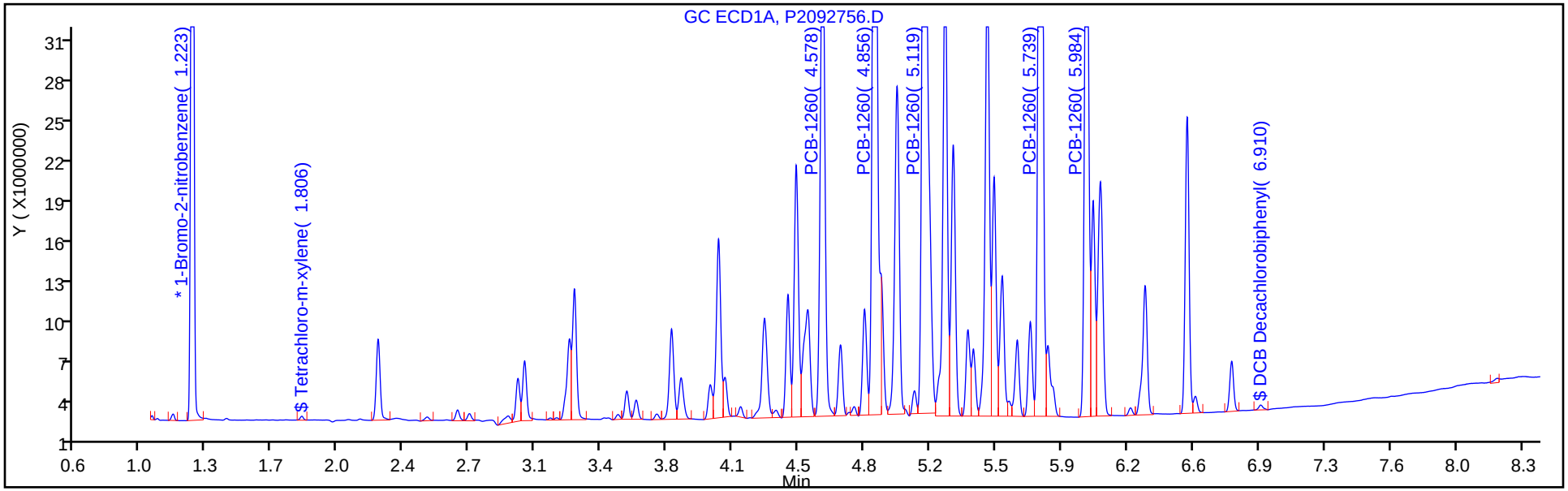
Report Date: 28-Sep-2018 06:58:30 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Canton

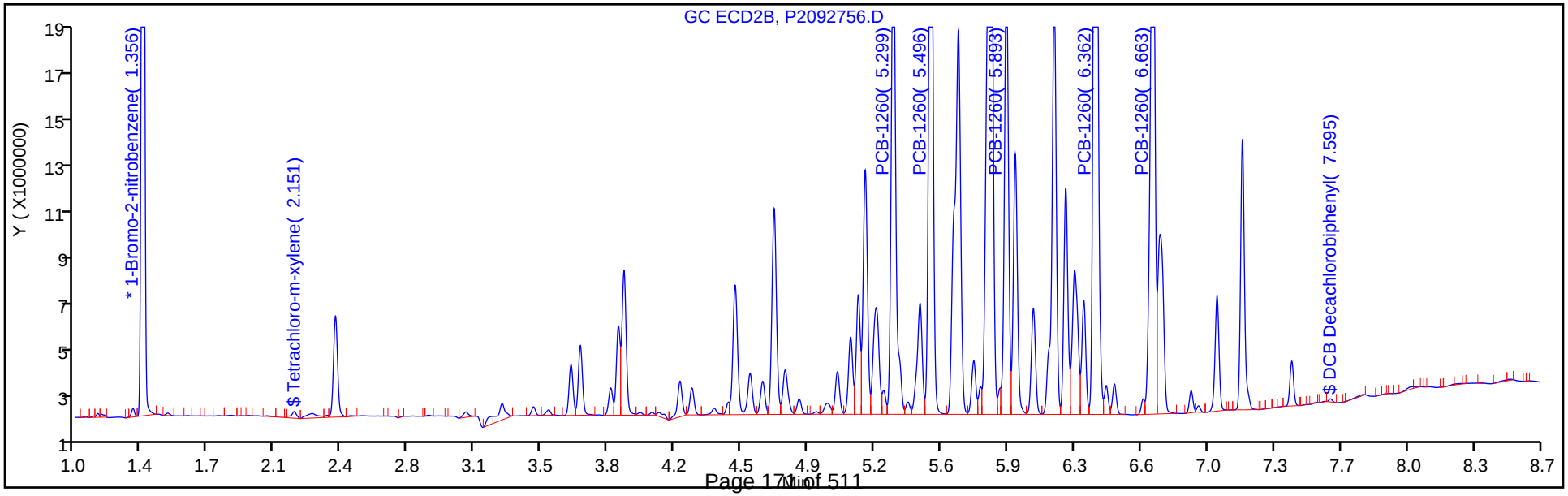
Data File: \\ChromNA\Canton\ChromData\A2HP2\20180927-80319.b\P2092756.D

Injection Date:	28-Sep-2018 03:35:47	Instrument ID:	A2HP2	Operator ID:	
Lims ID:	240-101687-B-1-A	Lab Sample ID:	240-101687-1	Worklist Smp#:	30
Client ID:	MH-09-091918				
Injection Vol:	1.0 uL	Dil. Factor:	100.0000	ALS Bottle#:	56
Method:	PCB2 IS	Limit Group:	GC 8082A IS		

Y Scaling: Method Defined: Set to Absolute Y Value



Y Scaling: Method Defined: Set to Absolute Y Value



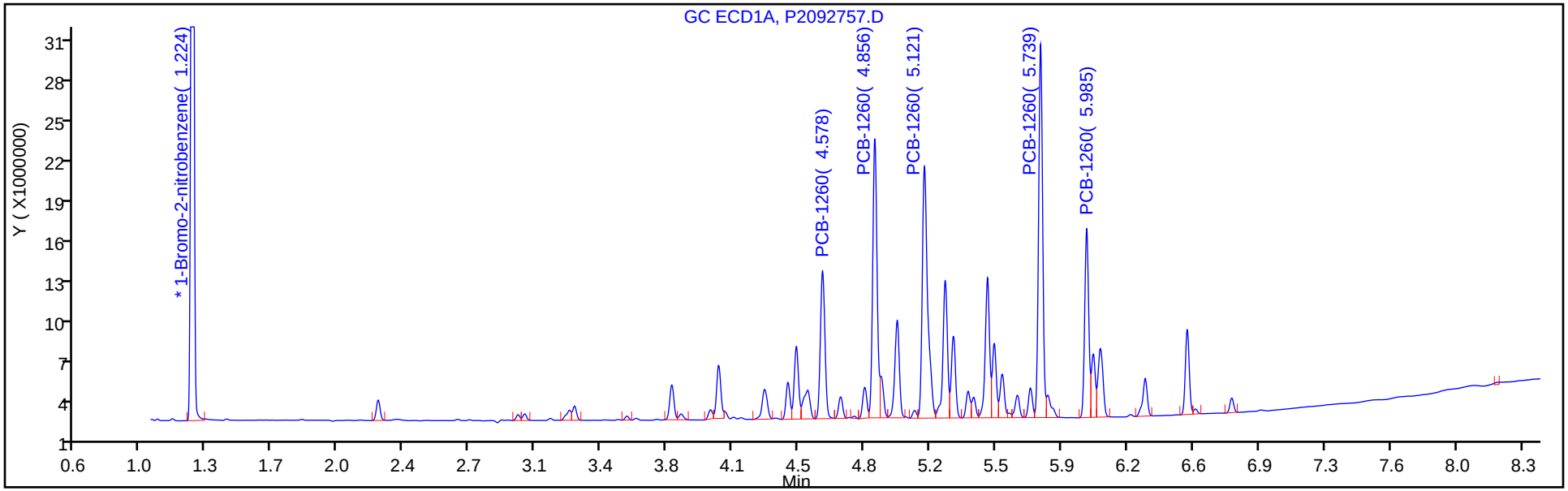
Report Date: 28-Sep-2018 06:58:32 Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A2HP2\20180927-80319.b\P2092757.D

Injection Date:	28-Sep-2018 03:50:12	Instrument ID:	A2HP2	Operator ID:	
Lims ID:	240-101687-B-2-A	Lab Sample ID:	240-101687-2	Worklist Smp#:	31
Client ID:	MH-DUP-091918				
Injection Vol:	1.0 uL	Dil. Factor:	500.0000	ALS Bottle#:	57
Method:	PCB2 IS	Limit Group:	GC 8082A IS		

Y Scaling: Method Defined: Set to Absolute Y Value



Y Scaling: Method Defined: Set to Absolute Y Value