

**Appendix D**  
Chemical Quality Control Reports



# LABORATORY DATA CONSULTANTS, INC.

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AHTNA  
296 12<sup>th</sup> Street  
Marina, CA 93933  
ATTN: Mr. Rachel Kerr

December 20, 2017

SUBJECT: Sharpe Army Depot, SHAD-041, TO-16, Data Validation

Dear Ms. Kerr,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on November 20, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

## LDC Project #39889:

### SDG #

160-24848-1, 160-24848-2, 160-24851-1  
160-24851-2, 160-24917-1, 160-24917-2  
160-24922-1, 160-24922-2, 160-24924-1  
160-24925-1, 160-24948-1, 160-24949-1  
160-24950-1, 160-24951-1, 160-24952-1  
160-24953-1, 160-24955-1, 160-24955-2

### Fraction

Volatiles, Polynuclear Aromatic Hydrocarbons,  
Polychlorinated Biphenyls, Dioxins, Metals, Radium-226,  
Wet Chemistry

The data validation was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Quality Assurance Project Plan, Remedial Investigation and Feasibility Study for Sites 33/39. SHAD-041, Sharpe Army Depot, Lathrop, California, August 2017
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- USEPA, National Functional Guidelines for Superfund Organic Methods Data Review, August 2014
- USEPA, National Functional Guidelines for Superfund Inorganic Methods Data Review, August 2014
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist



**LDC#39889 (AHTNA, Marina, CA / Sharpe Army Depot, SHAD-041, TO 16)**

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (8260B)		PAHs (8270D -SIM)		PCBs (8082A)		Cr,Pb (6010C)		Dioxins (8290A)		Cr(VI) (7196A)		Ra-226 (901.1 /903.0)		S		S		S		S		S		S		S		S		S			
				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S		
Matrix: Water/Soil																																					
A	160-24848-1	11/20/17	12/13/17	1	15	0	15	0	15	0	15	0	15	0	15	0	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A	160-24848-1	11/20/17	12/13/17	0	14	0	14	0	14	0	14	0	14	0	14	0	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
B	160-24848-2	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
B	160-24848-2	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	160-24851-1	11/20/17	12/13/17	6	8	0	8	0	8	0	8	0	8	0	8	0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	160-24851-2	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	160-24917-1	11/20/17	12/13/17	0	30	0	30	0	30	0	30	0	30	0	30	0	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F	160-24917-2	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
G	160-24922-1	11/20/17	12/13/17	1	29	0	29	0	29	0	29	0	29	0	29	0	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
H	160-24922-2	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
I	160-24924-1	11/20/17	12/13/17	4	19	0	19	0	19	0	19	0	19	0	19	0	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
J	160-24925-1	11/20/17	12/13/17	13	17	2	17	2	17	2	17	2	17	2	17	2	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	160-24948-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	160-24948-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L	160-24949-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
M	160-24950-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N	160-24951-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O	160-24952-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
P	160-24953-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Q	160-24955-1	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R	160-24955-2	11/20/17	12/13/17	-	-	-	-	-	-	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	T/PG			25	132	2	132	2	132	2	132	2	132	0	96	2	132	0	132	0	132	0	132	0	132	0	132	0	132	0	132	0	132	0	132	0	132

**Data Validation Report  
Sharpe Army Depot, SHAD-041, TO-16**

**SDGs: 160-24848-1, 160-24848-2, 160-24851-1,  
160-24851-2, 160-24917-1, 160-24917-2, 160-24922-1,  
160-24922-2, 160-24924-1, 160-24925-1, 160-24948-1,  
160-24949-1, 160-24950-1, 160-24951-1, 160-24952-1,  
160-24953-1, 160-24955-1, and 160-24955-2**

Prepared for

**Ahtna Environmental, Inc.**  
296 12<sup>th</sup> Street  
Marina, CA 93933

Prepared by

**Laboratory Data Consultants, Inc**  
2701 Loker Ave West, Suite 220  
Carlsbad, CA 92010

December 19, 2017

## INTRODUCTION

This Data Validation Report (DVR) presents Stage 2B data validation results for samples collected during the October 2017 sampling period. Data validation was performed in accordance with the Final Quality Assurance Project Plan (QAPP), Remedial Investigation and Feasibility Study for Sites 33/39 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and the United States Environmental Protection Agency (EPA) National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (August 2014), the US EPA NFG for Inorganic Superfund Data Review (August 2014), and the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B

Polynuclear Aromatic Hydrocarbons (PAHs) by EPA SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)

Polychlorinated Biphenyls (PCBs) by EPA SW 846 Method 8082A

Dioxins by EPA SW 846 Method 8290A

Metals by EPA SW 846 Method 6010C

Radium-226 by EPA Method 901.1/903.0

Wet Chemistry:

Hexavalent Chromium by EPA SW 846 Method 7196A

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Stage 2B Automated Data Review outliers are presented in Enclosure I. DVRs for samples on which Stage 4 validation was performed are presented in Enclosure II.

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibrations, initial and continuing calibration blanks (ICB/CCBs), surrogates, internal standards, interference check (ICSA and ICSAB) samples, matrix spike/matrix spike duplicates (MS/MSD), duplicate sample analysis (DUP), serial dilutions, laboratory control sample/laboratory control sample duplicates (LCS/LCSD), carrier and tracer recoveries, laboratory blanks, trip blanks, equipment blanks, and field duplicates. Approximately 10 percent of samples were subjected to Stage 4 evaluation as indicated in Attachment 1, which comprises a review of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with exception of the calibrations, ICB/CCBs, internal standards, serial dilutions, and carrier and tracer recoveries, which were validated manually. Quality assurance (QA)/QC criteria specified in the QAPP, DoD QSM, NFGs, and MARLAP were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected, Estimated, Bias Indeterminate): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not applicable): Data did not warrant qualification since detected results only are affected and the compound was not detected in the associated samples.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## I. Sample Receipt & Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the exception of one sample for hexavalent chromium. The associated sample results were qualified as non-detected estimated (UJ). The details regarding the qualification of data are presented in Enclosure I.

## II. GC/MS Instrument Performance Check

A tune was performed at 12 hour intervals as required by the method.

All ion abundance requirements were met with the exception of the M/Z ion ratio for ion 51 for PAHs in SDGs 160-24917-1, 160-24922-1, 160-24924-1, and 160-24925-1. Since the analytical batch is a SIM analysis, the tuning requirement does not apply when samples are to be analyzed by the SIM technique as the tune is analyzed in SCAN mode and not in SIM mode.

## III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method and all criteria for the initial calibration of the method were met with the following exceptions:

SDG/ Method	Date	Compound	%D (Limits)	Associated Samples	Flag	A or P
160-24851-1/ 8270D-SIM	06/26/17	Pyrene	21.2 (≤20)	SHAD041DP011-SS-01NS SHAD041DP011-SS-02NS SHAD041DP011-SS-03NS SHAD041DP011-SS-04NS SHAD041DP011-SS-05NS SHAD041DP011-SS-06NS SHAD041EQ001WS01NS SHAD041EQ002WS01NS	NA	-
160-24925-1/ 8270D-SIM	6/26/17	Pyrene	21.2 (≤20)	SHAD041EQ003WS01NS SHAD041EQ004WS01NS	NA	-

Average relative response factors (RRF) for all compounds were within method criteria.

All criteria for the initial calibration verifications of the method were met.

## IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All criteria for the continuing calibration verifications of the methods were met with the following exceptions:

SDG/ Method	Date	Compound	%D (Limits)	Associated Samples	Flag	A or P
160-24851-1/ 8270D-SIM	10/16/17	1-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Fluoranthene Pyrene	20.5 (≤20) 37.3 (≤20) 23.5 (≤20) 20.7 (≤20) 24.9 (≤20) 24.2 (≤20)	SHAD041DP011-SS-01NS SHAD041DP011-SS-02NS SHAD041DP011-SS-03NS SHAD041DP011-SS-04NS SHAD041DP011-SS-05NS SHAD041DP011-SS-06NS SHAD041EQ001WS01NS SHAD041EQ002WS01NS	NA	-
160-24924-1/ 8260B	10/17/17	Vinyl chloride	20.6 (≤20)	SHAD041DP022SS05NS SHAD041DP022SS06NS SHAD041DP013SS01NS SHAD041DP013SS02NS SHAD041DP013SS03NS SHAD041DP013SS04NS SHAD041DP013SS05NS SHAD041DP013SS05DS SHAD041DP013SS06NS	UJ (all non-detects)	A
160-24925-1/ 8260B	10/17/17	Vinyl chloride	20.6 (≤20)	SHAD041DP008SS03NS SHAD041DP008SS04NS SHAD041DP008SS05NS SHAD041DP008SS06NS SHAD041DP010SS01NS SHAD041DP010SS02NS SHAD041DP010SS02DS	UJ (all non-detects)	A
160-24925-1/ 8270D-SIM	10/16/17	1-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Fluoranthene Pyrene	20.5 (≤20) 37.3 (≤20) 23.5 (≤20) 20.7 (≤20) 24.9 (≤20) 24.2 (≤20)	SHAD041EQ003WS01NS SHAD041EQ004WS01NS	NA	-

Average relative response factors (RRF) for all compounds were within method criteria.

## V. Laboratory Blanks

Laboratory blanks were performed as required by the method. No contaminant concentrations were detected in the laboratory blanks with the exception of several blanks for several dioxins. The associated sample results were qualified as non-detected (U) due to laboratory blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosures I and II.

## VI. Field Blank Samples

Twenty-three trip blanks were collected and analyzed for VOCs. No contaminants were found in the trip blanks.

Four equipment blanks were collected and analyzed for VOCs, PAHs, PCBs, dioxins, metals, radium-226, and hexavalent chromium. The equipment blanks had detections for several dioxins and radium-226. The associated sample results were qualified as non-detected (U) due to equipment blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the equipment blank were not

qualified. The equipment blank outlier reports are presented in Enclosures I and II.

## VII. Surrogate Spikes

Surrogates were added to all samples as required by the methods. All surrogate recoveries (%R) were within QC limits with the exception of twenty-nine samples for VOCs, thirteen samples for PAHs, and one sample for PCBs. The associated sample results were qualified as detected estimated (J+/J-) or non-detected estimated (UJ) as applicable. No data were qualified for samples analyzed at greater than 5X dilution or due to high %Rs where the associated results were not detected. The details regarding the qualification of data are provided in Enclosures I and II.

## VIII. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

## IX. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of two samples for VOCs, three samples for dioxins, four samples for metals, and seven samples for hexavalent chromium. The associated sample results were qualified as detected estimated (J+/J-/J) as applicable. No data were qualified due to high %Rs when the associated results were non-detected, when MS/MSD samples were analyzed at greater than 5X dilution, or where sample concentrations were significantly greater (>4x) than the spike amount. The details regarding the qualification of data are provided in Enclosures I and II.

## X. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

## XI. Serial Dilution

Serial dilution analysis was performed on an associated project sample. The analysis criteria were met with the following exceptions:

SDG/ Method	Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
160-24848-1/ 6010C	SHAD041DP002SS01NS	Lead	11 (≤10)	SHAD041DP002SS01NS	J (all detects)	A

## XII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits with the exception of one LCS/LCSD pair for pyrene and one LCS/LCSD pair for OCDD. The associated sample results were qualified as non-detected estimated (UJ) as applicable. No data were qualified due to high %Rs where the



associated results were non-detected. The details regarding the qualification of data are provided in Enclosures I and II.

### XIII. Field Duplicate Samples

Twenty-four field duplicate pairs were collected and analyzed for all methods. All RPDs and differences were within QC limits with the exception of one duplicate pair for VOCs, several dioxins, and lead, and one duplicate pair for several dioxins and lead. The associated sample results were qualified as detected estimated (J) when both parent and duplicate result values were greater than 5x the LOQ and the RPD exceeded QC limits. The field duplicate result comparisons are provided in Enclosures I and II.

### XIV. Carrier and Tracer Recovery

Carrier and tracer recoveries were within validation criteria for the applicable radiochemistry method.

### XV. Internal Standards

All internal standard areas and retention times or percent recoveries were within QC limits with the following exceptions:

SDG/ Method	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
160-24848-1/ 8260B	SHAD041DP002SS01NS	1,4-Dichlorobenzene-d4	130783 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24848-1/ 8260B	SHAD041DP025SS01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	428271 (499327-1997308) 92229 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24848-1/ 8260B	SHAD041DP020SS01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	399178 (499327-1997308) 72751 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24848-1/ 8260B	SHAD041DP006SS01NS	1,4-Dichlorobenzene-d4	118978 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A



SDG/ Method	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
160-24848-1/ 8260B	SHAD041DP006SS02NS	1,4-Dichlorobenzene-d4	142376 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24848-1/ 8270D-SIM	SHAD041DP006SS06NS	Perylene-d12	198626 (377218-1508872)	Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene	UJ (all non-detects)	A
160-24851-1/ 8260B	SHAD041DP011-SS-01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	418476 (499327-1997308) 100532 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP004SS01NS	1,4-Dichlorobenzene-d4	192344 (287566-1150262)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	P
160-24917-1/ 8260B	SHAD041DP018SS01NS	1,4-Dichlorobenzene-d4	179932 (287566-1150262)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP008SS01NS	1,4-Dichlorobenzene-d4	150163 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP008SS01DS	1,4-Dichlorobenzene-d4	185612 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP012SS01NS	1,4-Dichlorobenzene-d4	175685 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP012SS02NS	1,4-Dichlorobenzene-d4	152557 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A

SDG/ Method	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
160-24917-1/ 8260B	SHAD041DP017SS01NS	1,4-Dichlorobenzene-d4	125083 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP017SS02NS	1,4-Dichlorobenzene-d4	147601 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24917-1/ 8260B	SHAD041DP018SS02NS	Fluorobenzene Chlorobenzene-d5 1,4-Dichlorobenzene-d4	718876 (793739-3174956) 270904 (499327-1997308) 36917 (196656-786624)	Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	J+ (all detects) UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP029SS01NS	1,4-Dichlorobenzene-d4	185335 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP029SS01DS	1,4-Dichlorobenzene-d4	135963 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP029SS02NS	1,4-Dichlorobenzene-d4	178547 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP027SS01NS	1,4-Dichlorobenzene-d4	123078 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A

SDG/ Method	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
160-24922-1/ 8260B	SHAD041DP027SS02NS	1,4-Dichlorobenzene-d4	179180 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP028SS01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	459606 (499327-1997308) 116045 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	J+ (all detects) UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP030SS01NS	1,4-Dichlorobenzene-d4	175613 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24922-1/ 8260B	SHAD041DP030SS02NS	1,4-Dichlorobenzene-d4	177420 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24924-1/ 8260B	SHAD041DP026SS02NS	1,4-Dichlorobenzene-d4	276134 (287566-1150262)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24924-1/ 8260B	SHAD041DP022SS02NS	Fluorobenzene Chlorobenzene-d5 1,4-Dichlorobenzene-d4	706051 (750572-3002286) 263063 (459494-1837976) 64578 (287566-1150262)	Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A

SDG/ Method	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
160-24924-1/ 8260B	SHAD041DP013SS01NS	1,4-Dichlorobenzene-d4	251308 (287566-1150262)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24924-1/ 8260B	SHAD041DP022SS01NS	Fluorobenzene Chlorobenzene-d5 1,4-Dichlorobenzene-d4	591158 (793739-3174956) 211306 (499327-1997308) 31106 (196656-786624)	Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24924-1/ 8270D-SIM	SHAD041DP013SS04NS	Naphthalene-d8 Acenaphthene-d10 Phenanthrene-d10 Chrysene-d12 Perylene-d12	6000 (396460-1585840) 3124 (210260-840638) 5101 (346298-1375190) 5097 (348834-1395336) 5060 (377218-1508872)	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene	UJ (all non-detects)	A
160-24925-1/ 8260B	SHAD041DP010SS01NS	1,4-Dichlorobenzene-d4	212769 (287566-1150262)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A
160-24925-1/ 8260B	SHAD041DP010SS02NS	1,4-Dichlorobenzene-d4	280760 (287566-1150262)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A

SDG/ Method	Sample	Internal Standards	Area (Limits)	Compound	Flag	A or P
160-24925-1/ 8260B	SHAD041DP015SS01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	422429 (499327-1997308) 90682 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A

SDG/ Method	Sample	Isotope Dilution	%R (Limits)	Compound	Flag	A or P
160-24848-2/ 8290A	SHAD041DP006SS01NS	13C-OCDD	36 (40-135)	OCDF	J+ (all detects)	P
160-24922-2/ 8290A	SHAD041DP027SS02NS	13C-1,2,3,4,6,7,8-HpCDD 13C-1,2,3,4,6,7,8-HpCDF 13C-OCDD	39 (40-135) 38 (40-135) 28 (40-135)	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDD OCDF	J+ (all detects) UJ (all non-detects)	P
160-24922-2/ 8290A	SHAD041DP027SS03NS	13C-OCDD	35 (40-135)	OCDD OCDF	J+ (all detects) UJ (all non-detects)	P
160-24922-2/ 8290A	SHAD041DP027SS04NS	13C-OCDD	38 (40-135)	OCDD OCDF	J+ (all detects) UJ (all non-detects)	P
160-24922-2/ 8290A	SHAD041DP027SS05NS	13C-OCDD	35 (40-135)	OCDD OCDF	J+ (all detects)	P
160-24922-2/ 8290A	SHAD041DP027SS06NS	13C-OCDD	34 (40-135)	OCDD OCDF	J+ (all detects) UJ (all non-detects)	P
160-24922-2/ 8290A	SHAD041DP028SS03NS	13C-1,2,3,4,6,7,8-HpCDD 13C-1,2,3,4,6,7,8-HpCDF 13C-OCDD	38 (40-135) 36 (40-135) 27 (40-135)	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDD OCDF	J+ (all detects) UJ (all non-detects)	P
160-24922-2/ 8290A	SHAD041DP028SS04NS	13C-OCDD	34 (40-135)	OCDD OCDF	J+ (all detects)	P
160-24922-2/ 8290A	SHAD041DP028SS05NS	13C-1,2,3,6,7,8-HxCDD 13C-1,2,3,4,6,7,8-HpCDD 13C-1,2,3,4,6,7,8-HpCDF 13C-OCDD	39 (40-135) 38 (40-135) 37 (40-135) 28 (40-135)	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDD OCDF	J+ (all detects) UJ (all non-detects)	P

SDG/ Method	Sample	Isotope Dilution	%R (Limits)	Compound	Flag	A or P
160-24922-2/ 8290A	SHAD041DP028SS06NS	13C-1,2,3,4,6,7,8-HpCDD 13C-1,2,3,4,6,7,8-HpCDF 13C-OCDD	39 (40-135) 37 (40-135) 28 (40-135)	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDD OCDF	J+ (all detects) UJ (all non-detects)	P

The associated sample results were qualified as detected estimated (J+) or non-detected estimated (UJ) as applicable.

## XVI. Compound Quantitation/Minimum Detectable Concentrations

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the LOQ as detected by the laboratory were qualified as detected estimated (J). The details regarding the qualification of data are provided in Enclosures I and II.

All minimum detectable concentrations (MDC) met reporting limits (RL) with the following exceptions:

SDG/ Method	Sample	Isotope	MDC	RL
160-24953-1/ 901.1	26-01-0	Radium-226	0.677 pCi/g	0.500 pCi/g
160-24955-1/ 901.1	18-06-14	Radium-226	0.578 pCi/g	0.500 pCi/g
160-24955-2/ 901.1	18-06-14	Radium-226	0.578 pCi/g	0.500 pCi/g

The MDC was greater than the RL as listed above.

In instances where a sample was recounted to verify the original result, data was qualified as unusable by the validators in order to yield only one complete set of data for a given sample.

## XVII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in these SDGs.

Due to holding time exceedances, data were qualified as estimated in one sample.

Due to CCV %D, data were qualified as estimated in sixteen samples.

Due to surrogate %R, data were qualified as estimated in forty-two samples.

Due to MS/MSD %R and RPD, data were qualified as estimated in nine samples.

Due to ICP serial dilution, data were qualified as estimated in one sample.

Due to LCS/LCSD %R, data were qualified as estimated in two samples.

Due to field duplicate RPD, data were qualified as estimated in four samples.

Due to internal standard areas, data were qualified as estimated in thirty-two samples.

Due to isotope dilution %R, data were qualified as estimated in ten samples

Due to results below LOQ or RL, data were qualified as estimated in sixty-four samples.

Due to laboratory blank contamination, data were qualified as not detected in fifty-nine samples.

Due to equipment blank contamination, data were qualified as not detected in fifty-five samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Data flags are summarized and are presented as Attachment 2.

**Attachment 1**

**Sample Cross Reference**



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Oct-2017	TB-100317-01	160-24848-1	TB	METHOD	8260C	Stage 2B
03-Oct-2017	25-01-5	160-24948-1	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	25-01-5DUP	160-24948-1DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP025SS02NS	160-24848-3	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP025SS02NS	160-24848-3	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP025SS02NS	160-24848-3	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP025SS02NS	160-24848-3	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP025SS02NS	160-24848-3	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP025SS02NS	160-24848-3	N	Gen Prep	7196A	Stage 4
03-Oct-2017	SHAD041DP025SS03NS	160-24848-4	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP025SS03NS	160-24848-4	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP025SS03NS	160-24848-4	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP025SS03NS	160-24848-4	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP025SS03NS	160-24848-4	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP025SS03NS	160-24848-4	N	Gen Prep	7196A	Stage 4
03-Oct-2017	25-04-9	160-24948-4	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP0255S04NS	160-24848-5	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP0255S04NS	160-24848-5	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP0255S04NS	160-24848-5	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP0255S04NS	160-24848-5	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP0255S04NS	160-24848-5	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP0255S04NS	160-24848-5	N	Gen Prep	7196A	Stage 4
03-Oct-2017	25-03-7	160-24948-3	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	25-02-2	160-24948-2	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP025SS01NS	160-24848-2	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP025SS01NS	160-24848-2	N	3550C	8082A	Stage 4

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Oct-2017	SHAD041DP025SS01NS	160-24848-2	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP025SS01NS	160-24848-2	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP025SS01NS	160-24848-2	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP025SS01NS	160-24848-2	N	Gen Prep	7196A	Stage 4
03-Oct-2017	SHAD041DP024SS02NS	160-24848-7	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP024SS02NS	160-24848-7	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP024SS02NS	160-24848-7	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP024SS02NS	160-24848-7	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP024SS02NS	160-24848-7	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP024SS02NS	160-24848-7	N	Gen Prep	7196A	Stage 4
03-Oct-2017	24-01-3	160-24948-5	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	24-02-4	160-24948-6	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP024SS01NS	160-24848-6	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP024SS01NS	160-24848-6	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP024SS01NS	160-24848-6	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP024SS01NS	160-24848-6	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP024SS01NS	160-24848-6	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP024SS01NS	160-24848-6	N	Gen Prep	7196A	Stage 4
03-Oct-2017	24-03-6	160-24948-7	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP024SS03NS	160-24848-8	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP024SS03NS	160-24848-8	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP024SS03NS	160-24848-8	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP024SS03NS	160-24848-8	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP024SS03NS	160-24848-8	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP024SS03NS	160-24848-8	N	Gen Prep	7196A	Stage 4
03-Oct-2017	24-04-9	160-24948-8	N	Fill_Geo-21	EPA 901.1	Stage 4

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Oct-2017	SHAD041DP024SS04NS	160-24848-9	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP024SS04NS	160-24848-9	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP024SS04NS	160-24848-9	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP024SS04NS	160-24848-9	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP024SS04NS	160-24848-9	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP024SS04NS	160-24848-9	N	Gen Prep	7196A	Stage 4
03-Oct-2017	19-01-2	160-24948-9	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	19-02-6	160-24948-10	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP019SS03NS	160-24848-12	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP019SS03NS	160-24848-12	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP019SS03NS	160-24848-12	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP019SS03NS	160-24848-12	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP019SS03NS	160-24848-12	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP019SS03NS	160-24848-12	N	Gen Prep	7196A	Stage 4
03-Oct-2017	19-03-8	160-24948-11	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP019SS01NS	160-24848-10	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP019SS01NS	160-24848-10	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP019SS01NS	160-24848-10	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP019SS01NS	160-24848-10	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP019SS01NS	160-24848-10	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP019SS01NS	160-24848-10	N	Gen Prep	7196A	Stage 4
03-Oct-2017	19-04-9	160-24948-12	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP019SS04NS	160-24848-13	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP019SS04NS	160-24848-13	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP019SS04NS	160-24848-13	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP019SS04NS	160-24848-13	N	5035	8260C	Stage 4

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Oct-2017	SHAD041DP019SS04NS	160-24848-13	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP019SS04NS	160-24848-13	N	Gen Prep	7196A	Stage 4
03-Oct-2017	SHAD041DP019SS02NS	160-24848-11	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP019SS02NS	160-24848-11	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP019SS02NS	160-24848-11	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP019SS02NS	160-24848-11	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP019SS02NS	160-24848-11	N	8290	8290A	Stage 4
03-Oct-2017	SHAD041DP019SS02NS	160-24848-11	N	Gen Prep	7196A	Stage 4
03-Oct-2017	20-01-0	160-24948-13	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	SHAD041DP020SS01NS	160-24848-14	N	3050B	6010C	Stage 4
03-Oct-2017	SHAD041DP020SS01NS	160-24848-14	N	3550C	8082A	Stage 4
03-Oct-2017	SHAD041DP020SS01NS	160-24848-14	N	3550C	8270D SIM	Stage 4
03-Oct-2017	SHAD041DP020SS01NS	160-24848-14	N	5035	8260C	Stage 4
03-Oct-2017	SHAD041DP020SS01NS	160-24848-14	N	8290	8290A	Stage 2B
03-Oct-2017	SHAD041DP020SS01NS	160-24848-14	N	Gen Prep	7196A	Stage 4
03-Oct-2017	20-02-4	160-24948-14	N	Fill_Geo-21	EPA 901.1	Stage 4
03-Oct-2017	20-03-8	160-24948-15	N	Fill_Geo-21	EPA 901.1	Stage 2B
03-Oct-2017	SHAD041DP020SS04DS	160-24848-18	FD	3050B	6010C	Stage 2B
03-Oct-2017	SHAD041DP020SS04DS	160-24848-18	FD	3550C	8082A	Stage 2B
03-Oct-2017	SHAD041DP020SS04DS	160-24848-18	FD	3550C	8270D SIM	Stage 2B
03-Oct-2017	SHAD041DP020SS04DS	160-24848-18	FD	5035	8260C	Stage 2B
03-Oct-2017	SHAD041DP020SS04DS	160-24848-18	FD	8290	8290A	Stage 2B
03-Oct-2017	SHAD041DP020SS04DS	160-24848-18	FD	Gen Prep	7196A	Stage 2B
03-Oct-2017	SHAD041DP020SS04DSMS	160-24848-18MS	MS	8290	8290A	Stage 2B
03-Oct-2017	SHAD041DP020SS04DSMSD	160-24848-18MSD	MSD	8290	8290A	Stage 2B
03-Oct-2017	20-03-8 DUP	160-24948-16	FD	Fill_Geo-21	EPA 901.1	Stage 2B

*N* = Normal Sample    *TB* = Trip Blank    *MS* = Matrix Spike  
*FD* = Field Duplicate    *EB* = Equipment Blank    *MSD* = Matrix Spike Duplicate

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Oct-2017	20-04-9	160-24948-17	N	Fill_Geo-21	EPA 901.1	Stage 2B
03-Oct-2017	SHAD041DP020SS02NS	160-24848-15	N	3050B	6010C	Stage 2B
03-Oct-2017	SHAD041DP020SS02NS	160-24848-15	N	3550C	8082A	Stage 2B
03-Oct-2017	SHAD041DP020SS02NS	160-24848-15	N	3550C	8270D SIM	Stage 2B
03-Oct-2017	SHAD041DP020SS02NS	160-24848-15	N	5035	8260C	Stage 2B
03-Oct-2017	SHAD041DP020SS02NS	160-24848-15	N	8290	8290A	Stage 2B
03-Oct-2017	SHAD041DP020SS02NS	160-24848-15	N	Gen Prep	7196A	Stage 2B
03-Oct-2017	SHAD041DP020SS03NS	160-24848-16	N	3050B	6010C	Stage 2B
03-Oct-2017	SHAD041DP020SS03NS	160-24848-16	N	3550C	8082A	Stage 2B
03-Oct-2017	SHAD041DP020SS03NS	160-24848-16	N	3550C	8270D SIM	Stage 2B
03-Oct-2017	SHAD041DP020SS03NS	160-24848-16	N	5035	8260C	Stage 2B
03-Oct-2017	SHAD041DP020SS03NS	160-24848-16	N	8290	8290A	Stage 2B
03-Oct-2017	SHAD041DP020SS03NS	160-24848-16	N	Gen Prep	7196A	Stage 2B
03-Oct-2017	SHAD041DP020SS04NS	160-24848-17	N	3050B	6010C	Stage 2B
03-Oct-2017	SHAD041DP020SS04NS	160-24848-17	N	3550C	8082A	Stage 2B
03-Oct-2017	SHAD041DP020SS04NS	160-24848-17	N	3550C	8270D SIM	Stage 2B
03-Oct-2017	SHAD041DP020SS04NS	160-24848-17	N	5035	8260C	Stage 2B
03-Oct-2017	SHAD041DP020SS04NS	160-24848-17	N	8290	8290A	Stage 2B
03-Oct-2017	SHAD041DP020SS04NS	160-24848-17	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	02-01-0	160-24949-7	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	02-01-0DUP	160-24949-7DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP002SS01NS	160-24848-19	N	3050B	6010C	Stage 4
04-Oct-2017	SHAD041DP002SS01NS	160-24848-19	N	3550C	8082A	Stage 4
04-Oct-2017	SHAD041DP002SS01NS	160-24848-19	N	3550C	8270D SIM	Stage 4
04-Oct-2017	SHAD041DP002SS01NS	160-24848-19	N	5035	8260C	Stage 4
04-Oct-2017	SHAD041DP002SS01NS	160-24848-19	N	8290	8290A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP002SS01NS	160-24848-19	N	Gen Prep	7196A	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMS	160-24848-19MS	MS	3050B	6010C	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMS	160-24848-19MS	MS	3550C	8082A	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMS	160-24848-19MS	MS	5035	8260C	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMS	160-24848-19MS	MS	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS01NSMS	160-24848-19MS	MS	Gen Prep	7196A	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMSD	160-24848-19MSD	MSD	3050B	6010C	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMSD	160-24848-19MSD	MSD	3550C	8082A	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMSD	160-24848-19MSD	MSD	5035	8260C	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMSD	160-24848-19MSD	MSD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS01NSMSD	160-24848-19MSD	MSD	Gen Prep	7196A	Stage 4
04-Oct-2017	SHAD041DP002SS01NSMSI	160-24848-19MSI	MS	Gen Prep	7196A	Stage 4
04-Oct-2017	02-04-12	160-24949-10	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	02-03-14	160-24949-8	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	02-02-9	160-24949-1	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	02-05-6	160-24949-12	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	02-06-2	160-24949-5	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP002SS06NS	160-24848-24	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP002SS06NS	160-24848-24	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP002SS06NS	160-24848-24	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP002SS06NS	160-24848-24	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP002SS06NS	160-24848-24	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS06NS	160-24848-24	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP002SS02NS	160-24848-20	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP002SS02NS	160-24848-20	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP002SS02NS	160-24848-20	N	3550C	8270D SIM	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP002SS02NS	160-24848-20	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP002SS02NS	160-24848-20	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS02NS	160-24848-20	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP002SS05NS	160-24848-23	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP002SS05NS	160-24848-23	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP002SS05NS	160-24848-23	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP002SS05NS	160-24848-23	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP002SS05NS	160-24848-23	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS05NS	160-24848-23	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP002SS04NS	160-24848-22	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP002SS04NS	160-24848-22	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP002SS04NS	160-24848-22	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP002SS04NS	160-24848-22	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP002SS04NS	160-24848-22	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS04NS	160-24848-22	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP002SS03NS	160-24848-21	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP002SS03NS	160-24848-21	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP002SS03NS	160-24848-21	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP002SS03NS	160-24848-21	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP002SS03NS	160-24848-21	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP002SS03NS	160-24848-21	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP002SS03NSMS	160-24848-21MS	MS	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP002SS03NSMSD	160-24848-21MSD	MSD	3550C	8082A	Stage 2B
04-Oct-2017	TB-100417-01	160-24851-9	TB	METHOD	8260C	Stage 2B
04-Oct-2017	06-01-0	160-24949-9	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP006SS01NS	160-24848-25	N	3050B	6010C	Stage 2B



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP006SS01NS	160-24848-25	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS01NS	160-24848-25	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS01NS	160-24848-25	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS01NS	160-24848-25	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS01NS	160-24848-25	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	TB-100417-05	160-24851-13	TB	METHOD	8260C	Stage 2B
04-Oct-2017	06-03-4	160-24949-2	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP006SS03NS	160-24848-27	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP006SS03NS	160-24848-27	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS03NS	160-24848-27	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS03NS	160-24848-27	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS03NS	160-24848-27	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS03NS	160-24848-27	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	TB-100417-02	160-24851-10	TB	METHOD	8260C	Stage 2B
04-Oct-2017	06-04-8	160-24949-6	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	06-04-8DUP	160-24949-6DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	06-05-12	160-24949-3	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	06-06-14	160-24949-4	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP006SS02NS	160-24848-26	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP006SS02NS	160-24848-26	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS02NS	160-24848-26	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS02NS	160-24848-26	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS02NS	160-24848-26	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS02NS	160-24848-26	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	06-02-2	160-24949-11	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP006SS04NS	160-24848-28	N	3050B	6010C	Stage 2B

*N = Normal Sample*    *TB = Trip Blank*    *MS = Matrix Spike*  
*FD = Field Duplicate*    *EB = Equipment Blank*    *MSD = Matrix Spike Duplicate*



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP006SS04NS	160-24848-28	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NS	160-24848-28	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS04NS	160-24848-28	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS04NS	160-24848-28	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NS	160-24848-28	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMS	160-24848-28MS	MS	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMS	160-24848-28MS	MS	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMS	160-24848-28MS	MS	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMS	160-24848-28MS	MS	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMS	160-24848-28MS	MS	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMS	160-24848-28MS	MS	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSD	160-24848-28MSD	MSD	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSD	160-24848-28MSD	MSD	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSD	160-24848-28MSD	MSD	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSD	160-24848-28MSD	MSD	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSD	160-24848-28MSD	MSD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSD	160-24848-28MSD	MSD	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP006SS04NSMSI	160-24848-28MSI	MS	Gen Prep	7196A	Stage 2B
04-Oct-2017	TB-100417-03	160-24851-11	TB	METHOD	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS05NS	160-24848-29	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP006SS05NS	160-24848-29	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS05NS	160-24848-29	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS05NS	160-24848-29	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS05NS	160-24848-29	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS05NS	160-24848-29	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP006SS06NS	160-24848-30	N	3050B	6010C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP006SS06NS	160-24848-30	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP006SS06NS	160-24848-30	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP006SS06NS	160-24848-30	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP006SS06NS	160-24848-30	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP006SS06NS	160-24848-30	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	TB-100417-04	160-24851-12	TB	METHOD	8260C	Stage 2B
04-Oct-2017	TB-100417-06	160-24851-14	TB	METHOD	8260C	Stage 2B
04-Oct-2017	11-01-0	160-24955-4	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP011SS01NS	160-24851-1	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS01NS	160-24851-1	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS01NS	160-24851-1	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS01NS	160-24851-1	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS01NS	160-24851-1	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS01NS	160-24851-1	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	11-02-2	160-24955-3	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	11-03-5	160-24955-18	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	11-03-5DUP	160-24955-18DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	18-02-1	160-24955-9	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP011SS02NS	160-24851-2	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS02NS	160-24851-2	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS02NS	160-24851-2	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS02NS	160-24851-2	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS02NS	160-24851-2	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS02NS	160-24851-2	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NS	160-24851-3	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS03NS	160-24851-3	N	3550C	8082A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP011SS03NS	160-24851-3	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS03NS	160-24851-3	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS03NS	160-24851-3	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NS	160-24851-3	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMS	160-24851-3MS	MS	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMS	160-24851-3MS	MS	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMS	160-24851-3MS	MS	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMS	160-24851-3MS	MS	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMS	160-24851-3MS	MS	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMS	160-24851-3MS	MS	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSD	160-24851-3MSD	MSD	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSD	160-24851-3MSD	MSD	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSD	160-24851-3MSD	MSD	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSD	160-24851-3MSD	MSD	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSD	160-24851-3MSD	MSD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSD	160-24851-3MSD	MSD	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP011SS03NSMSI	160-24851-3MSI	MS	Gen Prep	7196A	Stage 2B
04-Oct-2017	11-04-9	160-24955-7	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	11-05-14	160-24955-14	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP011SS04NS	160-24851-4	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS04NS	160-24851-4	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS04NS	160-24851-4	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS04NS	160-24851-4	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS04NS	160-24851-4	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS04NS	160-24851-4	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	11-06-12	160-24955-19	N	Fill_Geo-21	EPA 901.1	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	17-06-14 DUP	160-24955-11	FD	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP011SS06NS	160-24851-6	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS06NS	160-24851-6	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS06NS	160-24851-6	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS06NS	160-24851-6	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS06NS	160-24851-6	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS06NS	160-24851-6	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	17-02-3	160-24955-20	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	17-03-7	160-24955-1	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	17-03-7DUP	160-24955-1DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP011SS05NS	160-24851-5	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP011SS05NS	160-24851-5	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP011SS05NS	160-24851-5	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP011SS05NS	160-24851-5	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP011SS05NS	160-24851-5	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP011SS05NS	160-24851-5	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	17-01-0	160-24955-13	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	3010A	6010C	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	3510C	8082A	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	3510C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	8290	8290A	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	METHOD	7196A	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	METHOD	8260C	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NS	160-24851-7	EB	PrecSep-21	EPA 903.1	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NSDUP	160-24851-7DUP	DUP	METHOD	7196A	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NSMS	160-24851-7MS	MS	3010A	6010C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041EQ001WS01NSMS	160-24851-7MS	MS	METHOD	7196A	Stage 2B
04-Oct-2017	SHAD041EQ001WS01NSMSD	160-24851-7MSD	MSD	3010A	6010C	Stage 2B
04-Oct-2017	17-05-12	160-24955-2	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	3010A	6010C	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	3510C	8082A	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	3510C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	8290	8290A	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	METHOD	7196A	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	METHOD	8260C	Stage 2B
04-Oct-2017	SHAD041EQ002WS01NS	160-24851-8	EB	PrecSep-21	EPA 903.1	Stage 2B
04-Oct-2017	17-06-14	160-24955-16	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP017SS01NS	160-24917-16	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS01NS	160-24917-16	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS01NS	160-24917-16	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS01NS	160-24917-16	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP017SS01NS	160-24917-16	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS01NS	160-24917-16	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP017SS01NSMS	160-24917-16MS	MS	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS01NSMS	160-24917-16MS	MS	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS01NSMSD	160-24917-16MSD	MSD	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS01NSMSD	160-24917-16MSD	MSD	3550C	8270D SIM	Stage 2B
04-Oct-2017	18-01-0	160-24955-23	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	18-02-1 DUP	160-24955-10	FD	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP017SS02NS	160-24917-17	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS02NS	160-24917-17	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS02NS	160-24917-17	N	3550C	8270D SIM	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP017SS02NS	160-24917-17	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP017SS02NS	160-24917-17	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS02NS	160-24917-17	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	18-03-4	160-24955-17	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	18-04-7	160-24955-12	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	18-05-11	160-24955-21	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	18-06-14	160-24955-6	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	18-06-14	160-24955-6	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP017SS03NS	160-24917-18	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS03NS	160-24917-18	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS03NS	160-24917-18	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS03NS	160-24917-18	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP017SS03NS	160-24917-18	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS03NS	160-24917-18	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP018SS01NS	160-24917-23	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP018SS01NS	160-24917-23	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP018SS01NS	160-24917-23	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS01NS	160-24917-23	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP018SS01NS	160-24917-23	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS01NS	160-24917-23	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP018SS02NS	160-24917-24	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP018SS02NS	160-24917-24	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP018SS02NS	160-24917-24	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS02NS	160-24917-24	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP018SS02NS	160-24917-24	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS02NS	160-24917-24	N	Gen Prep	7196A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP017SS04NS	160-24917-19	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS04NS	160-24917-19	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS04NS	160-24917-19	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS04NS	160-24917-19	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP017SS04NS	160-24917-19	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS04NS	160-24917-19	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP018SS03NS	160-24917-25	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP018SS03NS	160-24917-25	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP018SS03NS	160-24917-25	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS03NS	160-24917-25	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP018SS03NS	160-24917-25	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS03NS	160-24917-25	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	12-01-0	160-24955-22	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	12-02-1	160-24955-15	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	12-03-4	160-24955-5	N	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP018SS04NS	160-24917-26	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP018SS04NS	160-24917-26	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP018SS04NS	160-24917-26	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS04NS	160-24917-26	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP018SS04NS	160-24917-26	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS04NS	160-24917-26	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	12-02-1 DUP	160-24955-8	FD	Fill_Geo-21	EPA 901.1	Stage 2B
04-Oct-2017	SHAD041DP017SS05NS	160-24917-20	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS05NS	160-24917-20	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS05NS	160-24917-20	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS05NS	160-24917-20	N	5035	8260C	Stage 2B



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP017SS05NS	160-24917-20	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS05NS	160-24917-20	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP017SS05NSMS	160-24917-20MS	MS	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS05NSMSD	160-24917-20MSD	MSD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS05NS	160-24917-27	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP018SS05NS	160-24917-27	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP018SS05NS	160-24917-27	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS05NS	160-24917-27	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP018SS05NS	160-24917-27	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS05NS	160-24917-27	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP012SS02NS	160-24917-30	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP012SS02NS	160-24917-30	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP012SS02NS	160-24917-30	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP012SS02NS	160-24917-30	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP012SS02NS	160-24917-30	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP012SS02NS	160-24917-30	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP012SS02NSMS	160-24917-30MS	MS	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP012SS02NSMSD	160-24917-30MSD	MSD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP012SS02DS	160-24917-1	FD	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP012SS02DS	160-24917-1	FD	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP012SS02DS	160-24917-1	FD	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP012SS02DS	160-24917-1	FD	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP012SS02DS	160-24917-1	FD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP012SS02DS	160-24917-1	FD	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP012SS02DSMS	160-24917-1MS	MS	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP012SS02DSMS	160-24917-1MS	MS	3550C	8270D SIM	Stage 2B



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP012SS02DSMSD	160-24917-1MSD	MSD	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP012SS02DSMSD	160-24917-1MSD	MSD	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS06NS	160-24917-28	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP018SS06NS	160-24917-28	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP018SS06NS	160-24917-28	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP018SS06NS	160-24917-28	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP018SS06NS	160-24917-28	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP018SS06NS	160-24917-28	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP017SS06NS	160-24917-21	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS06NS	160-24917-21	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS06NS	160-24917-21	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS06NS	160-24917-21	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP017SS06NS	160-24917-21	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS06NS	160-24917-21	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP017SS06NSMS	160-24917-21MS	MS	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS06NSMSD	160-24917-21MSD	MSD	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP012SS01NS	160-24917-29	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP012SS01NS	160-24917-29	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP012SS01NS	160-24917-29	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP012SS01NS	160-24917-29	N	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP012SS01NS	160-24917-29	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP012SS01NS	160-24917-29	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP012SS03NS	160-24917-2	N	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP012SS03NS	160-24917-2	N	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP012SS03NS	160-24917-2	N	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP012SS03NS	160-24917-2	N	5035	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Oct-2017	SHAD041DP012SS03NS	160-24917-2	N	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP012SS03NS	160-24917-2	N	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP017SS06DS	160-24917-22	FD	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP017SS06DS	160-24917-22	FD	3550C	8082A	Stage 2B
04-Oct-2017	SHAD041DP017SS06DS	160-24917-22	FD	3550C	8270D SIM	Stage 2B
04-Oct-2017	SHAD041DP017SS06DS	160-24917-22	FD	5035	8260C	Stage 2B
04-Oct-2017	SHAD041DP017SS06DS	160-24917-22	FD	8290	8290A	Stage 2B
04-Oct-2017	SHAD041DP017SS06DS	160-24917-22	FD	Gen Prep	7196A	Stage 2B
04-Oct-2017	SHAD041DP012SS03NSMS	160-24917-2MS	MS	3050B	6010C	Stage 2B
04-Oct-2017	SHAD041DP012SS03NSMSD	160-24917-2MSD	MSD	3050B	6010C	Stage 2B
05-Oct-2017	12-4-9	160-24952-21	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	12-4-9DUP	160-24952-21DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	12-5-11	160-24952-18	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	12-6-14	160-24952-19	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP012SS04NS	160-24917-3	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP012SS04NS	160-24917-3	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP012SS04NS	160-24917-3	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP012SS04NS	160-24917-3	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP012SS04NS	160-24917-3	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP012SS04NS	160-24917-3	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	4-01-0	160-24952-23	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	4-02-2	160-24952-22	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP012SS05NS	160-24917-4	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP012SS05NS	160-24917-4	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP012SS05NS	160-24917-4	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP012SS05NS	160-24917-4	N	5035	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP012SS05NS	160-24917-4	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP012SS05NS	160-24917-4	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP012SS06NS	160-24917-5	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP012SS06NS	160-24917-5	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP012SS06NS	160-24917-5	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP012SS06NS	160-24917-5	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP012SS06NS	160-24917-5	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP012SS06NS	160-24917-5	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP004SS01NS	160-24917-6	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS01NS	160-24917-6	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS01NS	160-24917-6	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS01NS	160-24917-6	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP004SS01NS	160-24917-6	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS01NS	160-24917-6	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP004SS02NS	160-24917-7	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS02NS	160-24917-7	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS02NS	160-24917-7	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS02NS	160-24917-7	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP004SS02NS	160-24917-7	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS02NS	160-24917-7	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP004SS02DS	160-24917-8	FD	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS02DS	160-24917-8	FD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS02DS	160-24917-8	FD	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS02DS	160-24917-8	FD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP004SS02DS	160-24917-8	FD	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS02DS	160-24917-8	FD	Gen Prep	7196A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	4-3-5	160-24952-20	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	4-4-9	160-24952-17	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP004SS03NS	160-24917-9	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS03NS	160-24917-9	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS03NS	160-24917-9	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS03NS	160-24917-9	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP004SS03NS	160-24917-9	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS03NS	160-24917-9	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP004SS04NS	160-24917-10	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS04NS	160-24917-10	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS04NS	160-24917-10	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS04NS	160-24917-10	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP004SS04NS	160-24917-10	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS04NS	160-24917-10	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	4-05-12	160-24952-15	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	4-06-14	160-24952-16	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP004SS06NS	160-24917-12	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS06NS	160-24917-12	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS06NS	160-24917-12	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS06NS	160-24917-12	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP004SS06NS	160-24917-12	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS06NS	160-24917-12	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP004SS05NS	160-24917-11	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP004SS05NS	160-24917-11	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP004SS05NS	160-24917-11	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP004SS05NS	160-24917-11	N	5035	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP004SS05NS	160-24917-11	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP004SS05NS	160-24917-11	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	8-01-0	160-24952-14	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	8-02-2	160-24952-12	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	8-03-4	160-24952-13	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP008SS02NS	160-24917-15	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS02NS	160-24917-15	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS02NS	160-24917-15	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP008SS02NS	160-24917-15	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS02NS	160-24917-15	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP008SS02NS	160-24917-15	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP008SS03NS	160-24925-1	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS03NS	160-24925-1	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS03NS	160-24925-1	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP008SS03NS	160-24925-1	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS03NS	160-24925-1	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP008SS01NS	160-24917-13	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS01NS	160-24917-13	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS01NS	160-24917-13	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP008SS01NS	160-24917-13	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS01NS	160-24917-13	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP008SS01NS	160-24917-13	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	8-04-7	160-24952-11	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP008SS01DS	160-24917-14	FD	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS01DS	160-24917-14	FD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS01DS	160-24917-14	FD	3550C	8270D SIM	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP008SS01DS	160-24917-14	FD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS01DS	160-24917-14	FD	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP008SS01DS	160-24917-14	FD	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP008SS04NS	160-24925-2	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS04NS	160-24925-2	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS04NS	160-24925-2	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP008SS04NS	160-24925-2	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS04NS	160-24925-2	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	8-05-11	160-24952-9	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	8-06-14	160-24952-10	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	10-01-0	160-24952-8	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	10-02-2	160-24952-7	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	10-03-4	160-24951-1	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP008SS05NS	160-24925-3	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS05NS	160-24925-3	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS05NS	160-24925-3	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP008SS05NS	160-24925-3	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS05NS	160-24925-3	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP008SS06NS	160-24925-4	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP008SS06NS	160-24925-4	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP008SS06NS	160-24925-4	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP008SS06NS	160-24925-4	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP008SS06NS	160-24925-4	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	10-04-8	160-24951-3	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	10-02-2 DUP	160-24952-1DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	10-05-10	160-24952-6	N	Fill_Geo-21	EPA 901.1	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	10-06-14	160-24951-2	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	15-01-0	160-24952-3	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP010SS01NS	160-24925-5	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS01NS	160-24925-5	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS01NS	160-24925-5	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS01NS	160-24925-5	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS01NS	160-24925-5	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	15-02-1	160-24951-11	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	15-02-1DUP	160-24951-11DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	15-03-4	160-24951-7	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP010SS02NS	160-24925-6	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS02NS	160-24925-6	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS02NS	160-24925-6	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS02NS	160-24925-6	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS02NS	160-24925-6	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	15-04-8	160-24952-4	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP010SS02DS	160-24925-7	FD	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS02DS	160-24925-7	FD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS02DS	160-24925-7	FD	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS02DS	160-24925-7	FD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS02DS	160-24925-7	FD	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP010SS03NS	160-24925-8	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS03NS	160-24925-8	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS03NS	160-24925-8	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS03NS	160-24925-8	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS03NS	160-24925-8	N	Gen Prep	7196A	Stage 2B



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	15-05-13	160-24952-2	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP010SS04NS	160-24925-9	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS04NS	160-24925-9	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS04NS	160-24925-9	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS04NS	160-24925-9	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS04NS	160-24925-9	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	15-06-14	160-24952-5	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP010SS05NS	160-24925-10	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS05NS	160-24925-10	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS05NS	160-24925-10	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS05NS	160-24925-10	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS05NS	160-24925-10	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP010SS06NS	160-24925-11	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP010SS06NS	160-24925-11	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP010SS06NS	160-24925-11	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP010SS06NS	160-24925-11	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP010SS06NS	160-24925-11	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	13-01-0	160-24951-12	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP015SS01NS	160-24925-12	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS01NS	160-24925-12	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS01NS	160-24925-12	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS01NS	160-24925-12	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS01NS	160-24925-12	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	13-02-2	160-24951-9	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	13-02-2 DUP	160-24951-5	FD	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	13-03-5	160-24951-8	N	Fill_Geo-21	EPA 901.1	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	13-04-9	160-24951-6	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	13-05-12	160-24953-13	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP015SS02NS	160-24925-13	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS02NS	160-24925-13	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NS	160-24925-13	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS02NS	160-24925-13	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS02NS	160-24925-13	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMS	160-24925-13MS	MS	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMS	160-24925-13MS	MS	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMS	160-24925-13MS	MS	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMS	160-24925-13MS	MS	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMS	160-24925-13MS	MS	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSD	160-24925-13MSD	MSD	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSD	160-24925-13MSD	MSD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSD	160-24925-13MSD	MSD	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSD	160-24925-13MSD	MSD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSD	160-24925-13MSD	MSD	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSI	160-24925-13MSI	MS	Gen Prep	7196A	Stage 2B
05-Oct-2017	13-06-14	160-24953-12	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP015SS03NS	160-24925-14	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS03NS	160-24925-14	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS03NS	160-24925-14	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS03NS	160-24925-14	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS03NS	160-24925-14	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP015SS04NS	160-24925-15	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS04NS	160-24925-15	N	3550C	8082A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP015SS04NS	160-24925-15	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS04NS	160-24925-15	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS04NS	160-24925-15	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	26-01-0	160-24953-10	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP015SS05NS	160-24925-16	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS05NS	160-24925-16	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS05NS	160-24925-16	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS05NS	160-24925-16	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS05NS	160-24925-16	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	13-05-12 DUP	160-24953-11	FD	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP015SS06NS	160-24925-17	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP015SS06NS	160-24925-17	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP015SS06NS	160-24925-17	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP015SS06NS	160-24925-17	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP015SS06NS	160-24925-17	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	26-02-1	160-24953-8	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	26-03-4	160-24953-5	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	26-04-9	160-24953-2	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	26-05-11	160-24953-9	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	26-05-11 DUP	160-24953-7	FD	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	26-06-14	160-24953-6	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP013SS01NS	160-24924-13	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS01NS	160-24924-13	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS01NS	160-24924-13	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS01NS	160-24924-13	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS01NS	160-24924-13	N	Gen Prep	7196A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	3010A	6010C	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	3510C	8082A	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	3510C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	METHOD	7196A	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	METHOD	8260C	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NSDUP	160-24925-18DUP	DUP	METHOD	7196A	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NSMS	160-24925-18MS	MS	METHOD	7196A	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NSMS	160-24925-18MS	MS	METHOD	8260C	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NSMSD	160-24925-18MSD	MSD	METHOD	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS02NS	160-24924-14	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS02NS	160-24924-14	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS02NS	160-24924-14	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS02NS	160-24924-14	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS02NS	160-24924-14	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP013SS03NS	160-24924-15	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS03NS	160-24924-15	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS03NS	160-24924-15	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS03NS	160-24924-15	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS03NS	160-24924-15	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	22-02-1	160-24953-1	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	22-02-1DUP	160-24953-1DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP013SS04NS	160-24924-16	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS04NS	160-24924-16	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS04NS	160-24924-16	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS04NS	160-24924-16	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS04NS	160-24924-16	N	Gen Prep	7196A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	22-03-2	160-24951-4	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	22-03-2DUP	160-24951-4DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	22-04-5	160-24953-4	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	SHAD041DP013SS05NS	160-24924-17	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS05NS	160-24924-17	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS05NS	160-24924-17	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS05NS	160-24924-17	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS05NS	160-24924-17	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	TB-100517-1	160-24925-19	TB	METHOD	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS05DS	160-24924-18	FD	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS05DS	160-24924-18	FD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS05DS	160-24924-18	FD	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS05DS	160-24924-18	FD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS05DS	160-24924-18	FD	Gen Prep	7196A	Stage 2B
05-Oct-2017	TB-100517-2	160-24925-20	TB	METHOD	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS06NS	160-24924-19	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP013SS06NS	160-24924-19	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP013SS06NS	160-24924-19	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP013SS06NS	160-24924-19	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP013SS06NS	160-24924-19	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	TB-100517-3	160-24925-21	TB	METHOD	8260C	Stage 2B
05-Oct-2017	22-05-10	160-24953-3	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	TB-100517-4	160-24925-22	TB	METHOD	8260C	Stage 2B
05-Oct-2017	22-06-14	160-24951-13	N	Fill_Geo-21	EPA 901.1	Stage 2B
05-Oct-2017	TB-100517-5	160-24925-23	TB	METHOD	8260C	Stage 2B
05-Oct-2017	TB-100517-6	160-24925-24	TB	METHOD	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	TB-100517-7	160-24925-25	TB	METHOD	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS02NS	160-24924-1	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP026SS02NS	160-24924-1	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP026SS02NS	160-24924-1	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP026SS02NS	160-24924-1	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS02NS	160-24924-1	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP026SS03NS	160-24924-2	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP026SS03NS	160-24924-2	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP026SS03NS	160-24924-2	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP026SS03NS	160-24924-2	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS03NS	160-24924-2	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP026SS04NS	160-24924-3	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP026SS04NS	160-24924-3	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP026SS04NS	160-24924-3	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP026SS04NS	160-24924-3	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS04NS	160-24924-3	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP026SS05NS	160-24924-4	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP026SS05NS	160-24924-4	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP026SS05NS	160-24924-4	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP026SS05NS	160-24924-4	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS05NS	160-24924-4	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP026SS05DS	160-24924-5	FD	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP026SS05DS	160-24924-5	FD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP026SS05DS	160-24924-5	FD	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP026SS05DS	160-24924-5	FD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS05DS	160-24924-5	FD	Gen Prep	7196A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP026SS06NS	160-24924-6	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP026SS06NS	160-24924-6	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP026SS06NS	160-24924-6	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP026SS06NS	160-24924-6	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP026SS06NS	160-24924-6	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS01NS	160-24924-7	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS01NS	160-24924-7	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS01NS	160-24924-7	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS01NS	160-24924-7	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS01NS	160-24924-7	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS02NS	160-24924-8	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS02NS	160-24924-8	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS02NS	160-24924-8	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS02NS	160-24924-8	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS02NS	160-24924-8	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NS	160-24924-9	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS03NS	160-24924-9	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NS	160-24924-9	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS03NS	160-24924-9	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS03NS	160-24924-9	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMS	160-24924-9MS	MS	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMS	160-24924-9MS	MS	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMS	160-24924-9MS	MS	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMS	160-24924-9MS	MS	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMS	160-24924-9MS	MS	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMSD	160-24924-9MSD	MSD	3050B	6010C	Stage 2B



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP022SS03NSMSD	160-24924-9MSD	MSD	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMSD	160-24924-9MSD	MSD	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMSD	160-24924-9MSD	MSD	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMSD	160-24924-9MSD	MSD	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS03NSMSI	160-24924-9MSI	MS	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS04NS	160-24924-10	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS04NS	160-24924-10	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS04NS	160-24924-10	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS04NS	160-24924-10	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS04NS	160-24924-10	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS05NS	160-24924-11	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS05NS	160-24924-11	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS05NS	160-24924-11	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS05NS	160-24924-11	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS05NS	160-24924-11	N	Gen Prep	7196A	Stage 2B
05-Oct-2017	SHAD041DP022SS06NS	160-24924-12	N	3050B	6010C	Stage 2B
05-Oct-2017	SHAD041DP022SS06NS	160-24924-12	N	3550C	8082A	Stage 2B
05-Oct-2017	SHAD041DP022SS06NS	160-24924-12	N	3550C	8270D SIM	Stage 2B
05-Oct-2017	SHAD041DP022SS06NS	160-24924-12	N	5035	8260C	Stage 2B
05-Oct-2017	SHAD041DP022SS06NS	160-24924-12	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	27-01-0	160-24950-26	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	27-02-4	160-24950-27	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP027SS01NS	160-24922-1	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS01NS	160-24922-1	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS01NS	160-24922-1	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS01NS	160-24922-1	N	5035	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP027SS01NS	160-24922-1	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS01NS	160-24922-1	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP027SS01NSMS	160-24922-1MS	MS	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS01NSMS	160-24922-1MS	MS	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS01NSMSD	160-24922-1MSD	MSD	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS01NSMSD	160-24922-1MSD	MSD	3550C	8270D SIM	Stage 2B
06-Oct-2017	27-03-7	160-24950-25	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	27-04-9	160-24950-28	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP027SS02NS	160-24922-2	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS02NS	160-24922-2	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS02NS	160-24922-2	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS02NS	160-24922-2	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP027SS02NS	160-24922-2	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS02NS	160-24922-2	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	27-05-12	160-24950-23	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	27-06-14	160-24950-24	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP027SS03NS	160-24922-3	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS03NS	160-24922-3	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS03NS	160-24922-3	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS03NS	160-24922-3	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP027SS03NS	160-24922-3	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS03NS	160-24922-3	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	27-04-9 DUP	160-24950-22	FD	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP027SS04NS	160-24922-4	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS04NS	160-24922-4	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS04NS	160-24922-4	N	3550C	8270D SIM	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP027SS04NS	160-24922-4	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP027SS04NS	160-24922-4	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS04NS	160-24922-4	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP027SS04DS	160-24922-5	FD	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS04DS	160-24922-5	FD	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS04DS	160-24922-5	FD	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS04DS	160-24922-5	FD	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP027SS04DS	160-24922-5	FD	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS04DS	160-24922-5	FD	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP027SS06NS	160-24922-7	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS06NS	160-24922-7	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS06NS	160-24922-7	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS06NS	160-24922-7	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP027SS06NS	160-24922-7	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS06NS	160-24922-7	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP027SS06NSMS	160-24922-7MS	MS	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP027SS06NSMSD	160-24922-7MSD	MSD	Gen Prep	7196A	Stage 2B
06-Oct-2017	28-01-0	160-24950-20	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	28-02-1	160-24950-17	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP027SS05NS	160-24922-6	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP027SS05NS	160-24922-6	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP027SS05NS	160-24922-6	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP027SS05NS	160-24922-6	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP027SS05NS	160-24922-6	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP027SS05NS	160-24922-6	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	28-03-3	160-24950-18	N	Fill_Geo-21	EPA 901.1	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	28-04-5	160-24950-21	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP028SS01NS	160-24922-8	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS01NS	160-24922-8	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS01NS	160-24922-8	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS01NS	160-24922-8	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS01NS	160-24922-8	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS01NS	160-24922-8	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	28-05-12	160-24950-19	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	28-06-14	160-24950-15	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	28-06-14DUP	160-24950-15DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP028SS04NS	160-24922-11	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS04NS	160-24922-11	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS04NS	160-24922-11	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS04NS	160-24922-11	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS04NS	160-24922-11	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS04NS	160-24922-11	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP028SS04NSMS	160-24922-11MS	MS	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS04NSMSD	160-24922-11MSD	MSD	3050B	6010C	Stage 2B
06-Oct-2017	28-06-14 DUP	160-24950-16	FD	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP028SS03NS	160-24922-10	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS03NS	160-24922-10	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS03NS	160-24922-10	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS03NS	160-24922-10	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS03NS	160-24922-10	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS03NS	160-24922-10	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP028SS02NS	160-24922-9	N	3050B	6010C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP028SS02NS	160-24922-9	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS02NS	160-24922-9	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS02NS	160-24922-9	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS02NS	160-24922-9	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS02NS	160-24922-9	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP028SS05NS	160-24922-12	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS05NS	160-24922-12	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS05NS	160-24922-12	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS05NS	160-24922-12	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS05NS	160-24922-12	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS05NS	160-24922-12	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP028SS06NS	160-24922-13	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS06NS	160-24922-13	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS06NS	160-24922-13	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS06NS	160-24922-13	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS06NS	160-24922-13	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS06NS	160-24922-13	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP028SS06NSMS	160-24922-13MS	MS	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP028SS06NSMSD	160-24922-13MSD	MSD	8290	8290A	Stage 2B
06-Oct-2017	29-01-0	160-24950-14	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	29-02-3	160-24950-2	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP028SS06DS	160-24922-14	FD	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP028SS06DS	160-24922-14	FD	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP028SS06DS	160-24922-14	FD	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP028SS06DS	160-24922-14	FD	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP028SS06DS	160-24922-14	FD	8290	8290A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP028SS06DS	160-24922-14	FD	Gen Prep	7196A	Stage 2B
06-Oct-2017	29-03-4	160-24950-4	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	29-04-8	160-24950-3	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	29-01-0 DUP	160-24950-6	FD	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP029SS01NS	160-24922-16	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS01NS	160-24922-16	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS01NS	160-24922-16	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS01NS	160-24922-16	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP029SS01NS	160-24922-16	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS01NS	160-24922-16	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP029SS01NSMS	160-24922-16MS	MS	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS01NSMS	160-24922-16MS	MS	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS01NSMSD	160-24922-16MSD	MSD	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS01NSMSD	160-24922-16MSD	MSD	3550C	8270D SIM	Stage 2B
06-Oct-2017	29-05-13	160-24950-8	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP029SS01DS	160-24922-17	FD	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS01DS	160-24922-17	FD	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS01DS	160-24922-17	FD	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS01DS	160-24922-17	FD	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP029SS01DS	160-24922-17	FD	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS01DS	160-24922-17	FD	Gen Prep	7196A	Stage 2B
06-Oct-2017	29-06-14	160-24950-5	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP029SS02NS	160-24922-18	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS02NS	160-24922-18	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS02NS	160-24922-18	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS02NS	160-24922-18	N	5035	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP029SS02NS	160-24922-18	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS02NS	160-24922-18	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP029SS03NS	160-24922-19	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS03NS	160-24922-19	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS03NS	160-24922-19	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS03NS	160-24922-19	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP029SS03NS	160-24922-19	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS03NS	160-24922-19	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP029SS04NS	160-24922-20	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS04NS	160-24922-20	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS04NS	160-24922-20	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS04NS	160-24922-20	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP029SS04NS	160-24922-20	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS04NS	160-24922-20	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP029SS05NS	160-24922-21	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS05NS	160-24922-21	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS05NS	160-24922-21	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS05NS	160-24922-21	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP029SS05NS	160-24922-21	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS05NS	160-24922-21	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP029SS06NS	160-24922-22	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP029SS06NS	160-24922-22	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP029SS06NS	160-24922-22	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP029SS06NS	160-24922-22	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP029SS06NS	160-24922-22	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP029SS06NS	160-24922-22	N	Gen Prep	7196A	Stage 2B



## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	30-01-0	160-24950-1	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	30-01-0DUP	160-24950-1DUP	DUP	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	30-02-01	160-24950-10	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	30-03-4	160-24950-11	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	30-04-9	160-24950-12	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	30-04-9 DUP	160-24950-13	FD	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP030SS01NS	160-24922-23	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS01NS	160-24922-23	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS01NS	160-24922-23	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS01NS	160-24922-23	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP030SS01NS	160-24922-23	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS01NS	160-24922-23	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS02NS	160-24922-24	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS02NS	160-24922-24	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS02NS	160-24922-24	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS02NS	160-24922-24	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP030SS02NS	160-24922-24	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS02NS	160-24922-24	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	30-05-13	160-24950-9	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	30-06-14	160-24950-7	N	Fill_Geo-21	EPA 901.1	Stage 2B
06-Oct-2017	SHAD041DP030SS03NS	160-24922-25	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS03NS	160-24922-25	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS03NS	160-24922-25	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS03NS	160-24922-25	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP030SS03NS	160-24922-25	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS03NS	160-24922-25	N	Gen Prep	7196A	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP030SS04NS	160-24922-26	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS04NS	160-24922-26	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS04NS	160-24922-26	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS04NS	160-24922-26	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP030SS04NS	160-24922-26	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS04NS	160-24922-26	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS04NSMS	160-24922-26MS	MS	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS04NSMS	160-24922-26MS	MS	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS04NSMSD	160-24922-26MSD	MSD	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS04NSMSD	160-24922-26MSD	MSD	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS04DS	160-24922-27	FD	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS04DS	160-24922-27	FD	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS04DS	160-24922-27	FD	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS04DS	160-24922-27	FD	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP030SS04DS	160-24922-27	FD	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS04DS	160-24922-27	FD	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS05NS	160-24922-28	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS05NS	160-24922-28	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS05NS	160-24922-28	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS05NS	160-24922-28	N	5035	8260C	Stage 2B
06-Oct-2017	SHAD041DP030SS05NS	160-24922-28	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS05NS	160-24922-28	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS06NS	160-24922-29	N	3050B	6010C	Stage 2B
06-Oct-2017	SHAD041DP030SS06NS	160-24922-29	N	3550C	8082A	Stage 2B
06-Oct-2017	SHAD041DP030SS06NS	160-24922-29	N	3550C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041DP030SS06NS	160-24922-29	N	5035	8260C	Stage 2B

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Oct-2017	SHAD041DP030SS06NS	160-24922-29	N	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS06NS	160-24922-29	N	Gen Prep	7196A	Stage 2B
06-Oct-2017	SHAD041DP030SS06NSMS	160-24922-29MS	MS	8290	8290A	Stage 2B
06-Oct-2017	SHAD041DP030SS06NSMSD	160-24922-29MSD	MSD	8290	8290A	Stage 2B
06-Oct-2017	TB-100617-1	160-24922-30	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-7	160-24924-20	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-8	160-24924-21	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-9	160-24924-22	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-10	160-24924-23	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-2	160-24925-27	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-3	160-24925-28	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-4	160-24925-29	TB	METHOD	8260C	Stage 2B
06-Oct-2017	TB-100617-5	160-24925-30	TB	METHOD	8260C	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	3010A	6010C	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	3510C	8082A	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	3510C	8270D SIM	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	METHOD	7196A	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	METHOD	8260C	Stage 2B

## **Attachment 2**

### **Overall Data Qualification Summary**

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

10/4/2017 8:10:0

Sample ID: SHAD041DP002SS01NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	240	D J	3.5	LOD	4.7	LOQ	mg/Kg	J	Ms, ProfJudg
CHROMIUM	30	D J	3.5	LOD	4.7	LOQ	mg/Kg	J-	Ms

10/4/2017 9:30:0

Sample ID: SHAD041DP002SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.2	J D	3.9	LOD	5.3	LOQ	mg/Kg	J	RI

10/4/2017 10:50:

Sample ID: SHAD041DP006SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.5	J D	3.6	LOD	4.8	LOQ	mg/Kg	J	RI

10/4/2017 11:25:

Sample ID: SHAD041DP006SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.6	J D	4.3	LOD	5.7	LOQ	mg/Kg	J	RI

10/3/2017 3:00:0

Sample ID: SHAD041DP019SS01NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.8	J D	3.8	LOD	5.1	LOQ	mg/Kg	J	RI

10/3/2017 3:15:0

Sample ID: SHAD041DP019SS02NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.6	J D	4.1	LOD	5.4	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:51 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

10/3/2017 2:57:0

Sample ID: SHAD041DP019SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.7	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/3/2017 3:10:0

Sample ID: SHAD041DP019SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.8	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/3/2017 4:25:0

Sample ID: SHAD041DP020SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.0	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/3/2017 4:15:0

Sample ID: SHAD041DP020SS04DS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.4	J D	3.8	LOD	5.1	LOQ	mg/Kg	J	RI

10/3/2017 4:33:0

Sample ID: SHAD041DP020SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.0	J D	3.8	LOD	5.1	LOQ	mg/Kg	J	RI

10/3/2017 4:00:0

Sample ID: SHAD041DP024SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.0	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:51 PM

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-1

**Method Category: METALS**  
**Method: 6010C** **Matrix: SO**

10/3/2017 1:05:0

Sample ID: SHAD041DP024SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.8	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

10/3/2017 10:45:0

Sample ID: SHAD041DP0255S04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.9	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

10/3/2017 10:15:0

Sample ID: SHAD041DP025SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.4	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

**Method Category: METALS**  
**Method: 7196A** **Matrix: SO**

10/4/2017 8:10:0

Sample ID: SHAD041DP002SS01NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.87		0.20	LOD	0.39	LOQ	mg/Kg	J-	Ms

10/4/2017 9:50:0

Sample ID: SHAD041DP002SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.35	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/4/2017 9:30:0

Sample ID: SHAD041DP002SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.23	J	0.24	LOD	0.47	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/4/2017 11:20

Sample ID: SHAD041DP006SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.39	J	0.20	LOD	0.40	LOQ	mg/Kg	J	RI

10/4/2017 10:50

Sample ID: SHAD041DP006SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.26	J	0.22	LOD	0.43	LOQ	mg/Kg	J	RI

10/4/2017 11:25

Sample ID: SHAD041DP006SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.12	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI, Ms

10/4/2017 11:45

Sample ID: SHAD041DP006SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.24	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

10/3/2017 3:00:0

Sample ID: SHAD041DP019SS01NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.19	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

10/3/2017 3:15:0

Sample ID: SHAD041DP019SS02NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.19	J	0.21	LOD	0.43	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/3/2017 2:57:0

Sample ID: SHAD041DP019SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.22	J	0.25	LOD	0.49	LOQ	mg/Kg	J	RI

10/3/2017 3:10:0

Sample ID: SHAD041DP019SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.27	J	0.24	LOD	0.49	LOQ	mg/Kg	J	RI

10/3/2017 4:22:0

Sample ID: SHAD041DP020SS02NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.31	J	0.23	LOD	0.45	LOQ	mg/Kg	J	RI

10/3/2017 4:25:0

Sample ID: SHAD041DP020SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.27	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

10/3/2017 4:15:0

Sample ID: SHAD041DP020SS04DS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.14	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/3/2017 4:33:0

Sample ID: SHAD041DP020SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.18	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

ADR version 1.9.0.325

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/3/2017 12:55

**Sample ID:** SHAD041DP024SS01NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.34	J	0.21	LOD	0.43	LOQ	mg/Kg	J	RI

10/3/2017 12:50

**Sample ID:** SHAD041DP024SS02NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.20	J	0.23	LOD	0.47	LOQ	mg/Kg	J	RI

10/3/2017 1:00:0

**Sample ID:** SHAD041DP024SS03NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.27	J	0.25	LOD	0.49	LOQ	mg/Kg	J	RI

10/3/2017 1:05:0

**Sample ID:** SHAD041DP024SS04NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.26	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

10/3/2017 10:45

**Sample ID:** SHAD041DP025SS04NS      **Collected:** AM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.31	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

10/3/2017 10:15

**Sample ID:** SHAD041DP025SS02NS      **Collected:** AM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.15	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/1/2017 9:33:0

Sample ID: SHAD041DP002SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	0.95	J	3.5	LOD	7.0	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	2.3	J	3.5	LOD	7.0	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	2.5	J	3.5	LOD	7.0	LOQ	ug/Kg	J	RI
CHRYSENE	2.1	J	3.5	LOD	7.0	LOQ	ug/Kg	J	RI

10/1/2017 9:50:0

Sample ID: SHAD041DP002SS03NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	1.9	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI
FLUORANTHENE	1.8	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI
PYRENE	1.6	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI

10/1/2017 9:45:0

Sample ID: SHAD041DP002SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	1.0	J	3.8	LOD	7.5	LOQ	ug/Kg	J	RI
CHRYSENE	3.0	J	3.8	LOD	7.5	LOQ	ug/Kg	J	RI

10/1/2017 10:27:0

Sample ID: SHAD041DP006SS01NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	56	J D	34	LOD	66	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	41	J D	34	LOD	66	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	29	J D	34	LOD	66	LOQ	ug/Kg	J	RI
BENZO(K)FLUORANTHENE	20	J D	34	LOD	66	LOQ	ug/Kg	J	RI
CHRYSENE	64	J D	34	LOD	66	LOQ	ug/Kg	J	RI
FLUORANTHENE	39	J D	34	LOD	66	LOQ	ug/Kg	J	RI
PYRENE	36	J D	34	LOD	66	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/1/2017 11:20

Sample ID: SHAD041DP006SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZ(A)ANTHRACENE	16	J D	34	LOD	68	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	15	J D	34	LOD	68	LOQ	ug/Kg	J	RI

10/1/2017 11:45

Sample ID: SHAD041DP006SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	4.1	U Q	4.1	LOD	8.1	LOQ	ug/Kg	UJ	Is
BENZO(B)FLUORANTHENE	4.1	U Q	4.1	LOD	8.1	LOQ	ug/Kg	UJ	Is
BENZO(G,H,I)PERYLENE	4.1	U Q	4.1	LOD	8.1	LOQ	ug/Kg	UJ	Is
BENZO(K)FLUORANTHENE	4.1	U Q	4.1	LOD	8.1	LOQ	ug/Kg	UJ	Is
DIBENZO(A,H)ANTHRACENE	4.1	U Q	4.1	LOD	8.1	LOQ	ug/Kg	UJ	Is
INDENO(1,2,3-CD)PYRENE	4.1	U Q	4.1	LOD	8.1	LOQ	ug/Kg	UJ	Is

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/1/2017 8:10:0

Sample ID: SHAD041DP002SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
1,1,2,2-TETRACHLOROETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr, Is
1,1,2-TRICHLOROETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHENE	5.0	U Q J	5.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROBENZENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROPROPANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
1,4-DICHLOROBENZENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr, Is
BENZENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/11/2017 8:10:0

Sample ID: SHAD041DP002SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BROMODICHLOROMETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
BROMOFORM	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr, Is
CARBON TETRACHLORIDE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
CHLORODIBROMOMETHANE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
CHLOROFORM	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
CHLOROMETHANE	5.0	U Q J	5.0	LOD	10	LOQ	ug/Kg	UJ	Surr
CIS-1,2-DICHLOROETHENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
CIS-1,3-DICHLOROPROPENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
ETHYLBENZENE	0.81	Q J	1.0	LOD	5.0	LOQ	ug/Kg	J	RI, Ms, Ms, Surr
METHYLENE CHLORIDE	5.0	U Q J	5.0	LOD	10	LOQ	ug/Kg	UJ	Surr
TETRACHLOROETHENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
TOLUENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
TRANS-1,2-DICHLOROETHENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
TRANS-1,3-DICHLOROPROPENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
TRICHLOROETHENE	1.0	U Q J	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Surr
VINYL CHLORIDE	1.0	U Q J	1.0	LOD	10	LOQ	ug/Kg	UJ	Surr
Xylene (Total)	5.8	J Q	5.0	LOD	10	LOQ	ug/Kg	J	RI, Surr

10/11/2017 10:27

Sample ID: SHAD041DP006SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROENZENE	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROENZENE	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is
BROMOFORM	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	5.3		1.1	LOD	5.3	LOQ	ug/Kg	J+	Surr
Xylene (Total)	37		5.3	LOD	11	LOQ	ug/Kg	J+	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/11/2017 11:20

**Sample ID:** SHAD041DP006SS02NS      **Collected:** AM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
BROMOFORM	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
Xylene (Total)	0.99	J	5.0	LOD	10	LOQ	ug/Kg	J	RI, Surr

10/13/2017 3:15:0

**Sample ID:** SHAD041DP019SS02NS      **Collected:** PM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Xylene (Total)	0.91	J	4.6	LOD	9.3	LOQ	ug/Kg	J	RI

10/3/2017 4:09:0

**Sample ID:** SHAD041DP020SS01NS      **Collected:** PM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,1,2-TRICHLOROETHANE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
CHLORODIBROMOMETHANE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
TETRACHLOROETHENE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
TOLUENE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
TRANS-1,3-DICHLOROPROPENE	0.93	U Q	0.93	LOD	4.6	LOQ	ug/Kg	UJ	Is
Xylene (Total)	4.6	U Q	4.6	LOD	9.3	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/3/2017 4:25:0

Sample ID: SHAD041DP020SS03NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	5.0	J	6.0	LOD	12	LOQ	ug/Kg	J	RI

10/3/2017 11:00:0

Sample ID: SHAD041DP025SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
1,1,2-TRICHLOROETHANE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
CHLORODIBROMOMETHANE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
TETRACHLOROETHENE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
TOLUENE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
TRANS-1,3-DICHLOROPROPENE	0.98	U Q	0.98	LOD	4.9	LOQ	ug/Kg	UJ	Is
Xylene (Total)	4.9	U Q	4.9	LOD	9.8	LOQ	ug/Kg	UJ	Is

SDG: 160-24848-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

10/1/2017 8:10:0

Sample ID: SHAD041DP002SS01NS      Collected: AM      Analysis Type: DL2-BASE/NEUTRAL      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDD	7800	D J	7.8	EDL	51	MRL	pg/g	J+	Ms

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/1/2017 8:10:0  
**Sample ID:** SHAD041DP002SS01NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	300	J	4.1	EDL	5.1	MRL	pg/g	J+	Ms
1,2,3,4,7,8,9-HpCDF	16	J M	5.0	EDL	5.1	MRL	pg/g	J+	Ms

10/1/2017 9:33:0  
**Sample ID:** SHAD041DP002SS02NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	3.2	J M	1.1	EDL	5.2	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	2.5	J	0.19	EDL	5.2	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	4.4	J M	0.15	EDL	5.2	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	2.2	J M	0.49	EDL	5.2	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	4.4	J	0.50	EDL	5.2	MRL	pg/g	J	RI

10/1/2017 9:50:0  
**Sample ID:** SHAD041DP002SS03NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	3.2	J	0.18	EDL	5.7	MRL	pg/g	J	RI
1,2,3,4,7,8,9-HpCDF	2.0	J	0.23	EDL	5.7	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.49	J	0.068	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDF	0.52	J M	0.16	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.56	J	0.052	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.34	J	0.13	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.67	J M	0.052	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.22	J	0.093	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.29	J	0.055	EDL	5.7	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.31	J	0.15	EDL	5.7	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.29	J	0.056	EDL	5.7	MRL	pg/g	J	RI
OCDF	4.3	J	0.068	EDL	11	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/1/2017 9:50:0

**Sample ID:** SHAD041DP002SS03NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.28	J M	0.12	EDL	1.1	MRL	pg/g	J	RI

10/1/2017 9:45:0

**Sample ID:** SHAD041DP002SS04NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	0.92	J	0.25	EDL	5.7	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.60	J	0.073	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDF	1.4	J	0.16	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	1.4	J	0.056	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	1.0	J	0.13	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	1.2	J M	0.056	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.47	J M	0.093	EDL	5.7	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.67	J	0.15	EDL	5.7	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.61	J	0.095	EDL	5.7	MRL	pg/g	J	RI

10/1/2017 9:45:0

**Sample ID:** SHAD041DP002SS04NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.63	J M	0.13	EDL	1.1	MRL	pg/g	J	RI

10/1/2017 9:39:0

**Sample ID:** SHAD041DP002SS05NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	3.0	J	0.095	EDL	6.6	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.61	J	0.056	EDL	6.6	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.33	J	0.050	EDL	6.6	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDF	0.25	J	0.065	EDL	6.6	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.19	J	0.038	EDL	6.6	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.26	J	0.038	EDL	6.6	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/1/2017 9:39:0

**Sample ID:** SHAD041DP002SS05NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,4,6,7,8-HxCDF	0.10	J	0.059	EDL	6.6	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.10	J	0.042	EDL	6.6	MRL	pg/g	J	RI
OCDF	0.82	J	0.058	EDL	13	MRL	pg/g	J	RI

10/1/2017 9:30:0

**Sample ID:** SHAD041DP002SS06NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.47	J M	0.060	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,4,6,7,8-HpCDF	0.061	J M	0.046	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.23	J	0.039	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.045	J	0.030	EDL	6.0	MRL	pg/g	U	Mb
OCDD	3.2	J	0.065	EDL	12	MRL	pg/g	U	Mb
OCDF	0.25	J	0.037	EDL	12	MRL	pg/g	U	Mb

10/1/2017 10:27:

**Sample ID:** SHAD041DP006SS01NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	5.0	J M	2.7	EDL	5.1	MRL	pg/g	J	RI
OCDF	260		0.93	EDL	10	MRL	pg/g	J+	Is

10/1/2017 11:20:

**Sample ID:** SHAD041DP006SS02NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	1.6	J	0.42	EDL	5.2	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDF	2.5	J M	0.71	EDL	5.2	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	3.2	J M	0.58	EDL	5.2	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	1.8	J	0.60	EDL	5.2	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	1.4	J	0.65	EDL	5.2	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.37	J M	0.32	EDL	1.0	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/1/2017 11:20

**Sample ID:** SHAD041DP006SS02NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code

10/1/2017 11:20

**Sample ID:** SHAD041DP006SS02NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.47	J M	0.31	EDL	1.0	MRL	pg/g	J	RI

10/1/2017 10:50

**Sample ID:** SHAD041DP006SS03NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.5	J M	0.25	EDL	5.5	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.59	J	0.18	EDL	5.5	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.25	J	0.11	EDL	5.5	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.63	J	0.087	EDL	5.5	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.65	J M	0.086	EDL	5.5	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.26	J	0.098	EDL	5.5	MRL	pg/g	J	RI
OCDF	2.3	J	0.24	EDL	11	MRL	pg/g	J	RI

10/1/2017 11:25

**Sample ID:** SHAD041DP006SS04NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.86	J M	0.10	EDL	6.0	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.20	J M	0.068	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,4,7,8,9-HpCDF	0.25	J	0.084	EDL	6.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.26	J M	0.059	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDF	0.072	J	0.054	EDL	6.0	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.13	J M	0.045	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.23	J	0.045	EDL	6.0	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.13	J	0.054	EDL	6.0	MRL	pg/g	U	Mb
2,3,4,6,7,8-HxCDF	0.10	J M	0.050	EDL	6.0	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/4/2017 11:25

Sample ID: SHAD041DP006SS04NS

Collected: AM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDD	7.1	J	0.092	EDL	12	MRL	pg/g	J	RI
OCDF	1.6	J	0.080	EDL	12	MRL	pg/g	J	RI

10/4/2017 11:35

Sample ID: SHAD041DP006SS05NS

Collected: AM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.2	J M	0.066	EDL	6.7	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.18	J M	0.035	EDL	6.7	MRL	pg/g	U	Mb
1,2,3,4,7,8,9-HpCDF	0.17	J	0.043	EDL	6.7	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.26	J M	0.061	EDL	6.7	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.17	J M	0.047	EDL	6.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.071	J	0.037	EDL	6.7	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.37	J M	0.046	EDL	6.7	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.12	J	0.045	EDL	6.7	MRL	pg/g	U	Mb
2,3,4,6,7,8-HxCDF	0.10	J	0.041	EDL	6.7	MRL	pg/g	J	RI
OCDF	0.48	J	0.054	EDL	13	MRL	pg/g	U	Mb

10/4/2017 11:45

Sample ID: SHAD041DP006SS06NS

Collected: AM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.61	J	0.046	EDL	6.1	MRL	pg/g	U	Mb
1,2,3,4,6,7,8-HpCDF	0.11	J	0.032	EDL	6.1	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.30	J	0.039	EDL	6.1	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.098	J	0.030	EDL	6.1	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDF	0.048	J M	0.030	EDL	6.1	MRL	pg/g	U	Mb
OCDD	3.0	J	0.053	EDL	12	MRL	pg/g	U	Mb
OCDF	0.33	J M	0.054	EDL	12	MRL	pg/g	U	Mb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

10/3/2017 3:00:0

Sample ID: SHAD041DP019SS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.0	J	0.080	EDL	5.3	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.63	J	0.049	EDL	5.3	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.20	J M	0.055	EDL	5.3	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.58	J	0.042	EDL	5.3	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.13	J	0.058	EDL	5.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.65	J	0.042	EDL	5.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.15	J M	0.070	EDL	5.3	MRL	pg/g	J	RI
OCDD	8.4	J	0.094	EDL	11	MRL	pg/g	J	RI
OCDF	0.66	J	0.081	EDL	11	MRL	pg/g	J	RI

10/3/2017 3:15:0

Sample ID: SHAD041DP019SS02NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J	0.055	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.41	J	0.030	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.16	J M	0.041	EDL	5.8	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.14	J	0.032	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.19	J M	0.032	EDL	5.8	MRL	pg/g	U	Mb
OCDD	7.8	J	0.057	EDL	12	MRL	pg/g	J	RI
OCDF	0.48	J	0.047	EDL	12	MRL	pg/g	J	RI

10/3/2017 2:57:0

Sample ID: SHAD041DP019SS03NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.47	J	0.12	EDL	6.3	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.17	J M	0.092	EDL	6.3	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.096	J M	0.071	EDL	6.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.11	J M	0.070	EDL	6.3	MRL	pg/g	U	Mb
OCDD	3.2	J	0.11	EDL	13	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/3/2017 2:57:0

**Sample ID:** SHAD041DP019SS03NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
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10/3/2017 3:10:0

**Sample ID:** SHAD041DP019SS04NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.94	J	0.15	EDL	6.1	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.18	J M	0.11	EDL	6.1	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.17	J M	0.088	EDL	6.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.10	J M	0.087	EDL	6.1	MRL	pg/g	U	Mb
OCDD	4.4	J	0.12	EDL	12	MRL	pg/g	J	RI

10/3/2017 4:09:0

**Sample ID:** SHAD041DP020SS01NS      **Collected:** PM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	1.4	J M	1.3	EDL	5.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	2.6	J	0.75	EDL	5.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDF	4.6	J M	0.73	EDL	5.0	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	3.6	J	0.55	EDL	5.0	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	2.0	J M	0.59	EDL	5.0	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	3.9	J	0.67	EDL	5.0	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	3.4	J	0.60	EDL	5.0	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.88	J M	0.51	EDL	1.0	MRL	pg/g	J	RI

10/3/2017 4:22:0

**Sample ID:** SHAD041DP020SS02NS      **Collected:** PM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	0.75	J	0.16	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDF	1.5	J	0.24	EDL	5.8	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	3.4	J	0.12	EDL	5.8	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.87	J	0.19	EDL	5.8	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

10/3/2017 4:22:0

Sample ID: SHAD041DP020SS02NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8,9-HxCDD	3.1	J	0.12	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.64	J	0.19	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.45	J M	0.11	EDL	5.8	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.69	J	0.22	EDL	5.8	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.78	J	0.11	EDL	5.8	MRL	pg/g	J	RI
OCDF	7.8	J	0.19	EDL	12	MRL	pg/g	J	RI

10/3/2017 4:22:0

Sample ID: SHAD041DP020SS02NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.86	J M	0.35	EDL	1.2	MRL	pg/g	J	RI

10/3/2017 4:25:0

Sample ID: SHAD041DP020SS03NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.63	J	0.12	EDL	6.2	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.21	J M	0.070	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.13	J M	0.053	EDL	6.2	MRL	pg/g	U	Mb
OCDD	4.7	J	0.11	EDL	12	MRL	pg/g	J	RI

10/3/2017 4:15:0

Sample ID: SHAD041DP020SS04DS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.54	J	0.069	EDL	5.7	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.24	J	0.048	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.11	J M	0.060	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDF	0.12	J M	0.057	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.059	J M	0.046	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.054	J M	0.047	EDL	5.7	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/3/2017 4:15:0

**Sample ID:** SHAD041DP020SS04DS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8,9-HxCDD	0.095	J M	0.046	EDL	5.7	MRL	pg/g	U	Mb
OCDD	2.3	J	0.080	EDL	11	MRL	pg/g	U	Mb
OCDF	0.42	J M	0.10	EDL	11	MRL	pg/g	J	RI

10/3/2017 4:33:0

**Sample ID:** SHAD041DP020SS04NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.38	J M	0.072	EDL	5.6	MRL	pg/g	U	Mb
1,2,3,4,6,7,8-HpCDF	0.21	J	0.051	EDL	5.6	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.17	J M	0.063	EDL	5.6	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.077	J M	0.048	EDL	5.6	MRL	pg/g	J	RI
OCDD	2.0	J	0.071	EDL	11	MRL	pg/g	U	Mb
OCDF	0.33	J	0.13	EDL	11	MRL	pg/g	J	RI

10/3/2017 12:55:

**Sample ID:** SHAD041DP024SS01NS      **Collected:** PM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	3.8	J	0.083	EDL	5.4	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.29	J M	0.090	EDL	5.4	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	1.4	J	0.069	EDL	5.4	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.44	J	0.11	EDL	5.4	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.78	J	0.068	EDL	5.4	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.18	J	0.13	EDL	5.4	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.20	J	0.10	EDL	5.4	MRL	pg/g	J	RI
OCDF	3.1	J	0.094	EDL	11	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24848-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

10/3/2017 12:50:0

**Sample ID:** SHAD041DP024SS02NS **Collected:** PM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	2.4	J	0.066	EDL	5.9	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.26	J M	0.087	EDL	5.9	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	1.3	J	0.067	EDL	5.9	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	1.2	J	0.066	EDL	5.9	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.16	J	0.086	EDL	5.9	MRL	pg/g	J	RI
OCDF	2.3	J	0.088	EDL	12	MRL	pg/g	J	RI

10/3/2017 1:00:0

**Sample ID:** SHAD041DP024SS03NS **Collected:** PM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.89	J	0.070	EDL	6.2	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.20	J	0.037	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.20	J	0.063	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.15	J	0.049	EDL	6.2	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.14	J M	0.072	EDL	6.2	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.24	J	0.048	EDL	6.2	MRL	pg/g	J	RI
OCDD	7.9	J	0.080	EDL	12	MRL	pg/g	J	RI
OCDF	0.24	J	0.081	EDL	12	MRL	pg/g	J	RI

10/3/2017 1:05:0

**Sample ID:** SHAD041DP024SS04NS **Collected:** PM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.72	J M	0.066	EDL	6.0	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.58	J M	0.048	EDL	6.0	MRL	pg/g	J	RI
1,2,3,4,7,8,9-HpCDF	0.17	J	0.059	EDL	6.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.23	J M	0.051	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDF	0.32	J M	0.051	EDL	6.0	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.056	J M	0.039	EDL	6.0	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.065	J M	0.042	EDL	6.0	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/3/2017 1:05:0

**Sample ID:** SHAD041DP024SS04NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8,9-HxCDD	0.11	J	0.039	EDL	6.0	MRL	pg/g	U	Mb
OCDD	3.9	J	0.060	EDL	12	MRL	pg/g	J	RI
OCDF	1.1	J	0.086	EDL	12	MRL	pg/g	J	RI

10/3/2017 10:45

**Sample ID:** SHAD041DP0255S04NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.52	J	0.096	EDL	5.8	MRL	pg/g	U	Mb
OCDD	4.3	J	0.086	EDL	12	MRL	pg/g	J	RI

10/3/2017 11:00:

**Sample ID:** SHAD041DP025SS01NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	2.2	J	1.4	EDL	5.2	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	3.8	J	0.64	EDL	5.2	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	4.1	J	0.92	EDL	5.2	MRL	pg/g	J	RI

10/3/2017 10:15

**Sample ID:** SHAD041DP025SS02NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.79	J M	0.24	EDL	5.9	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.28	J M	0.12	EDL	5.9	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.29	J	0.093	EDL	5.9	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.27	J	0.10	EDL	5.9	MRL	pg/g	J	RI
OCDD	6.5	J	0.26	EDL	12	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24848-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/3/2017 10:25

**Sample ID:** SHAD041DP025SS03NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	2.4	J M	0.11	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.40	J M	0.13	EDL	5.8	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	1.5	J	0.098	EDL	5.8	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.33	J	0.11	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	1.7	J	0.097	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.23	J	0.13	EDL	5.8	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.14	J	0.12	EDL	5.8	MRL	pg/g	J	RI
OCDF	3.3	J	0.16	EDL	12	MRL	pg/g	J	RI

SDG: 160-24851-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

10/4/2017 1:35:0

**Sample ID:** SHAD041DP011SS03NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	50	D J	4.1	LOD	5.4	LOQ	mg/Kg	J+	Ms
CHROMIUM	15	D J	4.1	LOD	5.4	LOQ	mg/Kg	J-	Ms

10/4/2017 1:58:0

**Sample ID:** SHAD041DP011SS04NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.2	J D	3.7	LOD	4.9	LOQ	mg/Kg	J	RI

10/4/2017 2:11:0

**Sample ID:** SHAD041DP011SS06NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.3	J D	4.4	LOD	5.9	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24851-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/4/2017 1:30:00

**Sample ID:** SHAD041DP011SS02NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.29	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

10/4/2017 1:35:00

**Sample ID:** SHAD041DP011SS03NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.44	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI, Ms

10/4/2017 1:58:00

**Sample ID:** SHAD041DP011SS04NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.25	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/4/2017 2:11:00

**Sample ID:** SHAD041DP011SS06NS      **Collected:** PM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.27	J	0.24	LOD	0.47	LOQ	mg/Kg	J	RI

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/4/2017 2:40:00

**Sample ID:** SHAD041EQ001WS01NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
ACENAPHTHENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
ACENAPHTHYLENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
ANTHRACENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZ(A)ANTHRACENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24851-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/1/2017 2:40:0

Sample ID: SHAD041EQ001WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
CHRYSENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
DIBENZO(A,H)ANTHRACENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
FLUORANTHENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
FLUORENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
NAPHTHALENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
PHENANTHRENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
PYRENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr

10/1/2017 2:50:0

Sample ID: SHAD041EQ002WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
ACENAPHTHENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
ACENAPHTHYLENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
ANTHRACENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZ(A)ANTHRACENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(A)PYRENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
CHRYSENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
DIBENZO(A,H)ANTHRACENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24851-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

Sample ID: SHAD041EQ002WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
FLUORANTHENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
FLUORENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
NAPHTHALENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
PHENANTHRENE	0.20	U	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr
PYRENE	0.20	U Q	0.20	LOD	0.40	LOQ	ug/L	UJ	Surr

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

Sample ID: SHAD041DP011SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
1,1,2,2-TETRACHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
1,1,2-TRICHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
1,1-DICHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHENE	4.9	U Q	4.9	LOD	4.9	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROETHANE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROPROPANE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
1,4-DICHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
BENZENE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
BROMODICHLOROMETHANE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
BROMOFORM	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
CARBON TETRACHLORIDE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
CHLORODIBROMOMETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
CHLOROFORM	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
CHLOROMETHANE	4.9	U Q	4.9	LOD	9.9	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24851-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/1/2017 1-16-0

Sample ID: SHAD041DP011SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CIS-1,2-DICHLOROETHENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
CIS-1,3-DICHLOROPROPENE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
ETHYLBENZENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
METHYLENE CHLORIDE	4.9	U Q	4.9	LOD	9.9	LOQ	ug/Kg	UJ	Surr
TETRACHLOROETHENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
TOLUENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
TRANS-1,2-DICHLOROETHENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
TRANS-1,3-DICHLOROPROPENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr, Is
TRICHLOROETHENE	0.99	U	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Surr
VINYL CHLORIDE	0.99	U Q	0.99	LOD	9.9	LOQ	ug/Kg	UJ	Surr
Xylene (Total)	4.9	U Q	4.9	LOD	9.9	LOQ	ug/Kg	UJ	Surr, Is

10/1/2017 1-35-0

Sample ID: SHAD041DP011SS03NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2-TRICHLOROETHANE	1.1	U J	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Ms
1,2-DICHLOROBENZENE	1.1	U J	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Ms
CIS-1,3-DICHLOROPROPENE	1.1	U J	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Ms

SDG: 160-24851-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** AQ

10/1/2017 2-40-0

Sample ID: SHAD041EQ001WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	3.2	J	0.52	EDL	47	MRL	pg/L	U	Mb
1,2,3,4,6,7,8-HpCDF	2.1	J	0.60	EDL	47	MRL	pg/L	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24851-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** AQ

10/11/2017 2:40:00

Sample ID: SHAD041EQ001WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	2.1	J	0.70	EDL	47	MRL	pg/L	J	RI
1,2,3,4,7,8-HxCDD	4.0	J	0.44	EDL	47	MRL	pg/L	U	Mb
1,2,3,4,7,8-HxCDF	1.8	J	0.51	EDL	47	MRL	pg/L	J	RI
1,2,3,6,7,8-HxCDD	1.5	J	0.41	EDL	47	MRL	pg/L	J	RI
1,2,3,6,7,8-HxCDF	1.6	J	0.47	EDL	47	MRL	pg/L	J	RI
1,2,3,7,8,9-HxCDD	2.8	J	0.36	EDL	47	MRL	pg/L	U	Mb
1,2,3,7,8,9-HxCDF	2.8	J	0.52	EDL	47	MRL	pg/L	J	RI
1,2,3,7,8-PeCDD	2.1	J	0.36	EDL	47	MRL	pg/L	J	RI
1,2,3,7,8-PeCDF	2.0	J	0.31	EDL	47	MRL	pg/L	J	RI
2,3,4,6,7,8-HxCDF	1.9	J	0.50	EDL	47	MRL	pg/L	U	Mb
2,3,4,7,8-PeCDF	2.0	J	0.31	EDL	47	MRL	pg/L	J	RI
OCDD	7.1	J Q	0.65	EDL	110	MRL	pg/L	UJ	Lcs, Mb
OCDF	4.7	J	0.48	EDL	95	MRL	pg/L	U	Mb

10/11/2017 2:50:00

Sample ID: SHAD041EQ002WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.9	J	0.42	EDL	47	MRL	pg/L	U	Mb
1,2,3,4,6,7,8-HpCDF	1.6	J	0.67	EDL	47	MRL	pg/L	J	RI
1,2,3,4,7,8-HxCDD	2.7	J	0.38	EDL	47	MRL	pg/L	U	Mb
1,2,3,4,7,8-HxCDF	0.82	J	0.41	EDL	47	MRL	pg/L	J	RI
1,2,3,6,7,8-HxCDF	0.84	J	0.38	EDL	47	MRL	pg/L	J	RI
1,2,3,7,8,9-HxCDD	1.2	J	0.31	EDL	47	MRL	pg/L	U	Mb
1,2,3,7,8,9-HxCDF	1.2	J	0.42	EDL	47	MRL	pg/L	U	Mb
1,2,3,7,8-PeCDD	0.73	J	0.36	EDL	47	MRL	pg/L	J	RI
1,2,3,7,8-PeCDF	0.91	J	0.30	EDL	47	MRL	pg/L	J	RI
2,3,4,6,7,8-HxCDF	0.67	J	0.40	EDL	47	MRL	pg/L	U	Mb
2,3,4,7,8-PeCDF	0.64	J	0.31	EDL	47	MRL	pg/L	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24851-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** AQ

10/4/2017 2:50:0

Sample ID: SHAD041EQ002WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDD	0.81	J	0.26	EDL	9.5	MRL	pg/L	J	RI
OCDD	4.1	J Q	0.57	EDL	110	MRL	pg/L	UJ	Lcs, Mb
OCDF	2.5	J	0.46	EDL	95	MRL	pg/L	U	Mb

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/4/2017 1:30:0

Sample ID: SHAD041DP011SS02NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	3.8	J	1.2	EDL	5.3	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	10		0.71	EDL	5.3	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDF	1.1	J M	0.53	EDL	5.3	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	1.8	J	0.54	EDL	5.3	MRL	pg/g	U	Eb
2,3,7,8-TCDD	2.0	M	0.58	EDL	1.1	MRL	pg/g	U	Eb

10/4/2017 1:35:0

Sample ID: SHAD041DP011SS03NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	380	J	3.0	EDL	6.0	MRL	pg/g	J	Ms, Ms
1,2,3,4,7,8-HxCDD	14		9.4	EDL	9.4	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	210	J M	7.8	EDL	7.8	MRL	pg/g	J	Ms, Ms, Ms
1,2,3,7,8-PeCDD	67	J	1.6	EDL	6.0	MRL	pg/g	J-	Ms
1,2,3,7,8-PeCDF	4.5	J M	2.1	EDL	6.0	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	8.1		2.2	EDL	6.0	MRL	pg/g	U	Eb
OCDD	630	J	0.83	EDL	12	MRL	pg/g	J	Ms, Ms, Ms
OCDF	210	J	0.30	EDL	12	MRL	pg/g	J-	Ms

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24851-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/1/2017 1:58:0

Sample ID: SHAD041DP011SS04NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.5	J	0.18	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	1.0	J	0.28	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.29	J	0.15	EDL	5.9	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.89	J	0.14	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.60	J	0.12	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDF	0.39	J	0.17	EDL	5.9	MRL	pg/g	U	Mb, Eb
1,2,3,7,8-PeCDD	0.22	J	0.063	EDL	5.9	MRL	pg/g	U	Mb, Eb
OCDD	4.3	J	0.13	EDL	12	MRL	pg/g	U	Eb
OCDF	0.61	J	0.081	EDL	12	MRL	pg/g	U	Mb, Eb

10/1/2017 2:18:0

Sample ID: SHAD041DP011SS05NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.9	J	0.19	EDL	6.6	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.30	J	0.16	EDL	6.6	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.40	J M	0.14	EDL	6.6	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.44	J M	0.13	EDL	6.6	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.56	J	0.11	EDL	6.6	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDF	0.36	J	0.15	EDL	6.6	MRL	pg/g	U	Mb, Eb
OCDD	12	J	0.16	EDL	13	MRL	pg/g	U	Eb
OCDF	0.56	J	0.11	EDL	13	MRL	pg/g	U	Mb, Eb

10/1/2017 2:11:0

Sample ID: SHAD041DP011SS06NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.78	J	0.14	EDL	6.4	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.24	J M	0.12	EDL	6.4	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.21	J	0.11	EDL	6.4	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.28	J M	0.096	EDL	6.4	MRL	pg/g	U	Eb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24851-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

Sample ID: SHAD041DP011SS06NS Collected: PM 10/12/2017 2:11:00 Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDD	2.5	J	0.15	EDL	13	MRL	pg/g	U	Mb, Eb
OCDF	0.43	J	0.13	EDL	13	MRL	pg/g	U	Mb, Eb

SDG: 160-24917-1

**Method Category:** METALS  
**Method:** 6010C **Matrix:** SO

Sample ID: SHAD041DP004SS02DS Collected: AM 10/5/2017 9:10:00 Analysis Type: RES/TOT Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.7	J D	3.6	LOD	4.8	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP004SS02NS Collected: AM 10/5/2017 8:57:00 Analysis Type: RES/TOT Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.4	J D	3.4	LOD	4.5	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP004SS03NS Collected: AM 10/5/2017 9:17:00 Analysis Type: RES/TOT Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.1	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP004SS04NS Collected: AM 10/5/2017 9:23:00 Analysis Type: RES/TOT Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.9	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

Sample ID: SHAD041DP004SS05NS		10/5/2017 9:40:0		Collected: AM		Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.8	J D	4.4	LOD	5.9	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP004SS06NS		10/5/2017 9:34:0		Collected: AM		Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.8	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP008SS02NS		10/5/2017 10:00:		Collected: AM		Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	1.8	J D	3.4	LOD	4.5	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP012SS02DS		10/4/2017 4:35:0		Collected: PM		Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	650	D	3.8	LOD	5.1	LOQ	mg/Kg	J	Fd

Sample ID: SHAD041DP012SS02NS		10/4/2017 4:30:0		Collected: PM		Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	1500	D	3.8	LOD	5.0	LOQ	mg/Kg	J	Fd

Sample ID: SHAD041DP012SS03NS		10/4/2017 4:50:0		Collected: PM		Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	21	J D	4.3	LOD	5.7	LOQ	mg/Kg	J+	Ms

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category: METALS**  
**Method: 6010C** **Matrix: SO**

10/5/2017 8:15:00

Sample ID: SHAD041DP012SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.2	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

10/5/2017 8:30:00

Sample ID: SHAD041DP012SS05NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.0	J D	4.3	LOD	5.7	LOQ	mg/Kg	J	RI

10/5/2017 8:35:00

Sample ID: SHAD041DP012SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.3	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/4/2017 4:00:00

Sample ID: SHAD041DP017SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.6	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/4/2017 4:13:00

Sample ID: SHAD041DP017SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.6	J D	4.3	LOD	5.8	LOQ	mg/Kg	J	RI

10/4/2017 4:25:00

Sample ID: SHAD041DP018SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.5	J D	4.1	LOD	5.4	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** METALS  
**Method:** 6010C **Matrix:** SO

10/4/2017 4:30:0

Sample ID: SHAD041DP018SS05NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.3	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

**Method Category:** METALS  
**Method:** 7196A **Matrix:** SO

10/5/2017 9:10:0

Sample ID: SHAD041DP004SS02DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.20	J	0.20	LOD	0.40	LOQ	mg/Kg	J	RI

10/5/2017 8:57:0

Sample ID: SHAD041DP004SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.20	J	0.20	LOD	0.41	LOQ	mg/Kg	J	RI

10/5/2017 9:17:0

Sample ID: SHAD041DP004SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.23	J	0.23	LOD	0.47	LOQ	mg/Kg	J	RI

10/5/2017 9:23:0

Sample ID: SHAD041DP004SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.26	J	0.21	LOD	0.43	LOQ	mg/Kg	J	RI

10/5/2017 9:40:0

Sample ID: SHAD041DP004SS05NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.46	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result  
 Project Name and Number: 05122.01 - SHAD-041  
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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/5/2017 9:34:0

Sample ID: SHAD041DP004SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.25	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/5/2017 10:15:0

Sample ID: SHAD041DP008SS01DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.33	J	0.20	LOD	0.41	LOQ	mg/Kg	J	RI

10/5/2017 10:08:0

Sample ID: SHAD041DP008SS01NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.31	J	0.20	LOD	0.39	LOQ	mg/Kg	J	RI

10/4/2017 4:35:0

Sample ID: SHAD041DP012SS02DS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.21	J	0.22	LOD	0.43	LOQ	mg/Kg	J	RI

10/4/2017 4:30:0

Sample ID: SHAD041DP012SS02NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.36	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

10/4/2017 4:50:0

Sample ID: SHAD041DP012SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.39	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

Sample ID: SHAD041DP012SS04NS		Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.28	J	0.23	LOD	0.45	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP012SS05NS		Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.41	J	0.25	LOD	0.49	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP012SS06NS		Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.12	J	0.23	LOD	0.47	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP017SS03NS		Collected: PM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.33	J	0.24	LOD	0.49	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP017SS06DS		Collected: PM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.30	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP017SS06NS		Collected: PM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.36	J	0.23	LOD	0.45	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/4/2017 4:16:0

Sample ID: SHAD041DP018SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.14	J	0.22	LOD	0.43	LOQ	mg/Kg	J	RI

10/4/2017 4:25:0

Sample ID: SHAD041DP018SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.30	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

10/4/2017 4:30:0

Sample ID: SHAD041DP018SS05NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.24	J	0.24	LOD	0.49	LOQ	mg/Kg	J	RI

10/4/2017 4:41:0

Sample ID: SHAD041DP018SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.27	J	0.21	LOD	0.43	LOQ	mg/Kg	J	RI

**Method Category:** SVOA

**Method:** 8082A

**Matrix:** SO

10/4/2017 4:02:0

Sample ID: SHAD041DP018SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PCB-1260	23	J	10	LOD	33	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 9:17:0

Sample ID: SHAD041DP004SS03NS

Collected: AM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
BENZO(A)PYRENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
CHRYSENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
FLUORANTHENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
FLUORENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr
PYRENE	3.9	U	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Surr

10/5/2017 9:23:0

Sample ID: SHAD041DP004SS04NS

Collected: AM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 9:23:0

Sample ID: SHAD041DP004SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
CHRYSENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
FLUORANTHENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
FLUORENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr
PYRENE	3.8	U	3.8	LOD	7.5	LOQ	ug/Kg	UJ	Surr

10/5/2017 9:20:0

Sample ID: SHAD041DP004SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
BENZO(A)PYRENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
CHRYSENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 9:40:0

Sample ID: SHAD041DP004SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
FLUORANTHENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
FLUORENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr
PYRENE	4.2	U	4.2	LOD	8.4	LOQ	ug/Kg	UJ	Surr

10/5/2017 9:34:0

Sample ID: SHAD041DP004SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
BENZO(A)PYRENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
CHRYSENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
FLUORANTHENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
FLUORENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr
PYRENE	3.9	U	3.9	LOD	7.6	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 8:15:0

Sample ID: SHAD041DP012SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
BENZO(A)PYRENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
CHRYSENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
FLUORANTHENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
FLUORENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr
PYRENE	4.0	U	4.0	LOD	7.9	LOQ	ug/Kg	UJ	Surr

10/5/2017 8:30:0

Sample ID: SHAD041DP012SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 8:30:0

Sample ID: SHAD041DP012SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
CHRYSENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
FLUORANTHENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
FLUORENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr
PYRENE	4.1	U	4.1	LOD	8.0	LOQ	ug/Kg	UJ	Surr

10/5/2017 8:35:0

Sample ID: SHAD041DP012SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
2-METHYLNAPHTHALENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
ACENAPHTHENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
ACENAPHTHYLENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
ANTHRACENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
BENZ(A)ANTHRACENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
BENZO(A)PYRENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
BENZO(B)FLUORANTHENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
BENZO(G,H,I)PERYLENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
BENZO(K)FLUORANTHENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
CHRYSENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
DIBENZO(A,H)ANTHRACENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 8:35:0

**Sample ID:** SHAD041DP012SS06NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
FLUORANTHENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
FLUORENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
INDENO(1,2,3-CD)PYRENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
NAPHTHALENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
PHENANTHRENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr
PYRENE	3.9	U	3.9	LOD	7.7	LOQ	ug/Kg	UJ	Surr

10/4/2017 3:30:0

**Sample ID:** SHAD041DP017SS02NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.73	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
ANTHRACENE	1.0	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZ(A)ANTHRACENE	1.5	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	4.1	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	4.6	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
CHRYSENE	4.0	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
FLUORANTHENE	1.9	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
NAPHTHALENE	2.6	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
PHENANTHRENE	5.3	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
PYRENE	2.5	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI

10/4/2017 4:10:0

**Sample ID:** SHAD041DP018SS02NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	1.6	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
ACENAPHTHYLENE	4.3	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
ANTHRACENE	4.2	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZ(A)ANTHRACENE	2.3	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZO(A)PYRENE	6.2	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/1/2017 4:10:0

**Sample ID:** SHAD041DP018SS02NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	5.3	J M	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	4.7	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZO(K)FLUORANTHENE	2.1	J M	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
CHRYSENE	4.8	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
FLUORANTHENE	4.2	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
FLUORENE	1.3	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
INDENO(1,2,3-CD)PYRENE	3.1	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
NAPHTHALENE	3.4	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
PHENANTHRENE	5.9	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
PYRENE	3.6	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/5/2017 8:52:0

**Sample ID:** SHAD041DP004SS01NS      **Collected:** AM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.99	U Q	0.99	LOD	5.0	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.99	U Q	0.99	LOD	5.0	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.99	U Q	0.99	LOD	5.0	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.99	U Q	0.99	LOD	5.0	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.94	J Q	0.99	LOD	5.0	LOQ	ug/Kg	J	RI, Surr
Xylene (Total)	6.5	J Q	5.0	LOD	9.9	LOQ	ug/Kg	J	RI, Surr

10/5/2017 9:40:0

**Sample ID:** SHAD041DP004SS05NS      **Collected:** AM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	2.3	J	4.9	LOD	9.7	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

ADR version 1.9.0.325

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/5/2017 9:34:0

Sample ID: SHAD041DP004SS06NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	2.2	J	4.0	LOD	7.9	LOQ	ug/Kg	J	RI

10/5/2017 10:15

Sample ID: SHAD041DP008SS01DS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
1,1,2,2-TETRACHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr, Is
1,1,2-TRICHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHANE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHENE	4.6	U	4.6	LOD	4.6	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROBENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROETHANE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROPROPANE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
1,4-DICHLOROBENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr, Is
BENZENE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
BROMODICHLOROMETHANE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
BROMOFORM	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr, Is
CARBON TETRACHLORIDE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
CHLORODIBROMOMETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
CHLOROFORM	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
CHLOROMETHANE	4.6	U	4.6	LOD	9.1	LOQ	ug/Kg	UJ	Surr
CIS-1,2-DICHLOROETHENE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
CIS-1,3-DICHLOROPROPENE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
ETHYLBENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
METHYLENE CHLORIDE	2.4	J	4.6	LOD	9.1	LOQ	ug/Kg	J	RI, Surr
TETRACHLOROETHENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
TOLUENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
TRANS-1,2-DICHLOROETHENE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/5/2017 10:15

Sample ID: SHAD041DP008SS01DS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRANS-1,3-DICHLOROPROPENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
TRICHLOROETHENE	0.91	U	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Surr
VINYL CHLORIDE	0.91	U	0.91	LOD	9.1	LOQ	ug/Kg	UJ	Surr
Xylene (Total)	4.6	U Q	4.6	LOD	9.1	LOQ	ug/Kg	UJ	Surr

10/5/2017 10:08

Sample ID: SHAD041DP008SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.47	J	0.88	LOD	4.4	LOQ	ug/Kg	J	RI
METHYLENE CHLORIDE	2.6	J	4.4	LOD	8.8	LOQ	ug/Kg	J	RI
Xylene (Total)	4.3	J	4.4	LOD	8.8	LOQ	ug/Kg	J	RI

10/4/2017 4:45:0

Sample ID: SHAD041DP012SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is

10/4/2017 4:35:0

Sample ID: SHAD041DP012SS02DS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/4/2017 4:35:0

Sample ID: SHAD041DP012SS02DS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,4-DICHLOROETHANE	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.99	U Q	0.99	LOD	4.9	LOQ	ug/Kg	UJ	Is

10/4/2017 3:20:0

Sample ID: SHAD041DP017SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	1.0	J	0.82	LOD	4.1	LOQ	ug/Kg	J	RI
Xylene (Total)	7.6	J	4.1	LOD	8.2	LOQ	ug/Kg	J	RI

10/4/2017 3:30:0

Sample ID: SHAD041DP017SS02NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is
BROMOFORM	1.0	U Q	1.0	LOD	5.0	LOQ	ug/Kg	UJ	Is

10/4/2017 4:50:0

Sample ID: SHAD041DP017SS06DS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	3.6	J	5.0	LOD	10	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/1/2017 4:44:0

Sample ID: SHAD041DP017SS06NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	3.9	J	4.8	LOD	9.5	LOQ	ug/Kg	J	RI

10/1/2017 4:02:0

Sample ID: SHAD041DP018SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.85	U Q	0.85	LOD	4.3	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROENZENE	0.85	U Q	0.85	LOD	4.3	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROENZENE	0.85	U Q	0.85	LOD	4.3	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.85	U Q	0.85	LOD	4.3	LOQ	ug/Kg	UJ	Is
METHYLENE CHLORIDE	4.5	J	4.3	LOD	8.5	LOQ	ug/Kg	J	RI, Surr

10/1/2017 4:10:0

Sample ID: SHAD041DP018SS02NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,1,2,2-TETRACHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,1,2-TRICHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,1-DICHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,1-DICHLOROETHENE	4.6	U Q	4.6	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROPROPANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
BENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
BROMODICHLOROMETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
CARBON TETRACHLORIDE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
CHLORODIBROMOMETHANE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
CHLOROFORM	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/11/2017 4:10:0

Sample ID: SHAD041DP018SS02NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHLOROMETHANE	4.6	U Q	4.6	LOD	9.1	LOQ	ug/Kg	UJ	Is
CIS-1,2-DICHLOROETHENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
CIS-1,3-DICHLOROPROPENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
METHYLENE CHLORIDE	4.6	U Q	4.6	LOD	9.1	LOQ	ug/Kg	UJ	Is
TETRACHLOROETHENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
TOLUENE	0.75	J Q	0.91	LOD	4.6	LOQ	ug/Kg	J	RI, Surr, Is
TRANS-1,2-DICHLOROETHENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
TRANS-1,3-DICHLOROPROPENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
TRICHLOROETHENE	0.91	U Q	0.91	LOD	4.6	LOQ	ug/Kg	UJ	Is
VINYL CHLORIDE	0.91	U Q	0.91	LOD	9.1	LOQ	ug/Kg	UJ	Is
Xylene (Total)	4.6	U Q	4.6	LOD	9.1	LOQ	ug/Kg	UJ	Is

10/11/2017 4:16:0

Sample ID: SHAD041DP018SS03NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	2.0	J	5.3	LOD	11	LOQ	ug/Kg	J	RI

SDG: 160-24917-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

10/15/2017 8:52:0

Sample ID: SHAD041DP004SS01NS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	2.7	J	1.1	EDL	5.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	4.4	J	0.31	EDL	5.0	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	3.7	J	0.16	EDL	5.0	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/5/2017 8:57:0

**Sample ID:** SHAD041DP004SS01NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PeCDF	3.2	J M	0.41	EDL	5.0	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.88	J	0.065	EDL	1.0	MRL	pg/g	J	RI

10/5/2017 9:10:0

**Sample ID:** SHAD041DP004SS02DS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	4.6	J	0.18	EDL	5.2	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	1.4	J	0.081	EDL	5.2	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.32	J	0.12	EDL	5.2	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.62	J	0.089	EDL	5.2	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.81	J	0.088	EDL	5.2	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.23	J	0.11	EDL	5.2	MRL	pg/g	J	RI
OCDF	1.8	J	0.18	EDL	10	MRL	pg/g	J	RI

10/5/2017 9:10:0

**Sample ID:** SHAD041DP004SS02DS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.12	J M	0.089	EDL	1.0	MRL	pg/g	J	RI

10/5/2017 8:57:0

**Sample ID:** SHAD041DP004SS02NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.2	J M	0.10	EDL	5.1	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.66	J	0.090	EDL	5.1	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.27	J	0.097	EDL	5.1	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.36	J	0.075	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.44	J	0.074	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.16	J	0.093	EDL	5.1	MRL	pg/g	J	RI
OCDF	0.64	J	0.16	EDL	10	MRL	pg/g	J	RI

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/5/2017 8:57:0

Sample ID: SHAD041DP004SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
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10/5/2017 9:17:0

Sample ID: SHAD041DP004SS03NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.4	J M	0.11	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.18	J	0.065	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.31	J	0.11	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.48	J	0.087	EDL	5.9	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.66	J M	0.086	EDL	5.9	MRL	pg/g	J	RI
OCDD	7.6	J	0.12	EDL	12	MRL	pg/g	U	Eb

10/5/2017 9:23:0

Sample ID: SHAD041DP004SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.1	J M	0.15	EDL	5.7	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.18	J M	0.070	EDL	5.7	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.19	J	0.13	EDL	5.7	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.14	J	0.10	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.16	J	0.089	EDL	5.7	MRL	pg/g	J	RI
OCDD	6.1	J	0.12	EDL	11	MRL	pg/g	U	Eb

10/5/2017 9:40:0

Sample ID: SHAD041DP004SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.81	J M	0.085	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.083	J M	0.040	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.36	J	0.072	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.22	J	0.055	EDL	6.3	MRL	pg/g	J	RI
OCDD	4.6	J	0.076	EDL	13	MRL	pg/g	U	Eb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

10/5/2017 9:40:0

Sample ID: SHAD041DP004SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
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10/5/2017 9:34:0

Sample ID: SHAD041DP004SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.95	J M	0.076	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.35	J	0.060	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,7,8,9-HpCDF	0.52	J M	0.074	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.28	J M	0.089	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	0.16	J	0.064	EDL	5.8	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.22	J M	0.069	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.21	J M	0.068	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.26	J	0.063	EDL	5.8	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.22	J	0.059	EDL	5.8	MRL	pg/g	J	RI
OCDD	5.5	J	0.11	EDL	12	MRL	pg/g	U	Eb
OCDF	1.8	J	0.14	EDL	12	MRL	pg/g	J	RI

10/5/2017 10:15:

Sample ID: SHAD041DP008SS01DS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	0.75	J M	0.35	EDL	5.1	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	1.2	J	0.13	EDL	5.1	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	1.5	J	0.11	EDL	5.1	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	2.8	J	0.098	EDL	5.1	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.94	J	0.089	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	2.8	J	0.097	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.12	J M	0.11	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.78	J	0.068	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.39	J	0.085	EDL	5.1	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	1.0	J	0.099	EDL	5.1	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/5/2017 10:15

**Sample ID:** SHAD041DP008SS01DS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,4,7,8-PeCDF	0.51	J	0.086	EDL	5.1	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.17	J	0.051	EDL	1.0	MRL	pg/g	J	RI

10/5/2017 10:15

**Sample ID:** SHAD041DP008SS01DS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.50	J M	0.23	EDL	1.0	MRL	pg/g	J	RI

10/5/2017 10:08

**Sample ID:** SHAD041DP008SS01NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	0.51	J	0.26	EDL	5.1	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.91	J	0.12	EDL	5.1	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	1.1	J	0.11	EDL	5.1	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	2.2	J	0.094	EDL	5.1	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.65	J	0.093	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	2.1	J	0.093	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.25	J	0.11	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.51	J	0.11	EDL	5.1	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.27	J	0.092	EDL	5.1	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.70	J	0.10	EDL	5.1	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.37	J	0.094	EDL	5.1	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.22	J	0.071	EDL	1.0	MRL	pg/g	J	RI

10/5/2017 10:08

**Sample ID:** SHAD041DP008SS01NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.26	J M	0.066	EDL	1.0	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/5/2017 10:00

Sample ID: SHAD041DP008SS02NS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.9	J	0.081	EDL	5.3	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.38	J	0.067	EDL	5.3	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.27	J	0.075	EDL	5.3	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.43	J	0.058	EDL	5.3	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.068	J	0.044	EDL	5.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.67	J M	0.057	EDL	5.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.18	J	0.053	EDL	5.3	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.091	J	0.046	EDL	5.3	MRL	pg/g	J	RI
OCDD	12		0.094	EDL	11	MRL	pg/g	U	Eb
OCDF	0.56	J	0.063	EDL	11	MRL	pg/g	J	RI

10/5/2017 10:00

Sample ID: SHAD041DP008SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.18	J M	0.14	EDL	1.1	MRL	pg/g	J	RI

10/4/2017 4:35:0

Sample ID: SHAD041DP012SS02DS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	810		16	EDL	16	MRL	pg/g	J	Fd
1,2,3,4,6,7,8-HpCDF	220		3.8	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,4,7,8,9-HpCDF	4.7	U M	4.7	EDL	5.4	MRL	pg/g	UJ	Fd
1,2,3,4,7,8-HxCDD	15		4.4	EDL	5.4	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	15	M	1.7	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,6,7,8-HxCDD	270		3.4	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,6,7,8-HxCDF	13	M	1.4	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,7,8,9-HxCDD	160		3.4	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,7,8-PeCDD	44		1.4	EDL	5.4	MRL	pg/g	J	Fd
2,3,4,6,7,8-HxCDF	15	M	1.6	EDL	5.4	MRL	pg/g	J	Fd

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/4/2017 4:35:0

Sample ID: SHAD041DP012SS02DS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDD	8.5		0.35	EDL	1.1	MRL	pg/g	J	Fd
OCDD	830		3.9	EDL	11	MRL	pg/g	J	Fd
OCDF	130		0.95	EDL	11	MRL	pg/g	J	Fd

10/4/2017 4:35:0

Sample ID: SHAD041DP012SS02DS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	23		0.48	EDL	1.1	MRL	pg/g	J	Fd

10/4/2017 4:30:0

Sample ID: SHAD041DP012SS02NS      Collected: PM      Analysis Type: DL2-BASE/NEUTRAL      Dilution: 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	3400	D J	86	EDL	86	MRL	pg/g	J	Fd

10/4/2017 4:30:0

Sample ID: SHAD041DP012SS02NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	640	J	3.6	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,4,7,8,9-HpCDF	12	M	4.1	EDL	5.4	MRL	pg/g	J	Fd
1,2,3,4,7,8-HxCDF	24	J M	6.7	EDL	6.7	MRL	pg/g	J	Ms, Fd
1,2,3,6,7,8-HxCDD	1300	J	35	EDL	35	MRL	pg/g	J	Fd
1,2,3,6,7,8-HxCDF	23		6.2	EDL	6.2	MRL	pg/g	J	Fd
1,2,3,7,8,9-HxCDD	540	J M	31	EDL	31	MRL	pg/g	J	Fd
1,2,3,7,8-PeCDD	160	J	2.3	EDL	5.4	MRL	pg/g	J	Ms, Ms, Fd
2,3,4,6,7,8-HxCDF	33	J	6.6	EDL	6.6	MRL	pg/g	J	Ms, Ms, Fd
2,3,4,7,8-PeCDF	21	J	0.77	EDL	5.4	MRL	pg/g	J-	Ms
2,3,7,8-TCDD	31	J	0.40	EDL	1.1	MRL	pg/g	J	Ms, Ms, Ms, Fd
OCDD	3400	J	3.7	EDL	11	MRL	pg/g	J	Fd
OCDF	380	J	0.42	EDL	11	MRL	pg/g	J	Ms, Fd

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/1/2017 4:30:0

Sample ID: SHAD041DP012SS02NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code

10/1/2017 4:30:0

Sample ID: SHAD041DP012SS02NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	16		0.31	EDL	1.1	MRL	pg/g	J	Fd

10/1/2017 4:50:0

Sample ID: SHAD041DP012SS03NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	0.77	J	0.37	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	0.76	J	0.18	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDF	0.34	J	0.15	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	5.8	J	0.28	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	1.5	J	0.17	EDL	6.3	MRL	pg/g	U	Eb
2,3,4,6,7,8-HxCDF	0.43	J M	0.17	EDL	6.3	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	0.34	J	0.10	EDL	6.3	MRL	pg/g	U	Eb
2,3,7,8-TCDD	0.31	J M	0.13	EDL	1.3	MRL	pg/g	U	Eb
OCDD	35		0.61	EDL	13	MRL	pg/g	U	Eb
OCDF	5.0	J	0.24	EDL	13	MRL	pg/g	U	Eb

10/1/2017 4:50:0

Sample ID: SHAD041DP012SS03NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.43	J M	0.14	EDL	1.3	MRL	pg/g	J	RI

10/5/2017 8:15:0

Sample ID: SHAD041DP012SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.45	J	0.11	EDL	6.0	MRL	pg/g	U	Eb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/5/2017 8:15:0

**Sample ID:** SHAD041DP012SS04NS

**Collected:** AM

**Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDD	1.3	J	0.13	EDL	12	MRL	pg/g	U	Mb, Eb

10/5/2017 8:30:0

**Sample ID:** SHAD041DP012SS05NS

**Collected:** AM

**Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.70	J M	0.092	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.17	J	0.062	EDL	6.2	MRL	pg/g	U	Eb
OCDD	4.3	J	0.12	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	0.40	J	0.13	EDL	12	MRL	pg/g	J	RI

10/5/2017 8:35:0

**Sample ID:** SHAD041DP012SS06NS

**Collected:** AM

**Analysis Type:** RE-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.50	J M	0.081	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.22	J	0.056	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,7,8,9-HpCDF	0.25	J	0.069	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.32	J M	0.080	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.26	J M	0.062	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.21	J M	0.061	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.27	J	0.11	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.26	J	0.11	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.23	J	0.072	EDL	5.8	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.20	J	0.10	EDL	5.8	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.23	J	0.074	EDL	5.8	MRL	pg/g	J	RI
OCDD	1.9	J	0.11	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	0.57	J	0.17	EDL	12	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/4/2017 3:20:0

**Sample ID:** SHAD041DP017SS01NS      **Collected:** PM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	3.2	J M	2.8	EDL	5.1	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	12	M	3.9	EDL	5.1	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	8.7	M	0.92	EDL	5.1	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDF	4.0	J M	0.35	EDL	5.1	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	8.5		0.36	EDL	5.1	MRL	pg/g	U	Eb

10/4/2017 4:00:0

**Sample ID:** SHAD041DP017SS03NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J	0.10	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.29	J	0.053	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.20	J M	0.099	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.30	J	0.076	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.34	J M	0.075	EDL	6.2	MRL	pg/g	U	Eb
OCDD	6.0	J	0.067	EDL	12	MRL	pg/g	U	Eb
OCDF	0.50	J	0.055	EDL	12	MRL	pg/g	U	Eb

10/4/2017 4:13:0

**Sample ID:** SHAD041DP017SS04NS      **Collected:** PM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.90	J M	0.083	EDL	6.1	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.23	J	0.054	EDL	6.1	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.16	J M	0.083	EDL	6.1	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.22	J	0.064	EDL	6.1	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.19	J	0.063	EDL	6.1	MRL	pg/g	U	Eb
OCDD	2.9	J	0.047	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	0.33	J	0.051	EDL	12	MRL	pg/g	U	Eb

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/4/2017 4:30:0

**Sample ID:** SHAD041DP017SS05NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.1	J M	0.11	EDL	6.4	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.28	J	0.067	EDL	6.4	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDD	0.19	J	0.052	EDL	6.4	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.35	J	0.051	EDL	6.4	MRL	pg/g	U	Eb
OCDD	11	J	0.077	EDL	13	MRL	pg/g	U	Eb
OCDF	0.35	J	0.053	EDL	13	MRL	pg/g	U	Eb

10/4/2017 4:50:0

**Sample ID:** SHAD041DP017SS06DS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.7	J M	0.13	EDL	5.6	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.42	J M	0.14	EDL	5.6	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.24	J	0.14	EDL	5.6	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.26	J	0.13	EDL	5.6	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDF	0.19	J	0.15	EDL	5.6	MRL	pg/g	U	Eb
OCDD	3.9	J	0.15	EDL	11	MRL	pg/g	U	Mb, Eb
OCDF	0.56	J M	0.15	EDL	11	MRL	pg/g	U	Mb, Eb

10/4/2017 4:44:0

**Sample ID:** SHAD041DP017SS06NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.91	J	0.093	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.47	J	0.12	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.39	J	0.14	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.27	J M	0.092	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.37	J	0.14	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.25	J M	0.086	EDL	5.7	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDF	0.23	J M	0.13	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDD	0.31	J M	0.076	EDL	5.7	MRL	pg/g	U	Mb, Eb

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/11/2017 4:44:00

Sample ID: SHAD041DP017SS06NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8,9-HxCDF	0.43	J	0.14	EDL	5.7	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	0.26	J M	0.091	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,7,8-PeCDF	0.28	J	0.090	EDL	5.7	MRL	pg/g	U	Mb, Eb
2,3,4,6,7,8-HxCDF	0.30	J	0.14	EDL	5.7	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	0.25	J	0.093	EDL	5.7	MRL	pg/g	U	Mb, Eb
OCDD	2.6	J	0.13	EDL	11	MRL	pg/g	U	Mb, Eb
OCDF	0.63	J M	0.13	EDL	11	MRL	pg/g	U	Mb, Eb

10/11/2017 4:16:00

Sample ID: SHAD041DP018SS03NS      Collected: PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	0.49	J M	0.42	EDL	5.9	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	1.7	J M	0.34	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDF	0.74	J M	0.31	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	11	M	0.85	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	3.5	J	0.18	EDL	5.9	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDF	0.59	J M	0.088	EDL	5.9	MRL	pg/g	U	Mb, Eb
2,3,4,6,7,8-HxCDF	0.82	J M	0.33	EDL	5.9	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	1.1	J	0.091	EDL	5.9	MRL	pg/g	U	Eb
2,3,7,8-TCDD	0.75	J	0.11	EDL	1.2	MRL	pg/g	U	Eb
OCDF	9.0	J	0.14	EDL	12	MRL	pg/g	U	Eb

10/11/2017 4:16:00

Sample ID: SHAD041DP018SS03NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.72	J M	0.12	EDL	1.2	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/4/2017 4:25:0

Sample ID: SHAD041DP018SS04NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	3.2	J	0.26	EDL	6.1	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	1.5	J	0.25	EDL	6.1	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.47	J M	0.15	EDL	6.1	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.83	J M	0.20	EDL	6.1	MRL	pg/g	U	Eb
1,2,3,6,7,8-HxCDF	0.15	J M	0.14	EDL	6.1	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDD	0.88	J	0.17	EDL	6.1	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDF	0.42	J	0.15	EDL	6.1	MRL	pg/g	U	Eb
2,3,4,6,7,8-HxCDF	0.20	J	0.15	EDL	6.1	MRL	pg/g	U	Eb
OCDD	6.2	J	0.22	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	1.8	J	0.12	EDL	12	MRL	pg/g	U	Mb, Eb

10/4/2017 4:30:0

Sample ID: SHAD041DP018SS05NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	3.5	J	0.32	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.74	J	0.18	EDL	6.2	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.33	J	0.15	EDL	6.2	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.77	J	0.14	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,7,8,9-HxCDD	0.60	J	0.12	EDL	6.2	MRL	pg/g	U	Mb, Eb
OCDD	7.7	J	0.20	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	0.79	J	0.10	EDL	12	MRL	pg/g	U	Mb, Eb

10/4/2017 4:41:0

Sample ID: SHAD041DP018SS06NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.2	J	0.21	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.84	J	0.21	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.41	J	0.17	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.75	J	0.16	EDL	5.5	MRL	pg/g	U	Eb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24917-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

Sample ID: SHAD041DP018SS06NS

Collected: PM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,6,7,8-HxCDF	0.31	J	0.18	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDD	0.80	J	0.14	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDF	0.59	J	0.20	EDL	5.5	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	0.31	J	0.094	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,7,8-PeCDF	0.17	J	0.075	EDL	5.5	MRL	pg/g	U	Mb, Eb
2,3,4,6,7,8-HxCDF	0.28	J	0.19	EDL	5.5	MRL	pg/g	U	Eb
2,3,4,7,8-PeCDF	0.14	J	0.077	EDL	5.5	MRL	pg/g	U	Mb, Eb
OCDD	2.5	J	0.15	EDL	11	MRL	pg/g	U	Mb, Eb
OCDF	1.1	J	0.14	EDL	11	MRL	pg/g	U	Mb, Eb

SDG: 160-24922-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

Sample ID: SHAD041DP027SS02NS

Collected: AM

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.1	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP027SS03NS

Collected: AM

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.7	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP027SS04DS

Collected: AM

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.3	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

10/6/2017 8:37:0

Sample ID: SHAD041DP027SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.0	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

10/6/2017 8:47:0

Sample ID: SHAD041DP027SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.2	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

10/6/2017 9:12:0

Sample ID: SHAD041DP028SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.7	J D	6.7	LOD	8.9	LOQ	mg/Kg	J	RI

10/6/2017 9:43:0

Sample ID: SHAD041DP028SS06DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.5	J D	4.6	LOD	6.1	LOQ	mg/Kg	J	RI

10/6/2017 9:40:0

Sample ID: SHAD041DP028SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.0	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI

10/6/2017 10:05:0

Sample ID: SHAD041DP029SS01DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	310	D	3.8	LOD	5.0	LOQ	mg/Kg	J	Fd

\* denotes a non-reportable result

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-1

**Method Category: METALS**  
**Method: 6010C** **Matrix: SO**

10/6/2017 10:00

Sample ID: SHAD041DP029SS01NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	48	D	3.8	LOD	5.0	LOQ	mg/Kg	J	Fd

10/6/2017 10:20

Sample ID: SHAD041DP029SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.3	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/6/2017 10:25

Sample ID: SHAD041DP029SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.2	J D	4.1	LOD	5.4	LOQ	mg/Kg	J	RI

10/6/2017 10:28

Sample ID: SHAD041DP029SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.4	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

10/6/2017 10:38

Sample ID: SHAD041DP029SS05NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.9	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

10/6/2017 10:42

Sample ID: SHAD041DP029SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.0	J D	4.2	LOD	5.7	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-1

**Method Category: METALS**

**Method: 6010C**

**Matrix: SO**

10/6/2017 11:10

Sample ID: SHAD041DP030SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.4	J D	3.8	LOD	5.0	LOQ	mg/Kg	J	RI

10/6/2017 11:16

Sample ID: SHAD041DP030SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.1	J D	3.9	LOD	5.1	LOQ	mg/Kg	J	RI

10/6/2017 11:24

Sample ID: SHAD041DP030SS04DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.3	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI

10/6/2017 11:20

Sample ID: SHAD041DP030SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.8	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

10/6/2017 11:50

Sample ID: SHAD041DP030SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.4	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI

**Method Category: METALS**

**Method: 7196A**

**Matrix: SO**

10/6/2017 8:14:0

Sample ID: SHAD041DP027SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.45	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

Sample ID: SHAD041DP027SS03NS		10/6/2017 8:32:0 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.34	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP027SS04DS		10/6/2017 8:43:0 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.38	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP027SS04NS		10/6/2017 8:37:0 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.37	J	0.22	LOD	0.43	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP027SS06NS		10/6/2017 8:47:0 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.41	J	0.24	LOD	0.47	LOQ	mg/Kg	J	RI, Ms

Sample ID: SHAD041DP028SS06DS		10/6/2017 9:43:0 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.42	J	0.24	LOD	0.49	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP028SS06NS		10/6/2017 9:40:0 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.43	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/6/2017 10:25

Sample ID: SHAD041DP029SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.20	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

10/6/2017 10:28

Sample ID: SHAD041DP029SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.30	J	0.23	LOD	0.47	LOQ	mg/Kg	J	RI

10/6/2017 10:42

Sample ID: SHAD041DP029SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.18	J	0.23	LOD	0.45	LOQ	mg/Kg	J	RI

10/6/2017 11:02

Sample ID: SHAD041DP030SS01NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.26	J	0.20	LOD	0.40	LOQ	mg/Kg	J	RI

10/6/2017 11:10

Sample ID: SHAD041DP030SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.32	J	0.21	LOD	0.41	LOQ	mg/Kg	J	RI

10/6/2017 11:16

Sample ID: SHAD041DP030SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.28	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/6/2017 11:24

**Sample ID:** SHAD041DP030SS04DS      **Collected:** AM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.30	J	0.23	LOD	0.47	LOQ	mg/Kg	J	RI

10/6/2017 11:20

**Sample ID:** SHAD041DP030SS04NS      **Collected:** AM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.30	J	0.23	LOD	0.47	LOQ	mg/Kg	J	RI, Ms

10/6/2017 11:50

**Sample ID:** SHAD041DP030SS06NS      **Collected:** AM      **Analysis Type:** RES/TOT      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.29	J	0.22	LOD	0.45	LOQ	mg/Kg	J	RI

**Method Category:** SVOA

**Method:** 8082A

**Matrix:** SO

10/6/2017 7:57:0

**Sample ID:** SHAD041DP027SS01NS      **Collected:** AM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PCB-1260	21	J	10	LOD	33	LOQ	ug/Kg	J	RI

10/6/2017 10:05

**Sample ID:** SHAD041DP029SS01DS      **Collected:** AM      **Analysis Type:** RES      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PCB-1260	19	J	11	LOD	36	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/6/2017 9:08:0

Sample ID: SHAD041DP028SS01NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ACENAPHTHYLENE	4.3	J D	17	LOD	33	LOQ	ug/Kg	J	RI
ANTHRACENE	11	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZ(A)ANTHRACENE	18	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZO(A)PYRENE	20	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	24	J D	17	LOD	33	LOQ	ug/Kg	J	RI
CHRYSENE	28	J D	17	LOD	33	LOQ	ug/Kg	J	RI
FLUORANTHENE	25	J D	17	LOD	33	LOQ	ug/Kg	J	RI
INDENO(1,2,3-CD)PYRENE	18	J D	17	LOD	33	LOQ	ug/Kg	J	RI
PHENANTHRENE	14	J D	17	LOD	33	LOQ	ug/Kg	J	RI
PYRENE	23	J D	17	LOD	33	LOQ	ug/Kg	J	RI

10/6/2017 9:20:0

Sample ID: SHAD041DP028SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTHRACENE	5.4	J D	17	LOD	34	LOQ	ug/Kg	J	RI
BENZ(A)ANTHRACENE	7.0	J D	17	LOD	34	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	30	J D	17	LOD	34	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	16	J D	17	LOD	34	LOQ	ug/Kg	J	RI
CHRYSENE	19	J D	17	LOD	34	LOQ	ug/Kg	J	RI

10/6/2017 9:15:0

Sample ID: SHAD041DP028SS03NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	1.0	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	3.7	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	1.9	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI
CHRYSENE	2.5	J	3.7	LOD	7.4	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-1

**Method Category:** SVOA  
**Method:** 8270D SIM **Matrix:** SO

10/6/2017 10:05

Sample ID: SHAD041DP029SS01DS Collected: AM Analysis Type: RES-BASE/NEUTRAL Dilution: 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(G,H,I)PERYLENE	12	J D	36	LOD	71	LOQ	ug/Kg	J	RI

10/6/2017 10:00

Sample ID: SHAD041DP029SS01NS Collected: AM Analysis Type: RES-BASE/NEUTRAL Dilution: 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(G,H,I)PERYLENE	12	J D	35	LOD	70	LOQ	ug/Kg	J	RI

10/6/2017 11:02

Sample ID: SHAD041DP030SS01NS Collected: AM Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.64	J	3.3	LOD	6.6	LOQ	ug/Kg	J	RI
NAPHTHALENE	1.6	J	3.3	LOD	6.6	LOQ	ug/Kg	J	RI

10/6/2017 11:50

Sample ID: SHAD041DP030SS06NS Collected: AM Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.60	J	3.8	LOD	7.6	LOQ	ug/Kg	J	RI

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/6/2017 7:57:0

Sample ID: SHAD041DP027SS01NS Collected: AM Analysis Type: RES Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.87	U Q	0.87	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.87	U Q	0.87	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.87	U Q	0.87	LOD	4.4	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.87	U Q	0.87	LOD	4.4	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	6.8		0.87	LOD	4.4	LOQ	ug/Kg	J+	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/6/2017 7:57:0

Sample ID: SHAD041DP027SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Xylene (Total)	49		4.4	LOD	8.7	LOQ	ug/Kg	J+	Surr

10/6/2017 8:14:0

Sample ID: SHAD041DP027SS02NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.96	U Q	0.96	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.96	U Q	0.96	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.96	U Q	0.96	LOD	4.8	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.96	U Q	0.96	LOD	4.8	LOQ	ug/Kg	UJ	Is

10/6/2017 9:08:0

Sample ID: SHAD041DP028SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,1,2-TRICHLOROETHANE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
CHLORODIBROMOMETHANE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	3.1	J Q	0.92	LOD	4.6	LOQ	ug/Kg	J	RI, Is
TETRACHLOROETHENE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
TOLUENE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
TRANS-1,3-DICHLOROPROPENE	0.92	U Q	0.92	LOD	4.6	LOQ	ug/Kg	UJ	Is
Xylene (Total)	21	Q	4.6	LOD	9.2	LOQ	ug/Kg	J+	Is

10/6/2017 10:05:0

Sample ID: SHAD041DP029SS01DS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/6/2017 10:05

Sample ID: SHAD041DP029SS01DS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2-DICHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	2.2	J	0.88	LOD	4.4	LOQ	ug/Kg	J	RI, Surr
Xylene (Total)	16		4.4	LOD	8.8	LOQ	ug/Kg	J	Surr, Fd

10/6/2017 10:00

Sample ID: SHAD041DP029SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1,2-TETRACHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.88	U Q	0.88	LOD	4.4	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.70	J	0.88	LOD	4.4	LOQ	ug/Kg	J	RI
Xylene (Total)	5.8	J	4.4	LOD	8.8	LOQ	ug/Kg	J	RI, Fd

10/6/2017 10:20

Sample ID: SHAD041DP029SS02NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1,2-TETRACHLOROETHANE	1.3	U Q	1.3	LOD	6.6	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	1.3	U Q	1.3	LOD	6.6	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	1.3	U Q	1.3	LOD	6.6	LOQ	ug/Kg	UJ	Is
BROMOFORM	1.3	U Q	1.3	LOD	6.6	LOQ	ug/Kg	UJ	Is

10/6/2017 11:02

Sample ID: SHAD041DP030SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1,2-TETRACHLOROETHANE	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/6/2017 11:02

Sample ID: SHAD041DP030SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,4-DICHLOROETHANE	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is
BROMOFORM	1.1	U Q	1.1	LOD	5.3	LOQ	ug/Kg	UJ	Is

10/6/2017 11:10

Sample ID: SHAD041DP030SS02NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
1,1,2,2-TETRACHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr, Is
1,1,2-TRICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHANE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHENE	4.7	U	4.7	LOD	4.7	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROETHANE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROPROPANE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
1,4-DICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr, Is
BENZENE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
BROMODICHLOROMETHANE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
BROMOFORM	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr, Is
CARBON TETRACHLORIDE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
CHLORODIBROMOMETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
CHLOROFORM	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
CHLOROMETHANE	4.7	U	4.7	LOD	9.4	LOQ	ug/Kg	UJ	Surr
CIS-1,2-DICHLOROETHENE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
CIS-1,3-DICHLOROPROPENE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
ETHYLBENZENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
METHYLENE CHLORIDE	4.7	U	4.7	LOD	9.4	LOQ	ug/Kg	UJ	Surr
TETRACHLOROETHENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
TOLUENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/6/2017 11:10

Sample ID: SHAD041DP030SS02NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRANS-1,2-DICHLOROETHENE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
TRANS-1,3-DICHLOROPROPENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
TRICHLOROETHENE	0.94	U	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Surr
VINYL CHLORIDE	0.94	U	0.94	LOD	9.4	LOQ	ug/Kg	UJ	Surr
Xylene (Total)	4.7	U Q	4.7	LOD	9.4	LOQ	ug/Kg	UJ	Surr

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 7:57:0

Sample ID: SHAD041DP027SS01NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PeCDF	1.4	J M	0.44	EDL	5.0	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	2.4	J	0.44	EDL	5.0	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.85	J	0.10	EDL	1.0	MRL	pg/g	J	RI

10/6/2017 8:14:0

Sample ID: SHAD041DP027SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	8.5		0.23	EDL	6.0	MRL	pg/g	J+	Is
1,2,3,4,6,7,8-HpCDF	2.6	J	0.15	EDL	6.0	MRL	pg/g	J	RI, Is
1,2,3,4,7,8,9-HpCDF	0.19	U	0.19	EDL	6.0	MRL	pg/g	UJ	Is
1,2,3,4,7,8-HxCDD	0.39	J	0.15	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	1.2	J	0.12	EDL	6.0	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.21	J	0.096	EDL	6.0	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	1.2	J	0.12	EDL	6.0	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.18	J	0.12	EDL	6.0	MRL	pg/g	U	Eb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 8:14:0

Sample ID: SHAD041DP027SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDD	68		0.27	EDL	12	MRL	pg/g	J+	Is
OCDF	3.8	J	0.19	EDL	12	MRL	pg/g	J	RI, Is

10/6/2017 8:32:0

Sample ID: SHAD041DP027SS03NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.73	J	0.11	EDL	6.2	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.25	J	0.095	EDL	6.2	MRL	pg/g	U	Mb, Eb
OCDD	6.5	J	0.12	EDL	12	MRL	pg/g	UJ	Eb, Is
OCDF	0.15	U	0.15	EDL	12	MRL	pg/g	UJ	Is

10/6/2017 8:43:0

Sample ID: SHAD041DP027SS04DS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.8	J	0.10	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.43	J	0.058	EDL	5.8	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.22	J	0.098	EDL	5.8	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.44	J	0.075	EDL	5.8	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.27	J M	0.075	EDL	5.8	MRL	pg/g	J	RI
OCDD	8.3	J	0.095	EDL	12	MRL	pg/g	U	Eb
OCDF	0.65	J	0.10	EDL	12	MRL	pg/g	J	RI

10/6/2017 8:37:0

Sample ID: SHAD041DP027SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.84	J	0.084	EDL	5.8	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDD	0.38	J	0.084	EDL	5.8	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDD	0.17	J	0.064	EDL	5.8	MRL	pg/g	J	RI
OCDD	4.3	J	0.091	EDL	12	MRL	pg/g	UJ	Eb, Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

**Sample ID:** SHAD041DP027SS04NS

**Collected:** AM

**Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDF	0.11	U	0.11	EDL	12	MRL	pg/g	UJ	Is

**Sample ID:** SHAD041DP027SS05NS

**Collected:** AM

**Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	0.59	J	0.20	EDL	6.6	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.35	J M	0.12	EDL	6.6	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	6.1	J	0.15	EDL	6.6	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.16	J M	0.10	EDL	6.6	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	3.6	J	0.15	EDL	6.6	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.40	J	0.14	EDL	6.6	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.21	J	0.11	EDL	6.6	MRL	pg/g	J	RI
OCDD	46		0.19	EDL	13	MRL	pg/g	J+	Is
OCDF	7.4	J	0.15	EDL	13	MRL	pg/g	J	RI, Is

**Sample ID:** SHAD041DP027SS06NS

**Collected:** AM

**Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.26	J	0.093	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.15	J M	0.11	EDL	6.0	MRL	pg/g	U	Mb, Eb
OCDD	1.1	J	0.097	EDL	12	MRL	pg/g	UJ	Eb, Is
OCDF	0.22	U	0.22	EDL	12	MRL	pg/g	UJ	Is

**Sample ID:** SHAD041DP028SS01NS

**Collected:** AM

**Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PeCDF	3.9	J	0.44	EDL	5.1	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 9:20:0

Sample ID: SHAD041DP028SS02NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	3.7	J	1.3	EDL	5.1	MRL	pg/g	U	Eb
1,2,3,7,8-PeCDD	4.5	J	0.31	EDL	5.1	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.71	J	0.14	EDL	1.0	MRL	pg/g	J	RI

10/6/2017 9:15:0

Sample ID: SHAD041DP028SS03NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	28		0.73	EDL	5.7	MRL	pg/g	J+	Is
1,2,3,4,6,7,8-HpCDF	9.7		0.25	EDL	5.7	MRL	pg/g	J+	Is
1,2,3,4,7,8,9-HpCDF	0.31	U	0.31	EDL	5.7	MRL	pg/g	UJ	Is
1,2,3,4,7,8-HxCDD	0.48	J M	0.21	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.61	J	0.24	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	3.9	J	0.16	EDL	5.7	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.55	J	0.20	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	2.3	J	0.16	EDL	5.7	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.39	J M	0.17	EDL	5.7	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.79	J	0.22	EDL	5.7	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.39	J	0.21	EDL	5.7	MRL	pg/g	J	RI
OCDD	170		0.50	EDL	11	MRL	pg/g	J+	Is
OCDF	9.2	J	0.20	EDL	11	MRL	pg/g	J	RI, Is

10/6/2017 9:12:0

Sample ID: SHAD041DP028SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	0.75	J	0.087	EDL	6.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.50	J	0.11	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.15	J M	0.098	EDL	6.0	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.30	J	0.087	EDL	6.0	MRL	pg/g	J	RI
OCDD	45		0.23	EDL	12	MRL	pg/g	J+	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 9:12:0

Sample ID: SHAD041DP028SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDF	1.7	J	0.14	EDL	12	MRL	pg/g	J	RI, Is

10/6/2017 9:30:0

Sample ID: SHAD041DP028SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	2.5	J M	0.19	EDL	7.1	MRL	pg/g	UJ	Eb, Is
1,2,3,4,6,7,8-HpCDF	0.21	J	0.084	EDL	7.1	MRL	pg/g	UJ	Mb, Is
1,2,3,4,7,8,9-HpCDF	0.10	U	0.10	EDL	7.1	MRL	pg/g	UJ	Is
1,2,3,4,7,8-HxCDD	0.77	J	0.19	EDL	7.1	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.083	J M	0.080	EDL	7.1	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDD	0.15	U	0.15	EDL	7.1	MRL	pg/g	UJ	Is
1,2,3,7,8,9-HxCDD	0.47	J	0.15	EDL	7.1	MRL	pg/g	J	RI, Is
1,2,3,7,8,9-HxCDF	0.13	J	0.079	EDL	7.1	MRL	pg/g	U	Eb
OCDD	16		0.22	EDL	14	MRL	pg/g	J+	Is
OCDF	0.34	J	0.20	EDL	14	MRL	pg/g	UJ	Mb, Is

10/6/2017 9:43:0

Sample ID: SHAD041DP028SS06DS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.32	J	0.039	EDL	6.5	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.15	J	0.040	EDL	6.5	MRL	pg/g	U	Mb
1,2,3,4,7,8,9-HpCDF	0.13	J	0.050	EDL	6.5	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.25	J M	0.054	EDL	6.5	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.089	J M	0.041	EDL	6.5	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.13	J	0.041	EDL	6.5	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDF	0.055	J	0.029	EDL	6.5	MRL	pg/g	U	Mb, Eb
2,3,4,6,7,8-HxCDF	0.051	J	0.027	EDL	6.5	MRL	pg/g	J	RI
OCDD	1.5	J	0.038	EDL	13	MRL	pg/g	U	Mb, Eb
OCDF	0.42	J	0.034	EDL	13	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 9:43:0

Sample ID: SHAD041DP028SS06DS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
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10/6/2017 9:40:0

Sample ID: SHAD041DP028SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.46	J	0.10	EDL	6.1	MRL	pg/g	UJ	Mb, Eb, Is
1,2,3,4,6,7,8-HpCDF	0.15	J	0.083	EDL	6.1	MRL	pg/g	UJ	Mb, Is
1,2,3,4,7,8,9-HpCDF	0.10	U	0.10	EDL	6.1	MRL	pg/g	UJ	Is
1,2,3,4,7,8-HxCDD	0.31	J M	0.11	EDL	6.1	MRL	pg/g	U	Mb, Eb
OCDD	3.4	J	0.14	EDL	12	MRL	pg/g	UJ	Eb, Is
OCDF	0.31	J	0.18	EDL	12	MRL	pg/g	UJ	Mb, Is

10/6/2017 10:05:

Sample ID: SHAD041DP029SS01DS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	4.8	J	0.39	EDL	5.5	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	3.4	J	0.24	EDL	5.5	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	2.0	J	0.20	EDL	5.5	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	4.4	J	0.14	EDL	5.5	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.71	J	0.099	EDL	5.5	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	2.0	J	0.22	EDL	5.5	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	1.3	J	0.10	EDL	5.5	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.76	J	0.040	EDL	1.1	MRL	pg/g	J	RI
OCDF	67		0.088	EDL	11	MRL	pg/g	J	Fd

10/6/2017 10:05:

Sample ID: SHAD041DP029SS01DS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	1.0	J	0.17	EDL	1.1	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 10:00

Sample ID: SHAD041DP029SS01NS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	3.9	J	0.31	EDL	5.4	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	2.7	J	0.21	EDL	5.4	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	1.5	J	0.17	EDL	5.4	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	3.8	J	0.12	EDL	5.4	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.67	J M	0.12	EDL	5.4	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	1.7	J	0.19	EDL	5.4	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	1.1	J	0.13	EDL	5.4	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.61	J	0.031	EDL	1.1	MRL	pg/g	J	RI
OCDF	49		0.084	EDL	11	MRL	pg/g	J	Fd

10/6/2017 10:00

Sample ID: SHAD041DP029SS01NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.98	J	0.15	EDL	1.1	MRL	pg/g	J	RI

10/6/2017 10:20

Sample ID: SHAD041DP029SS02NS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	3.0	J M	0.14	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.64	J	0.082	EDL	6.3	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.34	J M	0.12	EDL	6.3	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.61	J	0.091	EDL	6.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.67	J M	0.090	EDL	6.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDF	0.21	J	0.088	EDL	6.3	MRL	pg/g	U	Mb, Eb
1,2,3,7,8-PeCDD	0.15	J	0.097	EDL	6.3	MRL	pg/g	J	RI
OCDF	1.3	J	0.13	EDL	13	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:52 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 10:25

Sample ID: SHAD041DP029SS03NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	4.0	J M	0.14	EDL	6.3	MRL	pg/g	J	RI
1,2,3,4,6,7,8-HpCDF	0.80	J	0.067	EDL	6.3	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.22	J	0.079	EDL	6.3	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.48	J	0.061	EDL	6.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.44	J M	0.061	EDL	6.3	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	0.099	J	0.074	EDL	6.3	MRL	pg/g	J	RI
OCDF	1.5	J	0.087	EDL	13	MRL	pg/g	J	RI

10/6/2017 10:28

Sample ID: SHAD041DP029SS04NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.47	J M	0.049	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.076	J	0.049	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.30	J	0.066	EDL	6.0	MRL	pg/g	U	Mb, Eb
OCDD	3.7	J	0.071	EDL	12	MRL	pg/g	U	Eb
OCDF	0.27	J	0.068	EDL	12	MRL	pg/g	J	RI

10/6/2017 10:38

Sample ID: SHAD041DP029SS05NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.16	J M	0.035	EDL	5.8	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.29	J	0.054	EDL	5.8	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDF	0.050	J	0.033	EDL	5.8	MRL	pg/g	U	Mb, Eb
OCDD	0.80	J	0.045	EDL	12	MRL	pg/g	U	Mb, Eb

10/6/2017 10:42

Sample ID: SHAD041DP029SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.15	J M	0.043	EDL	5.8	MRL	pg/g	U	Mb, Eb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 10:42

Sample ID: SHAD041DP029SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	0.068	J M	0.047	EDL	5.8	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.20	J M	0.062	EDL	5.8	MRL	pg/g	U	Mb, Eb
OCDD	1.2	J	0.047	EDL	12	MRL	pg/g	U	Mb, Eb

10/6/2017 11:02

Sample ID: SHAD041DP030SS01NS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HpCDF	2.2	J	0.82	EDL	5.0	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	2.7	J	0.21	EDL	5.0	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	2.2	J	0.33	EDL	5.0	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	2.0	J	0.27	EDL	5.0	MRL	pg/g	J	RI
1,2,3,7,8-PeCDD	1.7	J	0.097	EDL	5.0	MRL	pg/g	J	RI
1,2,3,7,8-PeCDF	0.38	J	0.079	EDL	5.0	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	2.2	J	0.31	EDL	5.0	MRL	pg/g	J	RI
2,3,4,7,8-PeCDF	0.63	J	0.080	EDL	5.0	MRL	pg/g	J	RI
2,3,7,8-TCDD	0.25	J M	0.054	EDL	1.0	MRL	pg/g	J	RI

10/6/2017 11:02

Sample ID: SHAD041DP030SS01NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.42	J	0.13	EDL	1.0	MRL	pg/g	J	RI

10/6/2017 11:10

Sample ID: SHAD041DP030SS02NS      Collected: AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	2.1	J	0.12	EDL	5.3	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.49	J	0.16	EDL	5.3	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.59	J	0.12	EDL	5.3	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.84	J	0.12	EDL	5.3	MRL	pg/g	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 11:10

**Sample ID:** SHAD041DP030SS02NS      **Collected:** AM      **Analysis Type:** RE-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDF	4.1	J	0.29	EDL	11	MRL	pg/g	J	RI

10/6/2017 11:16

**Sample ID:** SHAD041DP030SS03NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDF	2.1	J	0.14	EDL	5.5	MRL	pg/g	J	RI
1,2,3,4,7,8,9-HpCDF	0.23	J	0.18	EDL	5.5	MRL	pg/g	J	RI
1,2,3,4,7,8-HxCDD	0.31	J	0.15	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.57	J	0.12	EDL	5.5	MRL	pg/g	J	RI
1,2,3,6,7,8-HxCDF	0.17	J	0.13	EDL	5.5	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.66	J	0.12	EDL	5.5	MRL	pg/g	J	RI
OCDF	4.1	J	0.30	EDL	11	MRL	pg/g	J	RI

10/6/2017 11:24

**Sample ID:** SHAD041DP030SS04DS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J	0.10	EDL	6.2	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.21	J	0.059	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.28	J M	0.086	EDL	6.2	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.078	J M	0.048	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDD	0.18	J M	0.066	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,6,7,8-HxCDF	0.064	J M	0.040	EDL	6.2	MRL	pg/g	J	RI
1,2,3,7,8,9-HxCDD	0.26	J M	0.066	EDL	6.2	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDF	0.13	J	0.048	EDL	6.2	MRL	pg/g	U	Mb, Eb
2,3,4,6,7,8-HxCDF	0.088	J	0.045	EDL	6.2	MRL	pg/g	U	Mb
OCDF	2.0	J	0.077	EDL	12	MRL	pg/g	U	Mb

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 11:20

**Sample ID:** SHAD041DP030SS04NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J M	0.21	EDL	6.3	MRL	pg/g	U	Eb
1,2,3,4,6,7,8-HpCDF	0.23	J M	0.11	EDL	6.3	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.21	J	0.12	EDL	6.3	MRL	pg/g	U	Mb

10/6/2017 11:38

**Sample ID:** SHAD041DP030SS05NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J	0.089	EDL	5.9	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.27	J	0.047	EDL	5.9	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.25	J M	0.075	EDL	5.9	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.15	J M	0.058	EDL	5.9	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDF	0.12	J	0.045	EDL	5.9	MRL	pg/g	U	Mb, Eb
OCDD	5.6	J	0.076	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	0.60	J	0.077	EDL	12	MRL	pg/g	U	Mb

10/6/2017 11:50

**Sample ID:** SHAD041DP030SS06NS      **Collected:** AM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.4	J	0.10	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.48	J	0.11	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,4,7,8-HxCDD	0.26	J M	0.096	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,6,7,8-HxCDD	0.18	J M	0.090	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDD	0.20	J	0.080	EDL	5.7	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDF	0.21	J	0.13	EDL	5.7	MRL	pg/g	U	Mb, Eb
1,2,3,7,8-PeCDD	0.34	J	0.10	EDL	5.7	MRL	pg/g	J	RI
2,3,4,6,7,8-HxCDF	0.18	J	0.12	EDL	5.7	MRL	pg/g	U	Mb
2,3,4,7,8-PeCDF	0.12	J	0.082	EDL	5.7	MRL	pg/g	U	Mb
OCDD	6.4	J	0.13	EDL	11	MRL	pg/g	U	Mb, Eb
OCDF	0.90	J	0.13	EDL	11	MRL	pg/g	U	Mb

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24922-2

**Method Category:** SVOA

**Method:** 8290A

**Matrix:** SO

10/6/2017 11:50

Sample ID: SHAD041DP030SS06NS      Collected: AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
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SDG: 160-24924-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

10/5/2017 2:34:0

Sample ID: SHAD041DP013SS02NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	1.7	J D	3.3	LOD	4.5	LOQ	mg/Kg	J	RI

10/5/2017 2:44:0

Sample ID: SHAD041DP013SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.4	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

10/5/2017 3:06:0

Sample ID: SHAD041DP013SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	1.6	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

10/5/2017 3:18:0

Sample ID: SHAD041DP013SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.4	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24924-1

**Method Category: METALS**

**Method: 6010C**

**Matrix: SO**

Sample ID: SHAD041DP022SS03NS		10/5/2017 4:59:0			Collected: PM			Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code		
CHROMIUM	12	D J	3.2	LOD	4.3	LOQ	mg/Kg	J	Ms, Ms		

Sample ID: SHAD041DP022SS04NS		10/5/2017 5:10:0			Collected: PM			Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code		
LEAD	1.4	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI		

Sample ID: SHAD041DP022SS05NS		10/5/2017 5:15:0			Collected: PM			Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code		
LEAD	2.6	J D	3.8	LOD	5.1	LOQ	mg/Kg	J	RI		

Sample ID: SHAD041DP022SS06NS		10/5/2017 5:23:0			Collected: PM			Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code		
LEAD	4.8	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI		

Sample ID: SHAD041DP026SS04NS		10/5/2017 4:15:0			Collected: PM			Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code		
LEAD	2.4	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI		

Sample ID: SHAD041DP026SS06NS		10/5/2017 4:31:0			Collected: PM			Analysis Type: RES/TOT		Dilution: 5	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code		
LEAD	5.5	J D	4.2	LOD	5.6	LOQ	mg/Kg	J	RI		

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:53 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24924-1

**Method Category: METALS**

**Method: 7196A**

**Matrix: SO**

10/5/2017 2:34:0

Sample ID: SHAD041DP013SS02NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.32	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

10/5/2017 2:44:0

Sample ID: SHAD041DP013SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.28	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/5/2017 3:18:0

Sample ID: SHAD041DP013SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.24	J	0.24	LOD	0.47	LOQ	mg/Kg	J	RI

10/5/2017 4:59:0

Sample ID: SHAD041DP022SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.45		0.20	LOD	0.40	LOQ	mg/Kg	J-	Ms

10/5/2017 5:23:0

Sample ID: SHAD041DP022SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.23	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/5/2017 4:11:0

Sample ID: SHAD041DP026SS03NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.40	J	0.23	LOD	0.45	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:53 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24924-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/5/2017 4:15:0

Sample ID: SHAD041DP026SS04NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.34	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/5/2017 4:31:0

Sample ID: SHAD041DP026SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.39	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

**Method Category:** SVOA

**Method:** 8082A

**Matrix:** SO

10/5/2017 4:45:0

Sample ID: SHAD041DP022SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PCB-1260	12	J	9.9	LOD	33	LOQ	ug/Kg	J	RI

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 2:23:0

Sample ID: SHAD041DP013SS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(G,H,I)PERYLENE	31	J D	33	LOD	66	LOQ	ug/Kg	J	RI

10/5/2017 2:34:0

Sample ID: SHAD041DP013SS02NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	1.9	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	1.5	J	3.5	LOD	6.9	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:53 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24924-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

Sample ID: SHAD041DP013SS04NS

Collected: PM

Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
2-METHYLNAPHTHALENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
ACENAPHTHENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
ACENAPHTHYLENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
ANTHRACENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
BENZ(A)ANTHRACENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
BENZO(A)PYRENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
BENZO(B)FLUORANTHENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
BENZO(G,H,I)PERYLENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
BENZO(K)FLUORANTHENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
CHRYSENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
DIBENZO(A,H)ANTHRACENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
FLUORANTHENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
FLUORENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
INDENO(1,2,3-CD)PYRENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
NAPHTHALENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
PHENANTHRENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is
PYRENE	3.9	U Q	3.9	LOD	7.8	LOQ	ug/Kg	UJ	Is

Sample ID: SHAD041DP022SS01NS

Collected: PM

Analysis Type: RES-BASE/NEUTRAL Dilution: 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZ(A)ANTHRACENE	17	J D	33	LOD	66	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	21	J D	33	LOD	66	LOQ	ug/Kg	J	RI
BENZO(K)FLUORANTHENE	15	J D	33	LOD	66	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:53 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24924-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** SO

10/5/2017 4:55:0

**Sample ID:** SHAD041DP022SS02NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	13	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	14	J D	17	LOD	33	LOQ	ug/Kg	J	RI

10/5/2017 4:59:0

**Sample ID:** SHAD041DP022SS03NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	1.5	J	3.4	LOD	6.7	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	1.9	J	3.4	LOD	6.7	LOQ	ug/Kg	J	RI

10/5/2017 4:04:0

**Sample ID:** SHAD041DP026SS02NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTHRACENE	5.1	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZ(A)ANTHRACENE	13	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZO(A)PYRENE	11	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	19	J D	17	LOD	33	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	13	J D	17	LOD	33	LOQ	ug/Kg	J	RI
CHRYSENE	14	J D	17	LOD	33	LOQ	ug/Kg	J	RI
FLUORANTHENE	19	J D	17	LOD	33	LOQ	ug/Kg	J	RI
PHENANTHRENE	20	J D	17	LOD	33	LOQ	ug/Kg	J	RI
PYRENE	24	J D	17	LOD	33	LOQ	ug/Kg	J	RI

10/5/2017 4:11:0

**Sample ID:** SHAD041DP026SS03NS      **Collected:** PM      **Analysis Type:** RES-BASE/NEUTRAL      **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.71	J	3.8	LOD	7.4	LOQ	ug/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24924-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/5/2017 2:23:0

Sample ID: SHAD041DP013SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.86	U Q	0.86	LOD	4.3	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROENZENE	0.86	U Q	0.86	LOD	4.3	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROENZENE	0.86	U Q	0.86	LOD	4.3	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.86	U Q	0.86	LOD	4.3	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.88	J Q	0.86	LOD	4.3	LOQ	ug/Kg	J	RI, Surr
VINYL CHLORIDE	0.86	U Q	0.86	LOD	8.6	LOQ	ug/Kg	UJ	Ccv
Xylene (Total)	4.9	J Q	4.3	LOD	8.6	LOQ	ug/Kg	J	RI, Surr

10/5/2017 2:34:0

Sample ID: SHAD041DP013SS02NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	0.92	U Q	0.92	LOD	9.2	LOQ	ug/Kg	UJ	Ccv

10/5/2017 2:44:0

Sample ID: SHAD041DP013SS03NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.0	U Q	1.0	LOD	10	LOQ	ug/Kg	UJ	Ccv

10/5/2017 3:06:0

Sample ID: SHAD041DP013SS04NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	0.87	U Q	0.87	LOD	8.7	LOQ	ug/Kg	UJ	Ccv

10/5/2017 3:15:0

Sample ID: SHAD041DP013SS05DS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.1	U Q	1.1	LOD	11	LOQ	ug/Kg	UJ	Ccv

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/19/2017 3:18:53 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24924-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/5/2017 3:10:0

Sample ID: SHAD041DP013SS05NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.2	U Q	1.2	LOD	12	LOQ	ug/Kg	UJ	Ccv

10/5/2017 3:18:0

Sample ID: SHAD041DP013SS06NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.1	U Q	1.1	LOD	11	LOQ	ug/Kg	UJ	Ccv

10/5/2017 4:45:0

Sample ID: SHAD041DP022SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,1,2,2-TETRACHLOROETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,1,2-TRICHLOROETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,1-DICHLOROETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,1-DICHLOROETHENE	4.5	U Q	4.5	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROBENZENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROPROPANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
1,4-DICHLOROBENZENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
BENZENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
BROMODICHLOROMETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
BROMOFORM	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
CARBON TETRACHLORIDE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
CHLORODIBROMOMETHANE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
CHLOROFORM	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
CHLOROMETHANE	4.5	U Q	4.5	LOD	9.1	LOQ	ug/Kg	UJ	Surr, Is
CIS-1,2-DICHLOROETHENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
CIS-1,3-DICHLOROPROPENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
ETHYLBENZENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24924-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

**Sample ID:** SHAD041DP022SS01NS

**Collected:** PM

**Analysis Type:** RES

**Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHYLENE CHLORIDE	4.5	U Q	4.5	LOD	9.1	LOQ	ug/Kg	UJ	Surr, Is
TETRACHLOROETHENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
TOLUENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
TRANS-1,2-DICHLOROETHENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
TRANS-1,3-DICHLOROPROPENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
TRICHLOROETHENE	0.91	U Q	0.91	LOD	4.5	LOQ	ug/Kg	UJ	Surr, Is
VINYL CHLORIDE	0.91	U Q	0.91	LOD	9.1	LOQ	ug/Kg	UJ	Surr, Is
Xylene (Total)	4.5	U Q	4.5	LOD	9.1	LOQ	ug/Kg	UJ	Surr, Is

**Sample ID:** SHAD041DP022SS02NS

**Collected:** PM

**Analysis Type:** RES

**Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,1,2,2-TETRACHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,1,2-TRICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,1-DICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,1-DICHLOROETHENE	4.7	U Q	4.7	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROBENZENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROPROPANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROBENZENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
BENZENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
BROMODICHLOROMETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
CARBON TETRACHLORIDE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
CHLORODIBROMOMETHANE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
CHLOROFORM	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
CHLOROMETHANE	4.7	U Q	4.7	LOD	9.4	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

**Project Name and Number:** 05122.01 - SHAD-041

12/19/2017 3:18:53 PM

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24924-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/5/2017 4:55:0

Sample ID: SHAD041DP022SS02NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CIS-1,2-DICHLOROETHENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
CIS-1,3-DICHLOROPROPENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
METHYLENE CHLORIDE	4.7	U Q	4.7	LOD	9.4	LOQ	ug/Kg	UJ	Is
TETRACHLOROETHENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
TOLUENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
TRANS-1,2-DICHLOROETHENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
TRANS-1,3-DICHLOROPROPENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
TRICHLOROETHENE	0.94	U Q	0.94	LOD	4.7	LOQ	ug/Kg	UJ	Is
VINYL CHLORIDE	0.94	U Q	0.94	LOD	9.4	LOQ	ug/Kg	UJ	Is
Xylene (Total)	4.7	U Q	4.7	LOD	9.4	LOQ	ug/Kg	UJ	Is

10/5/2017 5:15:0

Sample ID: SHAD041DP022SS05NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.1	U Q	1.1	LOD	11	LOQ	ug/Kg	UJ	Ccv

10/5/2017 5:23:0

Sample ID: SHAD041DP022SS06NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.1	U Q	1.1	LOD	11	LOQ	ug/Kg	UJ	Ccv

10/5/2017 4:04:0

Sample ID: SHAD041DP026SS02NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.89	U Q	0.89	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.89	U Q	0.89	LOD	4.4	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	0.89	U Q	0.89	LOD	4.4	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.89	U Q	0.89	LOD	4.4	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24924-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

Sample ID: SHAD041DP026SS02NS

Collected: PM

10/5/2017 4:04:0

Analysis Type: RES

Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code

SDG: 160-24925-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

Sample ID: SHAD041DP008SS03NS

Collected: AM

10/5/2017 10:05:

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.3	J D	4.0	LOD	5.3	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP008SS04NS

Collected: AM

10/5/2017 10:18:

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.9	J D	4.5	LOD	6.0	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP008SS05NS

Collected: AM

10/5/2017 10:35:

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	3.4	J D	4.4	LOD	5.9	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP008SS06NS

Collected: AM

10/5/2017 10:45:

Analysis Type: RES/TOT

Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.3	J D	4.1	LOD	5.5	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24925-1

**Method Category:** METALS

**Method:** 6010C

**Matrix:** SO

10/5/2017 11:30

Sample ID: SHAD041DP010SS02DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.2	J D	3.5	LOD	4.7	LOQ	mg/Kg	J	RI

10/5/2017 11:22

Sample ID: SHAD041DP010SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.5	J D	3.4	LOD	4.6	LOQ	mg/Kg	J	RI

10/5/2017 11:42

Sample ID: SHAD041DP010SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	2.0	J D	4.3	LOD	5.7	LOQ	mg/Kg	J	RI

10/5/2017 1:34:0

Sample ID: SHAD041DP015SS05NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	4.2	J D	4.2	LOD	5.5	LOQ	mg/Kg	J	RI

10/5/2017 1:50:0

Sample ID: SHAD041DP015SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
LEAD	5.0	J D	3.9	LOD	5.2	LOQ	mg/Kg	J	RI

**Method Category:** METALS

**Method:** 7196A

**Matrix:** AQ

10/5/2017 2:30:0

Sample ID: SHAD041EQ003WS01NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	5.0	U H	5.0	LOD	10	LOQ	ug/L	UJ	StoA

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24925-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** AQ

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/5/2017 10:05:

Sample ID: SHAD041DP008SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.31	J	0.21	LOD	0.41	LOQ	mg/Kg	J	RI

10/5/2017 10:18:

Sample ID: SHAD041DP008SS04NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.36	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

10/5/2017 10:45:

Sample ID: SHAD041DP008SS06NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.28	J	0.22	LOD	0.45	LOQ	mg/Kg	J	RI

10/5/2017 11:30:

Sample ID: SHAD041DP010SS02DS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.27	J	0.21	LOD	0.43	LOQ	mg/Kg	J	RI

10/5/2017 11:22:

Sample ID: SHAD041DP010SS02NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.22	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

10/5/2017 11:35:

Sample ID: SHAD041DP010SS03NS      Collected: AM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.34	J	0.23	LOD	0.45	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24925-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

Sample ID: SHAD041DP010SS04NS		10/5/2017 11:42 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.33	J	0.23	LOD	0.46	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP010SS05NS		10/5/2017 11:44 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.15	J	0.21	LOD	0.42	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP010SS06NS		10/5/2017 11:47 Collected: AM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.24	J	0.26	LOD	0.51	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP015SS02NS		10/5/2017 1:15:0 Collected: PM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.34	J	0.20	LOD	0.41	LOQ	mg/Kg	J	RI, Ms

Sample ID: SHAD041DP015SS03NS		10/5/2017 1:20:0 Collected: PM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.26	J	0.21	LOD	0.43	LOQ	mg/Kg	J	RI

Sample ID: SHAD041DP015SS04NS		10/5/2017 1:25:0 Collected: PM			Analysis Type: RES/TOT			Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.34	J	0.20	LOD	0.41	LOQ	mg/Kg	J	RI

\* denotes a non-reportable result

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24925-1

**Method Category:** METALS

**Method:** 7196A

**Matrix:** SO

10/5/2017 1:34:0

Sample ID: SHAD041DP015SS05NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.26	J	0.22	LOD	0.44	LOQ	mg/Kg	J	RI

10/5/2017 1:50:0

Sample ID: SHAD041DP015SS06NS      Collected: PM      Analysis Type: RES/TOT      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Chromium(VI)	0.23	J	0.24	LOD	0.48	LOQ	mg/Kg	J	RI

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** AQ

10/5/2017 2:30:0

Sample ID: SHAD041EQ003WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	0.10	U Q	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
ACENAPHTHENE	0.10	U Q	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
ACENAPHTHYLENE	0.10	U Q	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
ANTHRACENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
BENZ(A)ANTHRACENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
BENZO(A)PYRENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
CHRYSENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
DIBENZO(A,H)ANTHRACENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
FLUORANTHENE	0.10	U Q	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
FLUORENE	0.10	U Q	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
NAPHTHALENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24925-1

**Method Category:** SVOA

**Method:** 8270D SIM

**Matrix:** AQ

10/5/2017 2:30:0

Sample ID: SHAD041EQ003WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PHENANTHRENE	0.10	U	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr
PYRENE	0.10	U Q	0.10	LOD	0.20	LOQ	ug/L	UJ	Surr

10/6/2017 2:30:0

Sample ID: SHAD041EQ004WS01NS      Collected: PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-Methylnaphthalene	0.095	U Q	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
2-METHYLNAPHTHALENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
ACENAPHTHENE	0.095	U Q	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
ACENAPHTHYLENE	0.095	U Q	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
ANTHRACENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
BENZ(A)ANTHRACENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
BENZO(A)PYRENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
BENZO(B)FLUORANTHENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
BENZO(G,H,I)PERYLENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
BENZO(K)FLUORANTHENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
CHRYSENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
DIBENZO(A,H)ANTHRACENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
FLUORANTHENE	0.095	U Q	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
FLUORENE	0.095	U Q	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
INDENO(1,2,3-CD)PYRENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
NAPHTHALENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
PHENANTHRENE	0.095	U	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr
PYRENE	0.095	U Q	0.095	LOD	0.19	LOQ	ug/L	UJ	Surr

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Laboratory: TA STL, TESTAME

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24925-1

**Method Category:** SVOA  
**Method:** 8270D SIM **Matrix:** SO

10/5/2017 12:55  
**Sample ID:** SHAD041DP015SS01NS **Collected:** PM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZ(A)ANTHRACENE	17	J D	33	LOD	66	LOQ	ug/Kg	J	RI
BENZO(A)PYRENE	13	J D	33	LOD	66	LOQ	ug/Kg	J	RI
BENZO(B)FLUORANTHENE	22	J D M	33	LOD	66	LOQ	ug/Kg	J	RI
BENZO(G,H,I)PERYLENE	14	J D	33	LOD	66	LOQ	ug/Kg	J	RI
CHRYSENE	17	J D	33	LOD	66	LOQ	ug/Kg	J	RI
FLUORANTHENE	20	J D	33	LOD	66	LOQ	ug/Kg	J	RI
PYRENE	18	J D	33	LOD	66	LOQ	ug/Kg	J	RI

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/5/2017 10:05  
**Sample ID:** SHAD041DP008SS03NS **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.0	U Q	1.0	LOD	10	LOQ	ug/Kg	UJ	Ccv

10/5/2017 10:18  
**Sample ID:** SHAD041DP008SS04NS **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.1	U Q	1.1	LOD	11	LOQ	ug/Kg	UJ	Ccv

10/5/2017 10:35  
**Sample ID:** SHAD041DP008SS05NS **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.41	J	0.93	LOD	4.7	LOQ	ug/Kg	J	RI
VINYL CHLORIDE	0.93	U Q	0.93	LOD	9.3	LOQ	ug/Kg	UJ	Ccv

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME  
 eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24925-1

**Method Category:** VOA  
**Method:** 8260C **Matrix:** SO

10/5/2017 10:45

Sample ID: SHAD041DP008SS06NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	0.78	U Q	0.78	LOD	7.8	LOQ	ug/Kg	UJ	Ccv

10/5/2017 11:15

Sample ID: SHAD041DP010SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,1-TRICHLOROETHANE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
1,1,2,2-TETRACHLOROETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr, Is
1,1,2-TRICHLOROETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
1,1-DICHLOROETHENE	4.1	U Q	4.1	LOD	4.1	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROETHANE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
1,2-DICHLOROBENZENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr, Is
1,2-DICHLOROPROPANE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
1,4-DICHLOROBENZENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr, Is
BENZENE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
BROMODICHLOROMETHANE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
BROMOFORM	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr, Is
CARBON TETRACHLORIDE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
CHLORODIBROMOMETHANE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
CHLOROFORM	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
CHLOROMETHANE	4.1	U Q	4.1	LOD	8.2	LOQ	ug/Kg	UJ	Surr
CIS-1,2-DICHLOROETHENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
CIS-1,3-DICHLOROPROPENE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
ETHYLBENZENE	1.5	J Q	0.82	LOD	4.1	LOQ	ug/Kg	J	RI, Surr
METHYLENE CHLORIDE	4.1	U Q	4.1	LOD	8.2	LOQ	ug/Kg	UJ	Surr
TETRACHLOROETHENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
TOLUENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
TRANS-1,2-DICHLOROETHENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr

\* denotes a non-reportable result  
 Project Name and Number: 05122.01 - SHAD-041  
 12/19/2017 3:18:53 PM



# Data Qualifier Summary

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

SDG: 160-24925-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/5/2017 11:15

Sample ID: SHAD041DP010SS01NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRANS-1,3-DICHLOROPROPENE	0.82	U Q	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
TRICHLOROETHENE	0.82	U	0.82	LOD	4.1	LOQ	ug/Kg	UJ	Surr
VINYL CHLORIDE	0.82	U Q	0.82	LOD	8.2	LOQ	ug/Kg	UJ	Surr, Ccv
Xylene (Total)	12	Q	4.1	LOD	8.2	LOQ	ug/Kg	J-	Surr

10/5/2017 11:30

Sample ID: SHAD041DP010SS02DS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
VINYL CHLORIDE	1.0	U Q	1.0	LOD	10	LOQ	ug/Kg	UJ	Ccv

10/5/2017 11:22

Sample ID: SHAD041DP010SS02NS      Collected: AM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
VINYL CHLORIDE	0.97	U Q	0.97	LOD	9.7	LOQ	ug/Kg	UJ	Ccv

10/5/2017 12:55

Sample ID: SHAD041DP015SS01NS      Collected: PM      Analysis Type: RES      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1,2,2-TETRACHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,1,2-TRICHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,2-DICHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
1,4-DICHLOROETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
BROMOFORM	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
CHLORODIBROMOMETHANE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
ETHYLBENZENE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
 EDD Filename: Prep160-24848-1, Prep160-24848-2,  
 Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
 Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
 Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
 Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
 Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
 Prep160-24955-2

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

SDG: 160-24925-1

**Method Category:** VOA

**Method:** 8260C

**Matrix:** SO

10/5/2017 12:55

Sample ID: SHAD041DP015SS01NS

Collected: PM

Analysis Type: RES

Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TETRACHLOROETHENE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
TOLUENE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
TRANS-1,3-DICHLOROPROPENE	0.97	U Q	0.97	LOD	4.8	LOQ	ug/Kg	UJ	Is
Xylene (Total)	4.8	U Q	4.8	LOD	9.7	LOQ	ug/Kg	UJ	Is

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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## Data Qualifier Summary

160-24851-1, 160-24851-2, 160-24917-1, 160-24917-2,  
EDD Filename: Prep160-24848-1, Prep160-24848-2,  
Prep160-24851-1, Prep160-24851-2, Prep160-24917-1,  
Prep160-24917-2, Prep160-24922-1, Prep160-24922-2,  
Prep160-24924-1, Prep160-24925-1, Prep160-24948-1,  
Prep160-24949-1, Prep160-24950-1, Prep160-24951-1,  
Prep160-24952-1, Prep160-24953-1, Prep160-24955-1,  
Prep160-24955-2

Laboratory: TA STL, TESTAME

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

### Reason Code Legend

<i>Reason Code</i>	<i>Description</i>
Ccv	Continuing Calibration Verification Percent Difference Lower Estimation
Eb	Equipment Blank Contamination
Fd	Field Duplicate Precision
Is	Internal Standard Estimation
Lcs	Laboratory Control Spike Lower Estimation
Lcs	Laboratory Control Spike Upper Estimation
Mb	Method Blank Contamination
Ms	Matrix Spike Lower Estimation
Ms	Matrix Spike Lower Rejection
Ms	Matrix Spike Precision
Ms	Matrix Spike Upper Estimation
ProfJudg	Professional Judgment
RI	Reporting Limit Trace Value
StoA	Sampling to Analysis Estimation
Surr	Surrogate/Tracer Recovery Lower Estimation
Surr	Surrogate/Tracer Recovery Lower Rejection
Surr	Surrogate/Tracer Recovery Upper Estimation

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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**Enclosure I**

**Stage 2B ADR Outliers**

**(Including Manual Review Outliers)**

# Quality Control Outlier Reports

160-24848-1



# Surrogate Outlier Report

Lab Reporting Batch ID: 160-24848-1

Laboratory: TA STL

EDD Filename: 160-24848-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8260C  
**Matrix:** SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP002SS 01NS	1,2-DICHLOROETHANE-D4	49	71.00-136.00	All Target Analytes	J- (all detects) UJ (all non-detects)
	4-Bromofluorobenzene	33	79.00-119.00		
	DIBROMOFLUOROMETHANE	46	78.00-119.00		
	TOLUENE-D8	35	85.00-116.00		
SHAD041DP006SS 01NS	4-Bromofluorobenzene	141	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP006SS 02NS	4-Bromofluorobenzene	122	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP025SS 01NS	4-Bromofluorobenzene	175	79.00-119.00	All Target Analytes	J+(all detects)
	DIBROMOFLUOROMETHANE	132	78.00-119.00		
	TOLUENE-D8	153	85.00-116.00		

**Method:** 8270D SIM  
**Matrix:** SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP002SS 01NS	2-FLUOROBIPHENYL	0	46.00-115.00	All Base/Neutral Target Analytes	No Qual, Diluted Out
	Nitrobenzene-d5	0	44.00-125.00		
	Terphenyl-d14	0	58.00-133.00		

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24848-1

Laboratory: TA STL

EDD Filename: 160-24848-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8260C**

**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP002SS01NSMS SHAD041DP002SS01NSMSD (SHAD041DP002SS01NS)	1,1,1-TRICHLOROETHANE	205	-	73.00-130.00	66 (20.00)	1,1,1-TRICHLOROETHANE	J (all detects)
	1,1,2,2-TETRACHLOROETHANE	271	134	70.00-124.00	67 (20.00)	1,1,2,2-TETRACHLOROETH	
	1,1,2-TRICHLOROETHANE	206	-	78.00-124.00	62 (20.00)	1,1,2-TRICHLOROETHANE	
	1,1-DICHLOROETHANE	203	-	76.00-125.00	64 (20.00)	1,1-DICHLOROETHANE	
	1,1-DICHLOROETHENE	194	-	70.00-131.00	66 (20.00)	1,1-DICHLOROETHENE	
	1,2-DICHLOROBENZENE	198	-	78.00-121.00	75 (20.00)	1,2-DICHLOROBENZENE	
	1,2-DICHLOROETHANE	199	-	73.00-128.00	60 (20.00)	1,2-DICHLOROETHANE	
	1,2-DICHLOROPROPANE	208	-	76.00-123.00	63 (20.00)	1,2-DICHLOROPROPANE	
	1,4-DICHLOROBENZENE	210	-	75.00-120.00	77 (20.00)	1,4-DICHLOROBENZENE	
	BENZENE	197	-	77.00-121.00	65 (20.00)	BENZENE	
	BROMODICHLOROMETHANE	197	-	75.00-127.00	62 (20.00)	BROMODICHLOROMETHA	
	BROMOFORM	291	144	67.00-132.00	67 (20.00)	BROMOFORM	
	CARBON TETRACHLORIDE	200	-	70.00-135.00	68 (20.00)	CARBON TETRACHLORIDE	
	CHLORODIBROMOMETHANE	212	-	74.00-126.00	66 (20.00)	CHLORODIBROMOMETHA	
	CHLOROFORM	199	-	78.00-123.00	65 (20.00)	CHLOROFORM	
	CHLOROMETHANE	182	-	50.00-136.00	61 (20.00)	CHLOROMETHANE	
	CIS-1,2-DICHLOROETHENE	204	-	77.00-123.00	63 (20.00)	CIS-1,2-DICHLOROETHENE	
	CIS-1,3-DICHLOROPROPENE	177	-	74.00-126.00	60 (20.00)	CIS-1,3-DICHLOROPROPE	
	ETHYLBENZENE	224	-	76.00-122.00	80 (20.00)	ETHYLBENZENE	
	METHYLENE CHLORIDE	199	-	70.00-128.00	63 (20.00)	METHYLENE CHLORIDE	
TETRACHLOROETHENE	201	-	73.00-128.00	74 (20.00)	TETRACHLOROETHENE		
TOLUENE	218	-	77.00-121.00	71 (20.00)	TOLUENE		
TRANS-1,2-DICHLOROETHENE	195	-	74.00-125.00	64 (20.00)	TRANS-1,2-DICHLOROETH		
TRANS-1,3-DICHLOROPROPENE	200	-	71.00-130.00	62 (20.00)	TRANS-1,3-DICHLOROPRO		
TRICHLOROETHENE	189	-	77.00-123.00	67 (20.00)	TRICHLOROETHENE		
VINYL CHLORIDE	166	-	56.00-135.00	61 (20.00)	VINYL CHLORIDE		

**Method: 7196A**

**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP002SS01NSMSI (TOT) (SHAD041DP002SS01NS)	Chromium(VI)	41	-	84.00-110.00	-	Chromium(VI)	J-(all detects) UJ(all non-detects)

**Method: 6010C**

**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP002SS01NSMS (TOT) (SHAD041DP002SS01NS)	LEAD	120	-	81.00-112.00	-	LEAD	J+(all detects)

**Method: 7196A**

**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP006SS04NSMSI (TOT) (SHAD041DP006SS04NS)	Chromium(VI)	53	-	84.00-110.00	-	Chromium(VI)	J-(all detects) UJ(all non-detects)

Project Name and Number: 05122.01 - SHAD-041

12/13/2017 3:34:17 PM

ADR version 1.9.0.325

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# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24848-1

Laboratory: TA STL

EDD Filename: 160-24848-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8270D SIM  
**Matrix:** SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP006SS04NSMSD (SHAD041DP006SS04NS)	ACENAPHTHYLENE NAPHTHALENE	-	-	39.00-116.00 38.00-111.00	27 (20.00) 23 (20.00)	ACENAPHTHYLENE NAPHTHALENE	J(all detects)



# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24848-1

Laboratory: TA STL

EDD Filename: 160-24848-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 6010C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP002SS06NS	LEAD	J D	4.2	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP006SS03NS	LEAD	J D	3.5	4.8	LOQ	mg/Kg	J (all detects)
SHAD041DP006SS04NS	LEAD	J D	3.6	5.7	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS01NS	LEAD	J D	2.8	5.1	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS02NS	LEAD	J D	3.6	5.4	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS03NS	LEAD	J D	4.7	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS04NS	LEAD	J D	3.8	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS03NS	LEAD	J D	4.0	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS04DS	LEAD	J D	2.4	5.1	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS04NS	LEAD	J D	2.0	5.1	LOQ	mg/Kg	J (all detects)
SHAD041DP024SS03NS	LEAD	J D	5.0	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP024SS04NS	LEAD	J D	2.8	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP025S04NS	LEAD	J D	2.9	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP025SS02NS	LEAD	J D	2.4	5.6	LOQ	mg/Kg	J (all detects)

**Method:** 7196A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP002SS03NS	Chromium(VI)	J	0.35	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP002SS06NS	Chromium(VI)	J	0.23	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP006SS02NS	Chromium(VI)	J	0.39	0.40	LOQ	mg/Kg	J (all detects)
SHAD041DP006SS03NS	Chromium(VI)	J	0.26	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP006SS04NS	Chromium(VI)	J	0.12	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP006SS06NS	Chromium(VI)	J	0.24	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS01NS	Chromium(VI)	J	0.19	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS02NS	Chromium(VI)	J	0.19	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS03NS	Chromium(VI)	J	0.22	0.49	LOQ	mg/Kg	J (all detects)
SHAD041DP019SS04NS	Chromium(VI)	J	0.27	0.49	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS02NS	Chromium(VI)	J	0.31	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS03NS	Chromium(VI)	J	0.27	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS04DS	Chromium(VI)	J	0.14	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP020SS04NS	Chromium(VI)	J	0.18	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP024SS01NS	Chromium(VI)	J	0.34	0.43	LOQ	mg/Kg	J (all detects)

Project Name and Number: 05122.01 - SHAD-041

12/13/2017 2:54:24 PM

ADR version 1.9.0.325

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## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24848-1

Laboratory: TA STL

EDD Filename: 160-24848-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 7196A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP024SS02NS	Chromium(VI)	J	0.20	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP024SS03NS	Chromium(VI)	J	0.27	0.49	LOQ	mg/Kg	J (all detects)
SHAD041DP024SS04NS	Chromium(VI)	J	0.26	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP0255S04NS	Chromium(VI)	J	0.31	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP025SS02NS	Chromium(VI)	J	0.15	0.46	LOQ	mg/Kg	J (all detects)

**Method:** 8260C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP002SS01NS	ETHYLBENZENE	Q J	0.81	5.0	LOQ	ug/Kg	J (all detects)
	Xylene (Total)	J Q	5.8	10	LOQ	ug/Kg	
SHAD041DP006SS02NS	Xylene (Total)	J	0.99	10	LOQ	ug/Kg	J (all detects)
SHAD041DP019SS02NS	Xylene (Total)	J	0.91	9.3	LOQ	ug/Kg	J (all detects)
SHAD041DP020SS03NS	METHYLENE CHLORIDE	J	5.0	12	LOQ	ug/Kg	J (all detects)

**Method:** 8270D SIM  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP002SS02NS	BENZO(A)PYRENE	J	0.95	7.0	LOQ	ug/Kg	J (all detects)
	BENZO(B)FLUORANTHENE	J	2.3	7.0	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	2.5	7.0	LOQ	ug/Kg	
	CHRYSENE	J	2.1	7.0	LOQ	ug/Kg	
SHAD041DP002SS03NS	BENZO(B)FLUORANTHENE	J	1.9	7.4	LOQ	ug/Kg	J (all detects)
	FLUORANTHENE	J	1.8	7.4	LOQ	ug/Kg	
	PYRENE	J	1.6	7.4	LOQ	ug/Kg	
SHAD041DP002SS04NS	BENZO(A)PYRENE	J	1.0	7.5	LOQ	ug/Kg	J (all detects)
	CHRYSENE	J	3.0	7.5	LOQ	ug/Kg	
SHAD041DP006SS01NS	BENZO(A)PYRENE	J D	56	66	LOQ	ug/Kg	J (all detects)
	BENZO(B)FLUORANTHENE	J D	41	66	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J D	29	66	LOQ	ug/Kg	
	BENZO(K)FLUORANTHENE	J D	20	66	LOQ	ug/Kg	
	CHRYSENE	J D	64	66	LOQ	ug/Kg	
	FLUORANTHENE	J D	39	66	LOQ	ug/Kg	
	PYRENE	J D	36	66	LOQ	ug/Kg	
SHAD041DP006SS02NS	BENZ(A)ANTHRACENE	J D	16	68	LOQ	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J D	15	68	LOQ	ug/Kg	

## Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24848-1

Laboratory: TA STL

EDD Filename: 160-24848-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP020SS04N S (TOT)	SHAD041DP020SS04D S (TOT)			
CHROMIUM	7.0	7.6	8	30.00	No Qualifiers Applied
LEAD	2.0	2.4	18	30.00	

**Method: 7196A**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP020SS04N S (TOT)	SHAD041DP020SS04D S (TOT)			
Chromium(VI)	0.18	0.14	25	30.00	No Qualifiers Applied

LDC #: 39889A1  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**

ADR/N

Date: 1/29/17  
 Page: 1 of 3  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	Not reviewed for ADR validation.
VI.	Field blanks	NO	TB = 1
VII.	Surrogate spikes	N	Not reviewed for ADR validation.
VIII.	Matrix spike/Matrix spike duplicates	↓	Not reviewed for ADR validation.
IX.	Laboratory control samples	↓	Not reviewed for ADR validation.
X.	Field duplicates	NO	D = 17 + 18
XI.	Internal standards	N	Not reviewed for ADR validation.
XII.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation.
XIII.	Target compound identification	↓	Not reviewed for ADR validation.
XIV.	System performance	↓	Not reviewed for ADR validation.
XV.	Overall assessment of data	↓	Not reviewed for ADR validation.

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB-100317-01	160-24848-1	Water	10/03/17
2 /	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
3 /	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
4 /	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
5 /	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
6 /	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
7 /	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
8 /	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
9 /	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
10 /	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
11 /	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
12 /	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
13 /	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17

LDC #: 39889A1

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24848-1

ADR/IV

Laboratory: Test America, Inc.

Date: 11/29/17

Page: 2 of 2

Reviewer: *[Signature]*

2nd Reviewer: *[Signature]*

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
15	SHAD041DP020SS02NS**	160-24848-15**	Soil	10/03/17
16	SHAD041DP020SS03NS**	160-24848-16**	Soil	10/03/17
17	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
18	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17
19	SHAD041DP002SS01NS **	160-24848-19 **	Soil	10/04/17
20	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
21	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
22	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
23	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
24	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
25	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
26	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
27	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
28	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
29	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
30	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
31	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
32	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
33	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
34	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
35				
36				
37				
38				
39				

Notes:

MB 160-330814/1A				
MB 160-331091/1A				
MB 160-331630/1A				



# TARGET COMPOUND WORKSHEET

## METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethane	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethane, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3-Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

VALIDATION FINDINGS WORKSHEET  
Internal Standards

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
Were all internal standard area counts within -50 to +100% of the associated calibration standard? Y  
Were the retention times of the internal standards within +/- 30 seconds of the associated calibration standard? N

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		19 (ND)	AOCB	130783 (196656-786624)		J+ M/A
		31 (MS)	FBZ	666360 (793739-3174956)		No Qual
			CBZ	361394 (497327-1997308)		
			AOCB	104560 (196656-786624)		↓
		2 (ND)	CBZ	428271		J+ M/A
			AOCB	92229		
		14 (ND)	CBZ	399178		
			AOCB	70751		↓
		25 (ND)	AOCB	118978		J+ M/A
		26 (ND)	AOCB	142376		

(BCM) = Bromochloromethane  
(DFB) = 1,4-Difluorobenzene  
(CBZ) = Chlorobenzene-d5  
(PFB) = Pentafluorobenzene  
(4DCB) = 1,4-Dichlorobenzene-d4  
(2DCB) = 1,2-Dichlorobenzene-d4  
(FBZ) = Fluorobenzene

Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform

LDC #: 39889A2b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 11/29/17

SDG #: 160-24848-1

ADRIX

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	RSD < 15%. ICV < 20/0
IV.	Continuing calibration <i>pending</i>	A	CCV < 20/50%
V.	Laboratory Blanks	N	Not reviewed for ADR validation.
VI.	Field blanks	↓	
VII.	Surrogate spikes	↓	Not reviewed for ADR validation.
VIII.	Matrix spike/Matrix spike duplicates	<del>N</del>	Not reviewed for ADR validation. <del>NO out - no ass'd</del>
IX.	Laboratory control samples	N	Not reviewed for ADR validation.
X.	Field duplicates	NO	0 = 16 + 17
XI.	Internal standards	W	Not reviewed for ADR validation.
XII.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation.
XIII.	Target compound identification	↓	Not reviewed for ADR validation.
XIV.	System performance	↓	Not reviewed for ADR validation.
XV.	Overall assessment of data	↓	Not reviewed for ADR validation.

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17



LDC #: 39889A2b

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24848-1

ADR/IV

Laboratory: Test America, Inc.

Date: 10/9/17

Page: 2 of 3

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP020SS02NS	160-24848-15	Soil	10/03/17
15	SHAD041DP020SS03NS	160-24848-16	Soil	10/03/17
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17
18	SHAD041DP002SS01NS <del>XX</del>	160-24848-19 <del>XX</del>	Soil	10/04/17
19	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
31	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
32				
33				
34				
35				
36				

Notes:


# VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1. N-Nitrosodiethylamine
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1. N-Nitrosodi-n-butylamine
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1. N-Nitrosomethylethylamine
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1. N-Nitrosomorpholine
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1. N-Nitrosopyrrolidine
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1. Phenacetin
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1. 2-Acetylaminofluorene
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1. Pronamide
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1. Methyl methanesulfonate
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1. Ethyl methanesulfonate
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Alrazine	K1. o,o',o'-Triethylphosphorothioate
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1. n-Phenylene diamine
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1. 1,4-Naphthoquinone
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1. N-Nitro-o-toluidine
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1. 1,3,5-Trinitrobenzene
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1. Pentachlorobenzene
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1. 4-Aminobiphenyl
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1. 2-Naphthylamine
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/β-Dimethyldibenzothiophene (4MDT)	S1. Triphenylene
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1. Octachlorostyrene
U. Hexachlorobutadiene	UU. Phenanthrene	UUU. Benzo(b)thiophene	UUUU. 2,3,4,6-Tetrachlorophenol	U1. Famphur
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV. Benzonaphthothiophene	VVVV. 1,2,4,5-Tetrachlorobenzene	V1. 1,4-phenylenediamine
W. 2-Methylnaphthalene	WW. Carbazole	WWW. Benzo(e)pyrene	WWWW. 2-Picoline	W1. Methapyrene
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX. 3-Methylolanthrene	X1. Pentachloroethane
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY. a,a-Dimethylphenethylamine	Y1. 3,3'-Dimethylbenzidine
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ. Hexachloropropene	Z1. o-Toluidine

(\*) ~~PERY~~



LDC #: 39889A3b

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24848-1

ADR ~~X~~

Laboratory: Test America, Inc.

Date: 11/30/17

Page: 1 of 5

Reviewer: *[Signature]*2nd Reviewer: *[Signature]***METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration/ICV	<del>A</del> A	
III.	Continuing calibration	A	
IV.	Laboratory Blanks	N	Not reviewed for ADR validation.
V.	Field blanks		
VI.	Surrogate spikes		Not reviewed for ADR validation.
VII.	Matrix spike/Matrix spike duplicates		Not reviewed for ADR validation.
VIII.	Laboratory control samples		Not reviewed for ADR validation.
IX.	Field duplicates	ND	D = 16 + 17
X.	Compound quantitation/RL/LOQ/LODs	N	Not reviewed for ADR validation.
XI.	Target compound identification	V	Not reviewed for ADR validation.
XII.	Overall assessment of data		Not reviewed for ADR validation.

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
14	SHAD041DP020SS02NS**	160-24848-15**	Soil	10/03/17
15	SHAD041DP020SS03NS**	160-24848-16**	Soil	10/03/17
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17



LDC #: 39889A3b

### VALIDATION COMPLETENESS WORKSHEET

Date: 11/30/17

SDG #: 160-24848-1

ADR/IV

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP002SS01NS **	160-24848-19 **	Soil	10/04/17
19	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
31	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
32	SHAD041DP002SS03NSMS	160-24848-21MS	Soil	10/04/17
33	SHAD041DP002SS03NSMSD	160-24848-21MSD	Soil	10/04/17
34	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
35	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
36				
37				
38				
39				
40				

Notes:


LDC #: 39889A4b  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**

ADR#

Date: 12-6-17

Page: 1 of 2

Reviewer: MG

2nd Reviewer: *[Signature]*

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	Not reviewed for ADR validation. MS/MSD
VII.	Duplicate sample analysis	N	Not reviewed for ADR validation.
VIII.	Serial Dilution	SW	SD: 18, 27
IX.	Laboratory control samples	A	Not reviewed for ADR validation. LCS
X.	Field Duplicates	N	D= 16+17
XI.	Sample Result Verification	A	Not reviewed for ADR validation.
XII.	Overall Assessment of Data	A	Not reviewed for ADR validation.

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
14	SHAD041DP020SS02NS**	160-24848-15**	Soil	10/03/17
15	SHAD041DP020SS03NS**	160-24848-16**	Soil	10/03/17
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17

LDC #: 39889A4b  
SDG #: 160-24848-1  
Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
ADR/IV

Date: 12-6-17  
Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: *[Signature]*

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

	Client ID	Lab ID	Matrix	Date
18 <sup>1</sup>	SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17
19 <sup>1</sup>	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20 <sup>1</sup>	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21 <sup>2</sup>	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22 <sup>2</sup>	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23 <sup>2</sup>	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24 <sup>2</sup>	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25 <sup>2</sup>	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26 <sup>2</sup>	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27 <sup>2</sup>	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28 <sup>2</sup>	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29 <sup>2</sup>	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30 <sup>1</sup>	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
31 <sup>1</sup>	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
32 <sup>2</sup>	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
33 <sup>2</sup>	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
34				
35				
36				
37 <sup>1</sup>	PBS1			
38 <sup>2</sup>	PBS2			

Notes: \_\_\_\_\_  
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LDC #: 39889A6  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR#V

Date: 12-6-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	Not reviewed for ADR validation. MS/MSD
VII.	Duplicate sample analysis	N	Not reviewed for ADR validation.
VIII.	Laboratory control samples	A	Not reviewed for ADR validation. LCS
IX.	Field duplicates	N	D = 16 + 17
X.	Sample result verification	A	Not reviewed for ADR validation.
XI	Overall assessment of data	A	Not reviewed for ADR validation.

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank  
 N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:  
 SW = See worksheet FB = Field blank EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
14	SHAD041DP020SS02NS**	160-24848-15**	Soil	10/03/17
15	SHAD041DP020SS03NS**	160-24848-16**	Soil	10/03/17
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17

LDC #: 39889A6

VALIDATION COMPLETENESS WORKSHEET

Date: 12-6-17

SDG #: 160-24848-1

ADR/IV

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG  
2nd Reviewer: [Signature]

METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)

	Client ID	Lab ID	Matrix	Date
18	1 SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17
19	1 SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	1 SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	2 SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	2 SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	2 SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	2 SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	2 SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	2 SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	2 SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	2 SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	2 SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	1 SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
31	1 SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
32	2 SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
33	2 SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
34				
35				
36				
37	1 PBS1			
38	2 PBS2			

Notes:

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# Quality Control Outlier Reports

160-24848-2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-188400/1-A	11/1/2017 7:14:00 AM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD OCDD	0.105 pg/g 0.0711 pg/g 0.141 pg/g 0.0441 pg/g 0.498 pg/g	SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP020SS02NS SHAD041DP020SS03NS SHAD041DP020SS04DS SHAD041DP020SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP025SS04NS SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS
MB 320-188746/1-A	10/24/2017 8:06:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF OCDD OCDF	0.167 pg/g 0.0444 pg/g 0.154 pg/g 0.0294 pg/g 0.0351 pg/g 0.0361 pg/g 0.743 pg/g 0.106 pg/g	SHAD041DP002SS01NS SHAD041DP002SS02NS SHAD041DP002SS03NS SHAD041DP002SS04NS SHAD041DP002SS05NS SHAD041DP002SS06NS SHAD041DP006SS01NS SHAD041DP006SS02NS SHAD041DP006SS03NS SHAD041DP006SS04NS SHAD041DP006SS05NS SHAD041DP006SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP002SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.49 pg/g	0.49U pg/g
SHAD041DP002SS04NS(RE)	1,2,3,4,7,8-HxCDD	0.60 pg/g	0.60U pg/g
SHAD041DP002SS05NS(RE)	1,2,3,4,7,8-HxCDD	0.33 pg/g	0.33U pg/g
SHAD041DP002SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.47 pg/g	0.47U pg/g
SHAD041DP002SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.061 pg/g	0.061U pg/g
SHAD041DP002SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP002SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.045 pg/g	0.045U pg/g
SHAD041DP002SS06NS(RES)	OCDD	3.2 pg/g	3.2U pg/g
SHAD041DP002SS06NS(RES)	OCDF	0.25 pg/g	0.25U pg/g
SHAD041DP006SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP006SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.20 pg/g	0.20U pg/g
SHAD041DP006SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP006SS04NS(RES)	1,2,3,6,7,8-HxCDD	0.13 pg/g	0.13U pg/g
SHAD041DP006SS04NS(RES)	1,2,3,7,8,9-HxCDF	0.13 pg/g	0.13U pg/g
SHAD041DP006SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.18 pg/g	0.18U pg/g
SHAD041DP006SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP006SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.12 pg/g	0.12U pg/g
SHAD041DP006SS05NS(RES)	OCDF	0.48 pg/g	0.48U pg/g
SHAD041DP006SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.61 pg/g	0.61U pg/g

Project Name and Number: 05122.01 - SHAD-041

12/13/2017 3:55:40 PM

ADR version 1.9.0.325

Page 1 of 2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP006SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.11 pg/g	0.11U pg/g
SHAD041DP006SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.30 pg/g	0.30U pg/g
SHAD041DP006SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.098 pg/g	0.098U pg/g
SHAD041DP006SS06NS(RES)	1,2,3,7,8,9-HxCDF	0.048 pg/g	0.048U pg/g
SHAD041DP006SS06NS(RES)	OCDD	3.0 pg/g	3.0U pg/g
SHAD041DP006SS06NS(RES)	OCDF	0.33 pg/g	0.33U pg/g
SHAD041DP019SS01NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP019SS02NS(RES)	1,2,3,4,7,8-HxCDD	0.16 pg/g	0.16U pg/g
SHAD041DP019SS02NS(RES)	1,2,3,7,8,9-HxCDD	0.19 pg/g	0.19U pg/g
SHAD041DP019SS03NS(RES)	1,2,3,4,6,7,8-HpCDD	0.47 pg/g	0.47U pg/g
SHAD041DP019SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.17 pg/g	0.17U pg/g
SHAD041DP019SS03NS(RES)	1,2,3,7,8,9-HxCDD	0.11 pg/g	0.11U pg/g
SHAD041DP019SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP019SS04NS(RES)	1,2,3,7,8,9-HxCDD	0.10 pg/g	0.10U pg/g
SHAD041DP020SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.21 pg/g	0.21U pg/g
SHAD041DP020SS03NS(RES)	1,2,3,7,8,9-HxCDD	0.13 pg/g	0.13U pg/g
SHAD041DP020SS04DS(RES)	1,2,3,4,6,7,8-HpCDF	0.24 pg/g	0.24U pg/g
SHAD041DP020SS04DS(RES)	1,2,3,4,7,8-HxCDD	0.11 pg/g	0.11U pg/g
SHAD041DP020SS04DS(RES)	1,2,3,7,8,9-HxCDD	0.095 pg/g	0.095U pg/g
SHAD041DP020SS04DS(RES)	OCDD	2.3 pg/g	2.3U pg/g
SHAD041DP020SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.38 pg/g	0.38U pg/g
SHAD041DP020SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.21 pg/g	0.21U pg/g
SHAD041DP020SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.17 pg/g	0.17U pg/g
SHAD041DP020SS04NS(RES)	OCDD	2.0 pg/g	2.0U pg/g
SHAD041DP024SS01NS(RE)	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29U pg/g
SHAD041DP024SS02NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP024SS03NS(RES)	1,2,3,4,6,7,8-HpCDF	0.20 pg/g	0.20U pg/g
SHAD041DP024SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP024SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP024SS04NS(RES)	1,2,3,7,8,9-HxCDD	0.11 pg/g	0.11U pg/g
SHAD041DP025SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.52 pg/g	0.52U pg/g
SHAD041DP025SS02NS(RES)	1,2,3,4,7,8-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP025SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.40 pg/g	0.40U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP002SS01NSMS	1,2,3,4,6,7,8-HpCDD**	235	151	76.00-125.00	-	1,2,3,4,6,7,8-HpCDD**	J+ (all detects) ** >4x, No Qual
SHAD041DP002SS01NSMSD	1,2,3,4,6,7,8-HpCDF	145	-	73.00-135.00	-	1,2,3,4,6,7,8-HpCDF	
(SHAD041DP002SS01NS)	1,2,3,4,7,8,9-HpCDF	133	-	72.00-131.00	-	1,2,3,4,7,8,9-HpCDF	
	OCDD	848	508	73.00-135.00	-	OCDD	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP002SS02NS	1,2,3,4,7,8,9-HpCDF	J M	3.2	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	2.5	5.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	4.4	5.2	MRL	pg/g	
	1,2,3,7,8-PeCDF	J M	2.2	5.2	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	4.4	5.2	MRL	pg/g	
SHAD041DP002SS03NS	1,2,3,4,6,7,8-HpCDF	J	3.2	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,7,8,9-HpCDF	J	2.0	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.49	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M	0.52	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.56	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.34	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.67	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.22	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.29	5.7	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.31	5.7	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.29	5.7	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.28	1.1	MRL	pg/g	
OCDF	J	4.3	11	MRL	pg/g		
SHAD041DP002SS04NS	1,2,3,4,7,8,9-HpCDF	J	0.92	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.60	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	1.4	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	1.4	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	1.0	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	1.2	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDF	J M	0.47	5.7	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.67	5.7	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.61	5.7	MRL	pg/g	
2,3,7,8-TCDF	J M	0.63	1.1	MRL	pg/g		
SHAD041DP002SS05NS	1,2,3,4,6,7,8-HpCDD	J	3.0	6.6	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.61	6.6	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.33	6.6	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	0.25	6.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.19	6.6	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.26	6.6	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.10	6.6	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.10	6.6	MRL	pg/g	
OCDF	J	0.82	13	MRL	pg/g		
SHAD041DP002SS06NS	1,2,3,4,6,7,8-HpCDD	J M	0.47	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.061	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.23	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.045	6.0	MRL	pg/g	
	OCDD	J	3.2	12	MRL	pg/g	
	OCDF	J	0.25	12	MRL	pg/g	
SHAD041DP006SS01NS	1,2,3,4,7,8-HxCDD	J M	5.0	5.1	MRL	pg/g	J (all detects)
SHAD041DP006SS02NS	1,2,3,4,7,8-HxCDD	J	1.6	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J M	2.5	5.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M	3.2	5.2	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	1.8	5.2	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	1.4	5.2	MRL	pg/g	
	2,3,7,8-TCDD	J M	0.37	1.0	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.47	1.0	MRL	pg/g	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP006SS03NS	1,2,3,4,6,7,8-HpCDD	J M	2.5	5.5	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.59	5.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.25	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.63	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.65	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.26	5.5	MRL	pg/g	
	OCDF	J	2.3	11	MRL	pg/g	
SHAD041DP006SS04NS	1,2,3,4,6,7,8-HpCDD	J M	0.86	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.20	6.0	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J	0.25	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.26	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	0.072	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.13	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.23	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.13	6.0	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J M	0.10	6.0	MRL	pg/g	
	OCDD	J	7.1	12	MRL	pg/g	
OCDF	J	1.6	12	MRL	pg/g		
SHAD041DP006SS05NS	1,2,3,4,6,7,8-HpCDD	J M	2.2	6.7	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.18	6.7	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J	0.17	6.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.26	6.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.17	6.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.071	6.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.37	6.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.12	6.7	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.10	6.7	MRL	pg/g	
	OCDF	J	0.48	13	MRL	pg/g	
SHAD041DP006SS06NS	1,2,3,4,6,7,8-HpCDD	J	0.61	6.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.11	6.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.30	6.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.098	6.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J M	0.048	6.1	MRL	pg/g	
	OCDD	J	3.0	12	MRL	pg/g	
	OCDF	J M	0.33	12	MRL	pg/g	
SHAD041DP019SS01NS	1,2,3,4,6,7,8-HpCDD	J	2.0	5.3	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.63	5.3	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.20	5.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.58	5.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.13	5.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.65	5.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J M	0.15	5.3	MRL	pg/g	
	OCDD	J	8.4	11	MRL	pg/g	
	OCDF	J	0.66	11	MRL	pg/g	
SHAD041DP019SS02NS	1,2,3,4,6,7,8-HpCDD	J	1.3	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.41	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.16	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.14	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.19	5.8	MRL	pg/g	
	OCDD	J	7.8	12	MRL	pg/g	
	OCDF	J	0.48	12	MRL	pg/g	

# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP019SS03NS	1,2,3,4,6,7,8-HpCDD	J	0.47	6.3	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.17	6.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.096	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.11	6.3	MRL	pg/g	
	OCDD	J	3.2	13	MRL	pg/g	
SHAD041DP019SS04NS	1,2,3,4,6,7,8-HpCDD	J	0.94	6.1	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.18	6.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.17	6.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.10	6.1	MRL	pg/g	
	OCDD	J	4.4	12	MRL	pg/g	
SHAD041DP020SS01NS	1,2,3,4,7,8,9-HpCDF	J M	1.4	5.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	2.6	5.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M	4.6	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	3.6	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDF	J M	2.0	5.0	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	3.9	5.0	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	3.4	5.0	MRL	pg/g	
	2,3,7,8-TCDD	J M	0.88	1.0	MRL	pg/g	
SHAD041DP020SS02NS	1,2,3,4,7,8-HxCDD	J	0.75	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J	1.5	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	3.4	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.87	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	3.1	5.8	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.64	5.8	MRL	pg/g	
	1,2,3,7,8-PeCDF	J M	0.45	5.8	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.69	5.8	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.78	5.8	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.86	1.2	MRL	pg/g	
	OCDF	J	7.8	12	MRL	pg/g	
SHAD041DP020SS03NS	1,2,3,4,6,7,8-HpCDD	J	0.63	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.21	6.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.13	6.2	MRL	pg/g	
	OCDD	J	4.7	12	MRL	pg/g	
SHAD041DP020SS04DS	1,2,3,4,6,7,8-HpCDD	J	0.54	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.24	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.11	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M	0.12	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.059	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M	0.054	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.095	5.7	MRL	pg/g	
	OCDD	J	2.3	11	MRL	pg/g	
	OCDF	J M	0.42	11	MRL	pg/g	
SHAD041DP020SS04NS	1,2,3,4,6,7,8-HpCDD	J M	0.38	5.6	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.21	5.6	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.17	5.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.077	5.6	MRL	pg/g	
	OCDD	J	2.0	11	MRL	pg/g	
	OCDF	J	0.33	11	MRL	pg/g	



## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP024SS01NS	1,2,3,4,6,7,8-HpCDF	J	3.8	5.4	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.29	5.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	1.4	5.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.44	5.4	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.78	5.4	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.18	5.4	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.20	5.4	MRL	pg/g	
	OCDF	J	3.1	11	MRL	pg/g	
SHAD041DP024SS02NS	1,2,3,4,6,7,8-HpCDF	J	2.4	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.26	5.9	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	1.3	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	1.2	5.9	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.16	5.9	MRL	pg/g	
	OCDF	J	2.3	12	MRL	pg/g	
SHAD041DP024SS03NS	1,2,3,4,6,7,8-HpCDD	J	0.89	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.20	6.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.20	6.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.15	6.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M	0.14	6.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.24	6.2	MRL	pg/g	
		OCDD	J	7.9	12	MRL	
	OCDF	J	0.24	12	MRL	pg/g	
SHAD041DP024SS04NS	1,2,3,4,6,7,8-HpCDD	J M	0.72	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.58	6.0	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J	0.17	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.23	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M	0.32	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.056	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M	0.065	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.11	6.0	MRL	pg/g	
		OCDD	J	3.9	12	MRL	
	OCDF	J	1.1	12	MRL	pg/g	
SHAD041DP025S04NS	1,2,3,4,6,7,8-HpCDD	J	0.52	5.8	MRL	pg/g	J (all detects)
	OCDD	J	4.3	12	MRL	pg/g	
SHAD041DP025SS01NS	1,2,3,4,7,8,9-HpCDF	J	2.2	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	3.8	5.2	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	4.1	5.2	MRL	pg/g	
SHAD041DP025SS02NS	1,2,3,4,6,7,8-HpCDD	J M	0.79	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.28	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.29	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.27	5.9	MRL	pg/g	
		OCDD	J	6.5	12	MRL	
SHAD041DP025SS03NS	1,2,3,4,6,7,8-HpCDF	J M	2.4	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.40	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	1.5	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.33	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	1.7	5.8	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.23	5.8	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.14	5.8	MRL	pg/g	
		OCDF	J	3.3	12	MRL	

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24848-2

Laboratory: TESTAME

EDD Filename: 160-24848-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** SO

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP020SS04N S	SHAD041DP020SS04D S			
1,2,3,4,6,7,8-HpCDD	0.38	0.54	35	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	0.21	0.24	13	30.00	
1,2,3,4,7,8-HxCDD	0.17	0.11	43	30.00	
1,2,3,4,7,8-HxCDF	5.6 U	0.12	200	30.00	
1,2,3,6,7,8-HxCDD	0.077	0.059	26	30.00	
1,2,3,6,7,8-HxCDF	5.6 U	0.054	200	30.00	
1,2,3,7,8,9-HxCDD	5.6 U	0.095	200	30.00	
OCDD	2.0	2.3	14	30.00	
OCDF	0.33	0.42	24	30.00	

LDC #: 39889B21

**VALIDATION COMPLETENESS WORKSHEET**

Date: 11/30/17

SDG #: 160-24848-2

ADR ~~XX~~

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	Not reviewed for ADR validation.
VI.	Field blanks	↓	
VII.	Matrix spike/Matrix spike duplicates	↓	Not reviewed for ADR validation.
VIII.	Laboratory control samples	↓	Not reviewed for ADR validation.
IX.	Field duplicates	SW	Not reviewed for ADR validation. D=16+17
X.	Internal standards	A A	
XI.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation.
XII.	Target compound identification	↓	Not reviewed for ADR validation.
XIII.	System performance	↓	Not reviewed for ADR validation.
XIV.	Overall assessment of data	↓	Not reviewed for ADR validation.

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1 /	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3 /	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4 *	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5 †	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS **	160-24848-12 **	Soil	10/03/17
12	SHAD041DP019SS04NS **	160-24848-13 **	Soil	10/03/17
13	SHAD041DP020SS01NS	160-24848-14	Soil	10/03/17
14	SHAD041DP020SS02NS	160-24848-15	Soil	10/03/17

LDC #: 39889B21

### VALIDATION COMPLETENESS WORKSHEET

Date: 11/20/17

SDG #: 160-24848-2

ADR/IV

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: *Y*

2nd Reviewer: *KK*

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

	Client ID	Lab ID	Matrix	Date
15	SHAD041DP020SS03NS	160-24848-16	Soil	10/03/17
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17
18	SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17
19	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	SHAD041DP020SS04DSMS	160-24848-18MS	Soil	10/03/17
31	SHAD041DP020SS04DSMSD	160-24848-18MSD	Soil	10/03/17
32	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
33	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
34	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
35	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
36				
37				
38				
39				
40				

Notes:

<i>MB 320-1884/20/HA</i>				



# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_

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LDC#: 39889B7

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<=30) RPD	Difference	Limits	Qual
	16	17				
C	0.17	0.11		0.06	≤5.7	
D	0.077	0.059		0.018	≤5.7	
P	0.38	0.54		0.16	≤5.7	
O	0.21	0.24		0.03	≤5.7	
G	2.0	2.3		0.3	≤11	
Q	0.33	0.42		0.09	≤11	
E	2.2U	0.095		2.105	≤5.7	
K	0.84U	0.12		0.72	≤5.7	
L	1.1U	0.054		1.046	≤5.7	

# Quality Control Outlier Reports

160-24851-1



# Surrogate Outlier Report

Lab Reporting Batch ID: 160-24851-1

Laboratory: TA STL

EDD Filename: 160-24851-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8260C  
**Matrix:** SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP011SS 01NS	DIBROMOFLUOROMETHANE	76	78.00-119.00	All Target Analytes	J- (all detects) UJ (all non-detects)
	TOLUENE-D8	78	85.00-116.00		

**Method:** 8270D SIM  
**Matrix:** SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041EQ001W S01NS	2-FLUOROBIPHENYL	34	46.00-115.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041EQ002W S01NS	2-FLUOROBIPHENYL	32	46.00-115.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24851-1

Laboratory: TA STL

EDD Filename: 160-24851-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8270D SIM**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP011SS03NSMSD (SHAD041DP011SS03NS)	BENZO(B)FLUORANTHENE	-	132	53.00-128.00	30 (20.00)	BENZO(B)FLUORANTHENE BENZO(K)FLUORANTHENE	J (all detects)
	BENZO(K)FLUORANTHENE	-	-	56.00-123.00	34 (20.00)		
SHAD041DP011SS03NSMS (SHAD041DP011SS03NS)	FLUORANTHENE	122	-	55.00-119.00	-	FLUORANTHENE	J+(all detects)

**Method: 6010C**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP011SS03NSMSD (TOT) (SHAD041DP011SS03NS)	CHROMIUM	-	84	85.00-113.00	-	CHROMIUM	J-(all detects) UJ(all non-detects)
	LEAD	-	131	81.00-112.00	-		
SHAD041DP011SS03NSMSD (TOT) (SHAD041DP011SS03NS)	LEAD	-	131	81.00-112.00	-	LEAD	J+(all detects)

**Method: 8260C**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP011SS03NSMSD (SHAD041DP011SS03NS)	1,1,2,2-TETRACHLOROETHANE	-	-	70.00-124.00	22 (20.00)	1,1,2,2-TETRACHLOROETH BROMOFORM TRANS-1,3-DICHLOROPROPENE	J(all detects)
	BROMOFORM	-	-	67.00-132.00	26 (20.00)		
	TRANS-1,3-DICHLOROPROPENE	-	-	71.00-130.00	21 (20.00)		
SHAD041DP011SS03NSMS SHAD041DP011SS03NSMSD (SHAD041DP011SS03NS)	1,1,2-TRICHLOROETHANE	74	-	78.00-124.00	22 (20.00)	1,1,2-TRICHLOROETHANE	J(all detects) UJ(all non-detects)
SHAD041DP011SS03NSMS (SHAD041DP011SS03NS)	1,2-DICHLOROBENZENE	76	-	78.00-121.00	-	1,2-DICHLOROBENZENE CIS-1,3-DICHLOROPROPENE	J-(all detects) UJ(all non-detects)
	CIS-1,3-DICHLOROPROPENE	73	-	74.00-126.00	-		

**Method: 7196A**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP011SS03NSMSI (TOT) (SHAD041DP011SS03NS)	Chromium(VI)	53	-	84.00-110.00	-	Chromium(VI)	J-(all detects) UJ(all non-detects)

# Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24851-1

Laboratory: TA STL

EDD Filename: 160-24851-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8270D SIM**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCS 160-331212/2-A (SHAD041DP011SS01NS SHAD041DP011SS02NS SHAD041DP011SS03NS SHAD041DP011SS04NS SHAD041DP011SS05NS SHAD041DP011SS06NS)	PYRENE	138	-	55.00-117.00	-	PYRENE	J+ (all detects)

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24851-1

Laboratory: TA STL

EDD Filename: 160-24851-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 6010C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP011SS04NS	LEAD	J D	3.2	4.9	LOQ	mg/Kg	J (all detects)
SHAD041DP011SS06NS	LEAD	J D	5.3	5.9	LOQ	mg/Kg	J (all detects)

**Method:** 7196A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP011SS02NS	Chromium(VI)	J	0.29	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP011SS03NS	Chromium(VI)	J	0.44	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP011SS04NS	Chromium(VI)	J	0.25	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP011SS06NS	Chromium(VI)	J	0.27	0.47	LOQ	mg/Kg	J (all detects)



LDC #: 39889C1

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/17

SDG #: 160-24851-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSO ≤ 1570. Y <sup>2</sup>   CV ≤ 20%
IV.	Continuing calibration / ending	A	CCV ≤ 20/50/0
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	9-14 = TB. EB = 7-8
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP011-SS-01NS	160-24851-1	Soil	10/04/17
2	SHAD041DP011-SS-02NS	160-24851-2	Soil	10/04/17
3	SHAD041DP011-SS-03NS	160-24851-3	Soil	10/04/17
4	SHAD041DP011-SS-04NS	160-24851-4	Soil	10/04/17
5	SHAD041DP011-SS-05NS	160-24851-5	Soil	10/04/17
6	SHAD041DP011-SS-06NS	160-24851-6	Soil	10/04/17
7	SHAD041EQ001WS01NS	160-24851-7	Soil	10/04/17
8	SHAD041EQ002WS01NS	160-24851-8	Soil	10/04/17
9	TB-100417-01	160-24851-9	Water	10/04/17
10	TB-100417-02	160-24851-10	Water	10/04/17
11	TB-100417-03	160-24851-11	Water	10/04/17
12	TB-100417-04	160-24851-12	Water	10/04/17
13	TB-100417-05	160-24851-13	Water	10/04/17

LDC #: 39889C1

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24851-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	TB-100417-06	160-24851-14	Water	10/04/17
15	SHAD041DP011-SS-03NSMS	160-24851-3MS	Soil	10/04/17
16	SHAD041DP011-SS-03NSMSD	160-24851-3MSD	Soil	10/04/17
17				
18				
19				
20				
21				

Notes:




Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform



LDC #: 39889C2b

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24851-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 10 of 1

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/W	RSO ≤ 15%. Y <sup>2</sup> CV = 20%
IV.	Continuing calibration / 12nd day	W	CV ≤ 20/30%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	EB = 7.8
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP011 SS 01NS	160-24851-1	Soil	10/04/17
2	SHAD041DP011 SS 02NS	160-24851-2	Soil	10/04/17
3	SHAD041DP011 SS 03NS	160-24851-3	Soil	10/04/17
4	SHAD041DP011 SS 04NS	160-24851-4	Soil	10/04/17
5	SHAD041DP011 SS 05NS	160-24851-5	Soil	10/04/17
6	SHAD041DP011 SS 06NS	160-24851-6	Soil	10/04/17
7	SHAD041EQ001WS01NS	160-24851-7	Soil W	10/04/17
8	SHAD041EQ002WS01NS	160-24851-8	Soil W	10/04/17
9	SHAD041DP011 SS 03NSMS	160-24851-3MS	Soil	10/04/17
10	SHAD041DP011 SS 03NSMSD	160-24851-3MSD	Soil	10/04/17
11				
12				
13				

# VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1. N-Nitrosodimethylamine
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1. N-Nitrosodi-n-butylamine
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1. N-Nitrosomethylethylamine
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1. N-Nitrosomorpholine
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1. N-Nitrosopyrrolidine
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1. Phenacetin
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1. 2-Acetylaminofluorene
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1. Pronamide
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1. Methyl methanesulfonate
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1. Ethyl methanesulfonate
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1. o,o',o''-Triethylphosphorothioate
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1. n-Phenylene diamine
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1. 1,4-Naphthoquinone
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1. N-Nitro-o-toluidine
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1. 1,3,5-Trinitrobenzene
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1. Pentachlorobenzene
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1. 4-Aminobiphenyl
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1. 2-Naphthylamine
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1. Triphenylene
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1. Octachlorostyrene
U. Hexachlorobutadiene	UU. Phenanthrene	UUU. Benzo(b)thiophene	UUUU. 2,3,4,6-Tetrachlorophenol	U1. Famphur
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV. Benzonaphthothiophene	VVVV. 1,2,4,5-Tetrachlorobenzene	V1. 1,4-phenylenediamine
W. 2-Methylnaphthalene	WW. Carbazole	WWW. Benzo(e)pyrene	WWWW. 2-Picoline	W1. Methapyrilene
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX. 3-Methylanthrene	X1. Pentachloroethane
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY. a,a-Dimethylphenethylamine	Y1. 3,3'-Dimethylbenzidine
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ. Hexachloropropene	Z1. o-Toluidine







LDC #: 39889C3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/17

SDG #: 160-24851-1

ADR

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration/ICV	A/A	
III.	Continuing calibration	A	
IV.	Laboratory Blanks	N	
V.	Field blanks	ND	EB = 7 + 8
VI.	Surrogate spikes / IS	N/A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Compound quantitation/RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP011-SS-01NS	160-24851-1	Soil	10/04/17
2	SHAD041DP011-SS-02NS	160-24851-2	Soil	10/04/17
3	SHAD041DP011-SS-03NS	160-24851-3	Soil	10/04/17
4	SHAD041DP011-SS-04NS	160-24851-4	Soil	10/04/17
5	SHAD041DP011-SS-05NS	160-24851-5	Soil	10/04/17
6	SHAD041DP011-SS-06NS	160-24851-6	Soil	10/04/17
7	SHAD041EQ001WS01NS	160-24851-7	Soil - W	10/04/17
8	SHAD041EQ002WS01NS	160-24851-8	Soil - W	10/04/17
9	SHAD041DP011-SS-03NSMS	160-24851-3MS	Soil	10/04/17
10	SHAD041DP011-SS-03NSMSD	160-24851-3MSD	Soil	10/04/17
11				
12				
13				

Notes:


LDC #: 39889C4b  
 SDG #: 160-24851-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-6-17  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer:

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	R/N	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	EB = 7, 8
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD (Cr, Pb out in #10)
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	A	SD: 7
IX.	Laboratory control samples	N	LCS
X.	Field Duplicates	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP011SS01NS	160-24851-1	Soil	10/04/17
2	SHAD041DP011SS02NS	160-24851-2	Soil	10/04/17
3	SHAD041DP011SS03NS	160-24851-3	Soil	10/04/17
4	SHAD041DP011SS04NS	160-24851-4	Soil	10/04/17
5	SHAD041DP011SS05NS	160-24851-5	Soil	10/04/17
6	SHAD041DP011SS06NS	160-24851-6	Soil	10/04/17
7	SHAD041EQ001WS01NS	160-24851-7	Water	10/04/17
8	SHAD041EQ002WS01NS	160-24851-8	Water	10/04/17
9	SHAD041DP011SS03NSMS	160-24851-3MS	Soil	10/04/17
10	SHAD041DP011SS03NSMSD	160-24851-3MSD	Soil	10/04/17
11	SHAD041EQ001WS01NSMS	160-24851-7MS	Water	10/04/17
12	SHAD041EQ001WS01NSMSD	160-24851-7MSD	Water	10/04/17
13				
14				
15	PBS			
16	PBW			

Notes:



LDC #: 39889C6  
 SDG #: 160-24851-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-6-17  
 Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	N	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	
V.	Field blanks	N	EB = 7, 8
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD (Insoluble Cr VI out in #9)
VII.	Duplicate sample analysis	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP011SS01NS	160-24851-1	Soil	10/04/17
2	SHAD041DP011SS02NS	160-24851-2	Soil	10/04/17
3	SHAD041DP011SS03NS	160-24851-3	Soil	10/04/17
4	SHAD041DP011SS04NS	160-24851-4	Soil	10/04/17
5	SHAD041DP011SS05NS	160-24851-5	Soil	10/04/17
6	SHAD041DP011SS06NS	160-24851-6	Soil	10/04/17
7	SHAD041EQ001WS01NS	160-24851-7	Water	10/04/17
8	SHAD041EQ002WS01NS	160-24851-8	Water	10/04/17
9	SHAD041DP011SS03NSMS	160-24851-3MS	Soil	10/04/17
10	SHAD041DP011SS03NSMSD	160-24851-3MSD	Soil	10/04/17
11	SHAD041EQ001WS01NSMS	160-24851-7MS	Water	10/04/17
12	SHAD041EQ001WS01NSDUP	160-24851-7DUP	Water	10/04/17
13				
14	PBS			
15	PBW			

Notes: \_\_\_\_\_



# Quality Control Outlier Reports

160-24851-2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** AQ

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-188490/1-A	11/8/2017 2:54:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF OCDD OCDF	1.23 pg/L 2.62 pg/L 1.10 pg/L 0.462 pg/L 0.418 pg/L 2.45 pg/L 1.13 pg/L	SHAD041EQ001WS01NS SHAD041EQ002WS01NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041EQ001WS01NS(RES)	1,2,3,4,6,7,8-HpCDD	3.2 pg/L	3.2U pg/L
SHAD041EQ001WS01NS(RES)	1,2,3,4,7,8-HxCDD	4.0 pg/L	4.0U pg/L
SHAD041EQ001WS01NS(RES)	1,2,3,7,8,9-HxCDD	2.8 pg/L	2.8U pg/L
SHAD041EQ001WS01NS(RES)	2,3,4,6,7,8-HxCDF	1.9 pg/L	1.9U pg/L
SHAD041EQ001WS01NS(RES)	OCDD	7.1 pg/L	7.1U pg/L
SHAD041EQ001WS01NS(RES)	OCDF	4.7 pg/L	4.7U pg/L
SHAD041EQ002WS01NS(RES)	1,2,3,4,6,7,8-HpCDD	1.9 pg/L	1.9U pg/L
SHAD041EQ002WS01NS(RES)	1,2,3,4,7,8-HxCDD	2.7 pg/L	2.7U pg/L
SHAD041EQ002WS01NS(RES)	1,2,3,7,8,9-HxCDD	1.2 pg/L	1.2U pg/L
SHAD041EQ002WS01NS(RES)	1,2,3,7,8,9-HxCDF	1.2 pg/L	1.2U pg/L
SHAD041EQ002WS01NS(RES)	2,3,4,6,7,8-HxCDF	0.67 pg/L	0.67U pg/L
SHAD041EQ002WS01NS(RES)	OCDD	4.1 pg/L	4.1U pg/L
SHAD041EQ002WS01NS(RES)	OCDF	2.5 pg/L	2.5U pg/L

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-188877/1-A	11/9/2017 12:33:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 2,3,7,8-TCDF OCDD OCDF	0.271 pg/g 0.127 pg/g 0.107 pg/g 0.129 pg/g 0.153 pg/g 0.159 pg/g 0.0718 pg/g 0.599 pg/g 0.288 pg/g	SHAD041DP011SS01NS SHAD041DP011SS02NS SHAD041DP011SS03NS SHAD041DP011SS04NS SHAD041DP011SS05NS SHAD041DP011SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP011SS04NS(RE)	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,7,8,9-HxCDF	0.39 pg/g	0.39U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,7,8-PeCDD	0.22 pg/g	0.22U pg/g
SHAD041DP011SS04NS(RE)	OCDF	0.61 pg/g	0.61U pg/g

Project Name and Number: 05122.01 - SHAD-041

12/14/2017 10:17:24 AM

ADR version 1.9.0.325

Page 1 of 2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: 8290A

Matrix: SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP011SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.30 pg/g	0.30U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.40 pg/g	0.40U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.36 pg/g	0.36U pg/g
SHAD041DP011SS05NS(RES)	OCDF	0.56 pg/g	0.56U pg/g
SHAD041DP011SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.78 pg/g	0.78U pg/g
SHAD041DP011SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.24 pg/g	0.24U pg/g
SHAD041DP011SS06NS(RES)	OCDD	2.5 pg/g	2.5U pg/g
SHAD041DP011SS06NS(RES)	OCDF	0.43 pg/g	0.43U pg/g

# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
SHAD041EQ001WS01NS (RES)	10/4/2017 2:40:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF OCDD OCDF	3.2 pg/L 2.1 pg/L 2.1 pg/L 4 pg/L 1.8 pg/L 1.5 pg/L 1.6 pg/L 2.8 pg/L 2.8 pg/L 2.1 pg/L 2 pg/L 1.9 pg/L 2 pg/L 7.1 pg/L 4.7 pg/L	SHAD041DP011SS01NS SHAD041DP011SS02NS SHAD041DP011SS03NS SHAD041DP011SS04NS SHAD041DP011SS05NS SHAD041DP011SS06NS
SHAD041EQ002WS01NS (RES)	10/4/2017 2:50:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF 2,3,7,8-TCDD OCDD OCDF	1.9 pg/L 1.6 pg/L 2.7 pg/L 0.82 pg/L 0.84 pg/L 1.2 pg/L 1.2 pg/L 0.73 pg/L 0.91 pg/L 0.67 pg/L 0.64 pg/L 0.81 pg/L 4.1 pg/L 2.5 pg/L	SHAD041DP011SS01NS SHAD041DP011SS02NS SHAD041DP011SS03NS SHAD041DP011SS04NS SHAD041DP011SS05NS SHAD041DP011SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP011SS02NS(RE)	1,2,3,4,7,8-HxCDD	3.8 pg/g	3.8U pg/g
SHAD041DP011SS02NS(RE)	1,2,3,7,8-PeCDD	10 pg/g	10U pg/g
SHAD041DP011SS02NS(RE)	1,2,3,7,8-PeCDF	1.1 pg/g	1.1U pg/g
SHAD041DP011SS02NS(RE)	2,3,4,7,8-PeCDF	1.8 pg/g	1.8U pg/g
SHAD041DP011SS02NS(RE)	2,3,7,8-TCDD	2.0 pg/g	2.0U pg/g
SHAD041DP011SS03NS(RE)	1,2,3,4,7,8-HxCDD	14 pg/g	14U pg/g
SHAD041DP011SS03NS(RE)	1,2,3,7,8-PeCDF	4.5 pg/g	4.5U pg/g
SHAD041DP011SS03NS(RE)	2,3,4,7,8-PeCDF	8.1 pg/g	8.1U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,4,6,7,8-HpCDD	2.5 pg/g	2.5U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,4,6,7,8-HpCDF	1.0 pg/g	1.0U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,6,7,8-HxCDD	0.89 pg/g	0.89U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,7,8,9-HxCDD	0.60 pg/g	0.60U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,7,8,9-HxCDF	0.39 pg/g	0.39U pg/g
SHAD041DP011SS04NS(RE)	1,2,3,7,8-PeCDD	0.22 pg/g	0.22U pg/g
SHAD041DP011SS04NS(RE)	OCDD	4.3 pg/g	4.3U pg/g
SHAD041DP011SS04NS(RE)	OCDF	0.61 pg/g	0.61U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	2.9 pg/g	2.9U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.30 pg/g	0.30U pg/g

**Project Name and Number: 05122.01 - SHAD-041**

12/14/2017 10:17:34 AM

ADR version 1.9.0.325

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP011SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.40 pg/g	0.40U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,6,7,8-HxCDD	0.44 pg/g	0.44U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,7,8,9-HxCDD	0.56 pg/g	0.56U pg/g
SHAD041DP011SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.36 pg/g	0.36U pg/g
SHAD041DP011SS05NS(RES)	OCDD	12 pg/g	12U pg/g
SHAD041DP011SS05NS(RES)	OCDF	0.56 pg/g	0.56U pg/g
SHAD041DP011SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.78 pg/g	0.78U pg/g
SHAD041DP011SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.24 pg/g	0.24U pg/g
SHAD041DP011SS06NS(RES)	1,2,3,6,7,8-HxCDD	0.21 pg/g	0.21U pg/g
SHAD041DP011SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP011SS06NS(RES)	OCDD	2.5 pg/g	2.5U pg/g
SHAD041DP011SS06NS(RES)	OCDF	0.43 pg/g	0.43U pg/g

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP011SS03NSMS	1,2,3,4,6,7,8-HpCDD**	-307	-644	76.00-125.00	56 (20.00)	1,2,3,4,6,7,8-HpCDD**	
SHAD041DP011SS03NSMSD	1,2,3,4,6,7,8-HpCDF	-45	-120	73.00-135.00	32 (20.00)	1,2,3,4,6,7,8-HpCDF	J (all detects)
(SHAD041DP011SS03NS)	1,2,3,6,7,8-HxCDD**	-7	-190	74.00-134.00	58 (20.00)	1,2,3,6,7,8-HxCDD**	** >4x, No Qual
	1,2,3,7,8,9-HxCDD	50	-27	71.00-138.00	41 (20.00)	1,2,3,7,8,9-HxCDD	
	OCDD	8	-68	73.00-135.00	33 (20.00)	OCDD	
SHAD041DP011SS03NSMS	1,2,3,7,8-PeCDD	65	45	74.00-125.00	-	1,2,3,7,8-PeCDD	J-(all detects)
SHAD041DP011SS03NSMSD	OCDF	47	31	66.00-144.00	-	OCDF	UJ(all non-detects)
(SHAD041DP011SS03NS)							

# Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCS 320-188490/2-A LCSD 320-188490/3-A (SHAD041EQ001WS01NS SHAD041EQ002WS01NS)	OCDD	76	76	81.00-135.00	-	OCDD	J- (all detects) UJ (all non-detects)

# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041EQ001WS01NS	1,2,3,4,6,7,8-HpCDD	J	3.2	47	MRL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	2.1	47	MRL	pg/L	
	1,2,3,4,7,8,9-HpCDF	J	2.1	47	MRL	pg/L	
	1,2,3,4,7,8-HxCDD	J	4.0	47	MRL	pg/L	
	1,2,3,4,7,8-HxCDF	J	1.8	47	MRL	pg/L	
	1,2,3,6,7,8-HxCDD	J	1.5	47	MRL	pg/L	
	1,2,3,6,7,8-HxCDF	J	1.6	47	MRL	pg/L	
	1,2,3,7,8,9-HxCDD	J	2.8	47	MRL	pg/L	
	1,2,3,7,8,9-HxCDF	J	2.8	47	MRL	pg/L	
	1,2,3,7,8-PeCDD	J	2.1	47	MRL	pg/L	
	1,2,3,7,8-PeCDF	J	2.0	47	MRL	pg/L	
	2,3,4,6,7,8-HxCDF	J	1.9	47	MRL	pg/L	
	2,3,4,7,8-PeCDF	J	2.0	47	MRL	pg/L	
	OCDD	J Q	7.1	110	MRL	pg/L	
	OCDF	J	4.7	95	MRL	pg/L	
SHAD041EQ002WS01NS	1,2,3,4,6,7,8-HpCDD	J	1.9	47	MRL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	1.6	47	MRL	pg/L	
	1,2,3,4,7,8-HxCDD	J	2.7	47	MRL	pg/L	
	1,2,3,4,7,8-HxCDF	J	0.82	47	MRL	pg/L	
	1,2,3,6,7,8-HxCDF	J	0.84	47	MRL	pg/L	
	1,2,3,7,8,9-HxCDD	J	1.2	47	MRL	pg/L	
	1,2,3,7,8,9-HxCDF	J	1.2	47	MRL	pg/L	
	1,2,3,7,8-PeCDD	J	0.73	47	MRL	pg/L	
	1,2,3,7,8-PeCDF	J	0.91	47	MRL	pg/L	
	2,3,4,6,7,8-HxCDF	J	0.67	47	MRL	pg/L	
	2,3,4,7,8-PeCDF	J	0.64	47	MRL	pg/L	
	2,3,7,8-TCDD	J	0.81	9.5	MRL	pg/L	
	OCDD	J Q	4.1	110	MRL	pg/L	
	OCDF	J	2.5	95	MRL	pg/L	

**Method:** EPA 903.1  
**Matrix:** AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041EQ001WS01NS	RADIUM-226		0.136	1.00	LOQ	pCi/L	J (all detects)

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP011SS02NS	1,2,3,4,7,8-HxCDD	J	3.8	5.3	MRL	pg/g	J (all detects)
	1,2,3,7,8-PeCDF	J M	1.1	5.3	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	1.8	5.3	MRL	pg/g	
SHAD041DP011SS03NS	1,2,3,7,8-PeCDF	J M	4.5	6.0	MRL	pg/g	J (all detects)



## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24851-2

Laboratory: TA STL

EDD Filename: 160-24851-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP011SS04NS	1,2,3,4,6,7,8-HpCDD	J	2.5	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	1.0	5.9	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.29	5.9	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.89	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.60	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.39	5.9	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.22	5.9	MRL	pg/g	
	OCDD	J	4.3	12	MRL	pg/g	
OCDF	J	0.61	12	MRL	pg/g		
SHAD041DP011SS05NS	1,2,3,4,6,7,8-HpCDD	J	2.9	6.6	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.30	6.6	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.40	6.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.44	6.6	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.56	6.6	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.36	6.6	MRL	pg/g	
	OCDD	J	12	13	MRL	pg/g	
	OCDF	J	0.56	13	MRL	pg/g	
SHAD041DP011SS06NS	1,2,3,4,6,7,8-HpCDD	J	0.78	6.4	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.24	6.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.21	6.4	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.28	6.4	MRL	pg/g	
	OCDD	J	2.5	13	MRL	pg/g	
	OCDF	J	0.43	13	MRL	pg/g	

LDC #: 39889D21

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24851-2

ADR

Laboratory: Test America, Inc.

Date: 11/29/17

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	
VI.	Field blanks	W	EB = 7-8
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP011SS01NS	160-24851-1	Soil	10/04/17
2	SHAD041DP011SS02NS	160-24851-2	Soil	10/04/17
3	SHAD041DP011SS03NS	160-24851-3	Soil	10/04/17
4	SHAD041DP011SS04NS	160-24851-4	Soil	10/04/17
5	SHAD041DP011SS05NS	160-24851-5	Soil	10/04/17
6	SHAD041DP011SS06NS	160-24851-6	Soil	10/04/17
7	SHAD041EQ001WS01NS	160-24851-7	Water	10/04/17
8	SHAD041EQ002WS01NS	160-24851-8	Water	10/04/17
9	SHAD041DP011SS03NSMS	160-24851-3MS	Soil	10/04/17
10	SHAD041DP011SS03NSMSD	160-24851-3MSD	Soil	10/04/17
11				
12				
13				
14				

# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_

\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** HRGC/HRMS Dioxins (EPA SW 846 Method 8290A)

**Blank units:** pg/L Associated sample units: pg/g

**Sampling date:** 10/4/17

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All

Compound	Blank ID		Sample Identification							
	7	8	5X	2	3	4	5	6		
A		0.81	4.05	2.0						
B	2.1	0.73	10.5	10		0.22				
C	4.0	2.7	20	3.8	14	0.29	0.40	0.24		
D	1.5		7.5			0.89	0.44	0.21		
E	2.8	1.2	14			0.60	0.56	0.28		
F	3.2	1.9	16			2.5	2.9	0.78		
G	7.1	4.1	35.5			4.3	12	2.5		
I	2.0	0.91	10	1.1	4.5					
J	2.0	0.64	10	1.8	8.1					
K	1.8	0.82	9							
L	1.6	0.84	8							
M	1.9	0.67	9.5							
N	2.8	1.2	14			0.39	0.36			
O	2.1	1.6	10.5			1.0	0.30			
P	2.1		10.5							
Q	4.7	2.5	23.5			0.61	0.56	0.43		

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



LDC #: 39889D29a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12-6-17

SDG #: 160-24851-2

ADR

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer: CA

**METHOD:** Radium 226 (EPA Method 903.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	N	
II.	Initial calibration	A	Self Absorption Curve ✓
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	EB = 1, 2
VI.	Matrix Spike/Matrix Spike Duplicates	N	client specified
VII.	Duplicates	N	" "
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	
X.	Carrier recovery	A ✓	
XI.	Minimum detectable activity (MDA)	A ✓	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041EQ001WS01NS	160-24851-7	soil Water	10/04/17
2	SHAD041EQ002WS01NS	160-24851-8	soil Water	10/04/17
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13	PBW			

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Quality Control Outlier Reports

160-24917-1

# Surrogate Outlier Report

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: 160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8082A**  
**Matrix: SO**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP012SS 01NS	DECACHLOROBIPHENYL	1467	44.00-150.00	All Target Analytes	J+(all detects)

**Method: 8260C**  
**Matrix: SO**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP004SS 01NS	4-Bromofluorobenzene TOLUENE-D8	155 128	79.00-119.00 85.00-116.00	All Target Analytes	J+ (all detects)
SHAD041DP004SS 02DS	4-Bromofluorobenzene	126	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP008SS 01DS	TOLUENE-D8	81	85.00-116.00	All Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP012SS 02DS	4-Bromofluorobenzene TOLUENE-D8	135 119	79.00-119.00 85.00-116.00	All Target Analytes	J+(all detects)
SHAD041DP017SS 02NS	4-Bromofluorobenzene TOLUENE-D8	120 118	79.00-119.00 85.00-116.00	All Target Analytes	J+(all detects)
SHAD041DP018SS 01NS	4-Bromofluorobenzene	130	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP018SS 02NS	TOLUENE-D8	117	85.00-116.00	All Target Analytes	J+(all detects)

**Method: 8270D SIM**  
**Matrix: SO**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP004SS 03NS	2-FLUOROBIPHENYL	42	46.00-115.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP004SS 04NS	2-FLUOROBIPHENYL Nitrobenzene-d5	16 17	46.00-115.00 44.00-125.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP004SS 05NS	2-FLUOROBIPHENYL Nitrobenzene-d5	21 41	46.00-115.00 44.00-125.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP004SS 06NS	2-FLUOROBIPHENYL Nitrobenzene-d5	16 21	46.00-115.00 44.00-125.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP008SS 01NS	2-FLUOROBIPHENYL Nitrobenzene-d5 Terphenyl-d14	0 0 0	46.00-115.00 44.00-125.00 58.00-133.00	All Base/Neutral Target Analytes	Diluted Out, No Qual
SHAD041DP012SS 04NS	2-FLUOROBIPHENYL Nitrobenzene-d5	29 40	46.00-115.00 44.00-125.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP012SS 05NS	2-FLUOROBIPHENYL Nitrobenzene-d5	19 31	46.00-115.00 44.00-125.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
SHAD041DP012SS 06NS	2-FLUOROBIPHENYL Nitrobenzene-d5	23 30	46.00-115.00 44.00-125.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: 160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**

**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP012SS03NSMS (TOT) SHAD041DP012SS03NSMSD (TOT) (SHAD041DP012SS03NS)	LEAD	127	137	81.00-112.00	-	LEAD	J+ (all detects)

**Method: 8270D SIM**

**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP017SS01NSMSD (SHAD041DP017SS01NS)	BENZO(B)FLUORANTHENE	-	-	53.00-128.00	21 (20.00)	BENZO(B)FLUORANTHENE	J(all detects)
SHAD041DP017SS01NSMS SHAD041DP017SS01NSMSD (SHAD041DP017SS01NS)	1-Methylnaphthalene DIBENZO(A,H)ANTHRACENE	0 0	0 0	43.00-111.00 50.00-129.00	- -	1-Methylnaphthalene DIBENZO(A,H)ANTHRACENE	Diluted Out, No Qual



## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: 160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 6010C

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP004SS02DS	LEAD	J D	2.7	4.8	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS02NS	LEAD	J D	2.4	4.5	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS03NS	LEAD	J D	3.1	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS04NS	LEAD	J D	2.9	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS05NS	LEAD	J D	3.8	5.9	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS06NS	LEAD	J D	4.8	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS02NS	LEAD	J D	1.8	4.5	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS04NS	LEAD	J D	3.2	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS05NS	LEAD	J D	5.0	5.7	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS06NS	LEAD	J D	4.3	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP017SS03NS	LEAD	J D	2.6	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP017SS04NS	LEAD	J D	3.6	5.8	LOQ	mg/Kg	J (all detects)
SHAD041DP018SS04NS	LEAD	J D	3.5	5.4	LOQ	mg/Kg	J (all detects)
SHAD041DP018SS05NS	LEAD	J D	4.3	5.6	LOQ	mg/Kg	J (all detects)

**Method:** 7196A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP004SS02DS	Chromium(VI)	J	0.20	0.40	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS02NS	Chromium(VI)	J	0.20	0.41	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS03NS	Chromium(VI)	J	0.23	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS04NS	Chromium(VI)	J	0.26	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS05NS	Chromium(VI)	J	0.46	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP004SS06NS	Chromium(VI)	J	0.25	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS01DS	Chromium(VI)	J	0.33	0.41	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS01NS	Chromium(VI)	J	0.31	0.39	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS02DS	Chromium(VI)	J	0.21	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS02NS	Chromium(VI)	J	0.36	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS03NS	Chromium(VI)	J	0.39	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS04NS	Chromium(VI)	J	0.28	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS05NS	Chromium(VI)	J	0.41	0.49	LOQ	mg/Kg	J (all detects)
SHAD041DP012SS06NS	Chromium(VI)	J	0.12	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP017SS03NS	Chromium(VI)	J	0.33	0.49	LOQ	mg/Kg	J (all detects)

Project Name and Number: 05122.01 - SHAD-041

12/14/2017 11:00:41 AM

ADR version 1.9.0.325

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## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: 160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 7196A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP017SS06DS	Chromium(VI)	J	0.30	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP017SS06NS	Chromium(VI)	J	0.36	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP018SS03NS	Chromium(VI)	J	0.14	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP018SS04NS	Chromium(VI)	J	0.30	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP018SS05NS	Chromium(VI)	J	0.24	0.49	LOQ	mg/Kg	J (all detects)
SHAD041DP018SS06NS	Chromium(VI)	J	0.27	0.43	LOQ	mg/Kg	J (all detects)

**Method:** 8082A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP018SS01NS	PCB-1260	J	23	33	LOQ	ug/Kg	J (all detects)

**Method:** 8260C

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP004SS01NS	ETHYLBENZENE	J Q	0.94	5.0	LOQ	ug/Kg	J (all detects)
	Xylene (Total)	J Q	6.5	9.9	LOQ	ug/Kg	
SHAD041DP004SS05NS	METHYLENE CHLORIDE	J	2.3	9.7	LOQ	ug/Kg	J (all detects)
SHAD041DP004SS06NS	METHYLENE CHLORIDE	J	2.2	7.9	LOQ	ug/Kg	J (all detects)
SHAD041DP008SS01DS	METHYLENE CHLORIDE	J	2.4	9.1	LOQ	ug/Kg	J (all detects)
SHAD041DP008SS01NS	ETHYLBENZENE	J	0.47	4.4	LOQ	ug/Kg	J (all detects)
	METHYLENE CHLORIDE	J	2.6	8.8	LOQ	ug/Kg	
	Xylene (Total)	J	4.3	8.8	LOQ	ug/Kg	
SHAD041DP017SS01NS	ETHYLBENZENE	J	1.0	4.1	LOQ	ug/Kg	J (all detects)
	Xylene (Total)	J	7.6	8.2	LOQ	ug/Kg	
SHAD041DP017SS06DS	METHYLENE CHLORIDE	J	3.6	10	LOQ	ug/Kg	J (all detects)
SHAD041DP017SS06NS	METHYLENE CHLORIDE	J	3.9	9.5	LOQ	ug/Kg	J (all detects)
SHAD041DP018SS01NS	METHYLENE CHLORIDE	J	4.5	8.5	LOQ	ug/Kg	J (all detects)
SHAD041DP018SS02NS	TOLUENE	J Q	0.75	4.6	LOQ	ug/Kg	J (all detects)
SHAD041DP018SS03NS	METHYLENE CHLORIDE	J	2.0	11	LOQ	ug/Kg	J (all detects)

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: 160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8270D SIM

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP017SS02NS	2-METHYLNAPHTHALENE	J	0.73	6.9	LOQ	ug/Kg	J (all detects)
	ANTHRACENE	J	1.0	6.9	LOQ	ug/Kg	
	BENZ(A)ANTHRACENE	J	1.5	6.9	LOQ	ug/Kg	
	BENZO(B)FLUORANTHENE	J	4.1	6.9	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	4.6	6.9	LOQ	ug/Kg	
	CHRYSENE	J	4.0	6.9	LOQ	ug/Kg	
	FLUORANTHENE	J	1.9	6.9	LOQ	ug/Kg	
	NAPHTHALENE	J	2.6	6.9	LOQ	ug/Kg	
	PHENANTHRENE	J	5.3	6.9	LOQ	ug/Kg	
PYRENE	J	2.5	6.9	LOQ	ug/Kg		
SHAD041DP018SS02NS	2-METHYLNAPHTHALENE	J	1.6	6.9	LOQ	ug/Kg	J (all detects)
	ACENAPHTHYLENE	J	4.3	6.9	LOQ	ug/Kg	
	ANTHRACENE	J	4.2	6.9	LOQ	ug/Kg	
	BENZ(A)ANTHRACENE	J	2.3	6.9	LOQ	ug/Kg	
	BENZO(A)PYRENE	J	6.2	6.9	LOQ	ug/Kg	
	BENZO(B)FLUORANTHENE	J M	5.3	6.9	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	4.7	6.9	LOQ	ug/Kg	
	BENZO(K)FLUORANTHENE	J M	2.1	6.9	LOQ	ug/Kg	
	CHRYSENE	J	4.8	6.9	LOQ	ug/Kg	
	FLUORANTHENE	J	4.2	6.9	LOQ	ug/Kg	
	FLUORENE	J	1.3	6.9	LOQ	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	3.1	6.9	LOQ	ug/Kg	
	NAPHTHALENE	J	3.4	6.9	LOQ	ug/Kg	
	PHENANTHRENE	J	5.9	6.9	LOQ	ug/Kg	
	PYRENE	J	3.6	6.9	LOQ	ug/Kg	



# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: Prep160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP012SS02N S (TOT)	SHAD041DP012SS02D S (TOT)			
CHROMIUM	17	44	89	30.00	No Qualifiers Applied ** J (all detects)
LEAD**	1500	650	79**	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP004SS02N S (TOT)	SHAD041DP004SS02D S (TOT)			
CHROMIUM	8.3	8.8	6	30.00	No Qualifiers Applied
LEAD	2.4	2.7	12	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP017SS06N S (TOT)	SHAD041DP017SS06D S (TOT)			
CHROMIUM	16	16	0	30.00	No Qualifiers Applied
LEAD	5.3	5.4	2	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP008SS01N S (TOT)	SHAD041DP008SS01D S (TOT)			
CHROMIUM	21	17	21	30.00	No Qualifiers Applied
LEAD	18	21	15	30.00	

**Method: 7196A**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP012SS02N S (TOT)	SHAD041DP012SS02D S (TOT)			
Chromium(VI)	0.36	0.21	53	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP004SS02N S (TOT)	SHAD041DP004SS02D S (TOT)			
Chromium(VI)	0.20	0.20	0	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP017SS06N S (TOT)	SHAD041DP017SS06D S (TOT)			
Chromium(VI)	0.36	0.30	18	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP008SS01N S (TOT)	SHAD041DP008SS01D S (TOT)			
Chromium(VI)	0.31	0.33	6	30.00	No Qualifiers Applied

**Method: 8260C**  
**Matrix: SO**

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP017SS06N S	SHAD041DP017SS06D S			
METHYLENE CHLORIDE	3.9	3.6	8	30.00	No Qualifiers Applied



# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24917-1

Laboratory: TA STL

EDD Filename: Prep160-24917-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8260C  
**Matrix:** SO

<i>Analyte</i>	<i>Concentration (ug/Kg)</i>		<i>Sample RPD</i>	<i>eQAPP RPD</i>	<i>Flag</i>
	SHAD041DP008SS01N S	SHAD041DP008SS01D S			
ETHYLBENZENE	0.47	4.6 U Q	200	30.00	No Qualifiers Applied
METHYLENE CHLORIDE	2.6	2.4	8	30.00	
Xylene (Total)	4.3	9.1 U Q	200	30.00	

LDC #: 39889E1

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24917-1

ADR

Laboratory: Test America, Inc.

Date: 4/1/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	FSO ≤ 1570, Y <sup>2</sup> ICV ≤ 2070
IV.	Continuing calibration / ending	A	CCV ≤ 20/5070
V.	Laboratory Blanks	N	
VI.	Field blanks	NO	TB/EB
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	SW	0 = 1 + 30, 7 + 8, 13 + 14, 21 + 22
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP012SS02DS	160-24917-1	Soil	10/04/17
2	SHAD041DP012SS03NS	160-24917-2	Soil	10/04/17
3	SHAD041DP012SS04NS	160-24917-3	Soil	10/05/17
4	SHAD041DP012SS05NS	160-24917-4	Soil	10/05/17
5	SHAD041DP012SS06NS	160-24917-5	Soil	10/05/17
6	SHAD041DP004SS01NS	160-24917-6	Soil	10/05/17
7	SHAD041DP004SS02NS	160-24917-7	Soil	10/05/17
8	SHAD041DP004SS02DS	160-24917-8	Soil	10/05/17
9	SHAD041DP004SS03NS	160-24917-9	Soil	10/05/17
10	SHAD041DP004SS04NS	160-24917-10	Soil	10/05/17
11	SHAD041DP004SS05NS	160-24917-11	Soil	10/05/17
12	SHAD041DP004SS06NS	160-24917-12	Soil	10/05/17
13	SHAD041DP008SS01NS	160-24917-13	Soil	10/05/17

LDC #: 39889E1

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24917-1

ADR

Laboratory: Test America, Inc.

Date: 11/17

Page: 2 of 3

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP008SS01DS	160-24917-14	Soil	10/05/17
15	SHAD041DP008SS02NS	160-24917-15	Soil	10/05/17
16	SHAD041DP017SS01NS	160-24917-16	Soil	10/04/17
17	SHAD041DP017SS02NS	160-24917-17	Soil	10/04/17
18	SHAD041DP017SS03NS	160-24917-18	Soil	10/04/17
19	SHAD041DP017SS04NS	160-24917-19	Soil	10/04/17
20	SHAD041DP017SS05NS	160-24917-20	Soil	10/04/17
21	SHAD041DP017SS06NS	160-24917-21	Soil	10/04/17
22	SHAD041DP017SS06DS	160-24917-22	Soil	10/04/17
23	SHAD041DP018SS01NS	160-24917-23	Soil	10/04/17
24	SHAD041DP018SS02NS	160-24917-24	Soil	10/04/17
25	SHAD041DP018SS03NS	160-24917-25	Soil	10/04/17
26	SHAD041DP018SS04NS	160-24917-26	Soil	10/04/17
27	SHAD041DP018SS05NS	160-24917-27	Soil	10/04/17
28	SHAD041DP018SS06NS	160-24917-28	Soil	10/04/17
29	SHAD041DP012SS01NS	160-24917-29	Soil	10/04/17
30	SHAD041DP012SS02NS	160-24917-30	Soil	10/04/17
31				
32				
33				
34				
35				

Notes:

1-2 = F					
3-4 = X					

# TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3-Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.



LDC#: 39889E1

**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Page: 1 of 1  
 Reviewer: 9  
 2nd Reviewer: KU

**METHOD:** GCMS VOCs (EPA SW 846 Method 8260C)

Compound	Concentration (ug/kg)		(<30) RPD	Difference	Limits	Qual
	13	14				
EE	0.47	0.91U		0.44	≤4.6	
E	2.6	2.4		0.2	≤9.1	
GG	4.3	4.6U		0.3	≤9.1	

Compound	Concentration (ug/kg)		(<30) RPD	Difference	Limits	Qual
	21	22				
E	3.9	3.6		0.3	≤10	

**VALIDATION FINDINGS WORKSHEET**  
Internal Standards

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
 Y/N N/A Were all internal standard area counts within -50 to +100% of the associated calibration standard?  
 Y/N N/A Were the retention times of the internal standards within +/- 30 seconds of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (f. limits)	RT (f. limits)	Qualifications
		6 (ND)	4DCB	192344 (287566-1150262)		Y+ / N / P
		23 (ND)		179932		Y+ / N / A
		13		150163 (196656-786624)		
		14		185612		
		29		175685		
		30		157557		
		16		125083		
		17		147601		
		24 (dot standard)	FBZ	718876 (793739-3174956)		
			CBZ	270904 (499327-1997308)		
			4DCB	36917 (196656-786624)		

(BCM) = Bromochloromethane  
 (DFB) = 1,4-Difluorobenzene  
 (CBZ) = Chlorobenzene-d5

(PFB) = Pentafluorobenzene  
 (4DCB) = 1,4-Dichlorobenzene-d4  
 (2DCB) = 1,2-Dichlorobenzene-d4

(FBZ) = Fluorobenzene

Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform

LDC #: 39889E2b

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24917-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	RA	SI is out. Not legal per SIM made
III.	Initial calibration/ICV	AA	RSD ≤ 15% ICV ≤ 20%
IV.	Continuing calibration <i>ending</i>	A	CCV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	NO	EB/TB
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	NO	0+30, 7+8, 13+14, 21+22
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP012SS02DS	160-24917-1	Soil	10/04/17
2	SHAD041DP012SS03NS	160-24917-2	Soil	10/04/17
3	SHAD041DP012SS04NS	160-24917-3	Soil	10/05/17
4	SHAD041DP012SS05NS	160-24917-4	Soil	10/05/17
5	SHAD041DP012SS06NS	160-24917-5	Soil	10/05/17
6	SHAD041DP004SS01NS	160-24917-6	Soil	10/05/17
7	SHAD041DP004SS02NS	160-24917-7	Soil	10/05/17
8	SHAD041DP004SS02DS	160-24917-8	Soil	10/05/17
9	SHAD041DP004SS03NS	160-24917-9	Soil	10/05/17
10	SHAD041DP004SS04NS	160-24917-10	Soil	10/05/17
11	SHAD041DP004SS05NS	160-24917-11	Soil	10/05/17
12	SHAD041DP004SS06NS	160-24917-12	Soil	10/05/17
13	SHAD041DP008SS01NS	160-24917-13	Soil	10/05/17



LDC #: 39889E2b

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24917-1

ADR

Laboratory: Test America, Inc.

Date: 10/11/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP008SS01DS	160-24917-14	Soil	10/05/17
15	SHAD041DP008SS02NS	160-24917-15	Soil	10/05/17
16	SHAD041DP017SS01NS	160-24917-16	Soil	10/04/17
17	SHAD041DP017SS02NS	160-24917-17	Soil	10/04/17
18	SHAD041DP017SS03NS	160-24917-18	Soil	10/04/17
19	SHAD041DP017SS04NS	160-24917-19	Soil	10/04/17
20	SHAD041DP017SS05NS	160-24917-20	Soil	10/04/17
21	SHAD041DP017SS06NS	160-24917-21	Soil	10/04/17
22	SHAD041DP017SS06DS	160-24917-22	Soil	10/04/17
23	SHAD041DP018SS01NS	160-24917-23	Soil	10/04/17
24	SHAD041DP018SS02NS	160-24917-24	Soil	10/04/17
25	SHAD041DP018SS03NS	160-24917-25	Soil	10/04/17
26	SHAD041DP018SS04NS	160-24917-26	Soil	10/04/17
27	SHAD041DP018SS05NS	160-24917-27	Soil	10/04/17
28	SHAD041DP018SS06NS	160-24917-28	Soil	10/04/17
29	SHAD041DP012SS01NS	160-24917-29	Soil	10/04/17
30	SHAD041DP012SS02NS	160-24917-30	Soil	10/04/17
31	SHAD041DP012SS02DSMS	160-24917-1MS	Soil	10/04/17
32	SHAD041DP012SS02DSMSD	160-24917-1MSD	Soil	10/04/17
33	SHAD041DP017SS01NSMS	160-24917-16MS	Soil	10/04/17
34	SHAD041DP017SS01NSMSD	160-24917-16MSD	Soil	10/04/17
35				
36				
37				
38				
39				

Notes:


LDC #: 39889E3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/1/17

SDG #: 160-24917-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	S	
II.	Initial calibration/ICV	A/A	
III.	Continuing calibration	A	
IV.	Laboratory Blanks	N	
V.	Field blanks	ND	
VI.	Surrogate spikes /IS	N/A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	ND	D=+30, 7+8, 13+14, 2+22
X.	Compound quantitation/RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP012SS02DS	160-24917-1	Soil	10/04/17
2	SHAD041DP012SS03NS	160-24917-2	Soil	10/04/17
3	SHAD041DP012SS04NS	160-24917-3	Soil	10/05/17
4	SHAD041DP012SS05NS	160-24917-4	Soil	10/05/17
5	SHAD041DP012SS06NS	160-24917-5	Soil	10/05/17
6	SHAD041DP004SS01NS	160-24917-6	Soil	10/05/17
7	SHAD041DP004SS02NS	160-24917-7	Soil	10/05/17
8	SHAD041DP004SS02DS	160-24917-8	Soil	10/05/17
9	SHAD041DP004SS03NS	160-24917-9	Soil	10/05/17
10	SHAD041DP004SS04NS	160-24917-10	Soil	10/05/17
11	SHAD041DP004SS05NS	160-24917-11	Soil	10/05/17
12	SHAD041DP004SS06NS	160-24917-12	Soil	10/05/17
13	SHAD041DP008SS01NS	160-24917-13	Soil	10/05/17
14	SHAD041DP008SS01DS	160-24917-14	Soil	10/05/17
15	SHAD041DP008SS02NS	160-24917-15	Soil	10/05/17
16	SHAD041DP017SS01NS	160-24917-16	Soil	10/04/17
17	SHAD041DP017SS02NS	160-24917-17	Soil	10/04/17

LDC #: 39889E3b

### VALIDATION COMPLETENESS WORKSHEET

Date: 12/1/17

SDG #: 160-24917-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP017SS03NS	160-24917-18	Soil	10/04/17
19	SHAD041DP017SS04NS	160-24917-19	Soil	10/04/17
20	SHAD041DP017SS05NS	160-24917-20	Soil	10/04/17
21	SHAD041DP017SS06NS	160-24917-21	Soil	10/04/17
22	SHAD041DP017SS06DS	160-24917-22	Soil	10/04/17
23	SHAD041DP018SS01NS	160-24917-23	Soil	10/04/17
24	SHAD041DP018SS02NS	160-24917-24	Soil	10/04/17
25	SHAD041DP018SS03NS	160-24917-25	Soil	10/04/17
26	SHAD041DP018SS04NS	160-24917-26	Soil	10/04/17
27	SHAD041DP018SS05NS	160-24917-27	Soil	10/04/17
28	SHAD041DP018SS06NS	160-24917-28	Soil	10/04/17
29	SHAD041DP012SS01NS	160-24917-29	Soil	10/04/17
30	SHAD041DP012SS02NS	160-24917-30	Soil	10/04/17
31	SHAD041DP012SS02DSMS	160-24917-1MS	Soil	10/04/17
32	SHAD041DP012SS02DSMSD	160-24917-1MSD	Soil	10/04/17
33	SHAD041DP017SS01NSMS	160-24917-16MS	Soil	10/04/17
34	SHAD041DP017SS01NSMSD	160-24917-16MSD	Soil	10/04/17
35				
36				
37				
38				
39				

Notes:


LDC #: 39889E4b  
 SDG #: 160-24917-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-6-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer:

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/N	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD (Pb out in # 31, 32)
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	A	SD: 2, 21
IX.	Laboratory control samples	N	LCS
X.	Field Duplicates	N	D=1+30, D=7+8, D=13+14, D=21+22
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP012SS02DS	160-24917-1	Soil	10/04/17
2	SHAD041DP012SS03NS	160-24917-2	Soil	10/04/17
3	SHAD041DP012SS04NS	160-24917-3	Soil	10/05/17
4	SHAD041DP012SS05NS	160-24917-4	Soil	10/05/17
5	SHAD041DP012SS06NS	160-24917-5	Soil	10/05/17
6	SHAD041DP004SS01NS	160-24917-6	Soil	10/05/17
7	SHAD041DP004SS02NS	160-24917-7	Soil	10/05/17
8	SHAD041DP004SS02DS	160-24917-8	Soil	10/05/17
9	SHAD041DP004SS03NS	160-24917-9	Soil	10/05/17
10	SHAD041DP004SS04NS	160-24917-10	Soil	10/05/17
11	SHAD041DP004SS05NS	160-24917-11	Soil	10/05/17
12	SHAD041DP004SS06NS	160-24917-12	Soil	10/05/17
13	SHAD041DP008SS01NS	160-24917-13	Soil	10/05/17
14	SHAD041DP008SS01DS	160-24917-14	Soil	10/05/17
15	SHAD041DP008SS02NS	160-24917-15	Soil	10/05/17
16	SHAD041DP017SS01NS	160-24917-16	Soil	10/04/17
17	SHAD041DP017SS02NS	160-24917-17	Soil	10/04/17



LDC #: 39889E4b

### VALIDATION COMPLETENESS WORKSHEET

Date: 12-6-17

SDG #: 160-24917-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG  
2nd Reviewer: [Signature]

METHOD: Cr & Pb (EPA SW 846 Method 6010C)

	Client ID	Lab ID	Matrix	Date
18	1 SHAD041DP017SS03NS	160-24917-18	Soil	10/04/17
19	1 SHAD041DP017SS04NS	160-24917-19	Soil	10/04/17
20	1 SHAD041DP017SS05NS	160-24917-20	Soil	10/04/17
21	2 SHAD041DP017SS06NS	160-24917-21	Soil	10/04/17
22	2 SHAD041DP017SS06DS	160-24917-22	Soil	10/04/17
23	2 SHAD041DP018SS01NS	160-24917-23	Soil	10/04/17
24	2 SHAD041DP018SS02NS	160-24917-24	Soil	10/04/17
25	2 SHAD041DP018SS03NS	160-24917-25	Soil	10/04/17
26	2 SHAD041DP018SS04NS	160-24917-26	Soil	10/04/17
27	2 SHAD041DP018SS05NS	160-24917-27	Soil	10/04/17
28	2 SHAD041DP018SS06NS	160-24917-28	Soil	10/04/17
29	2 SHAD041DP012SS01NS	160-24917-29	Soil	10/04/17
30	2 SHAD041DP012SS02NS	160-24917-30	Soil	10/04/17
31	1 SHAD041DP012SS03NSMS	160-24917-2MS	Soil	10/04/17
32	1 SHAD041DP012SS03NSMSD	160-24917-2MSD	Soil	10/04/17
33	2 SHAD041DP017SS06NSMS	160-24917-21MS	Soil	10/04/17
34	2 SHAD041DP017SS06NSMSD	160-24917-21MSD	Soil	10/04/17
35				
36				
37				
38	1 PBS1			
39	2 PBS2			

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Sample Specific Element Reference**

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1 → 30	S	Al, Sb, As, Ba, Be, Cd, Ca, <u>Cr</u> , Co, Cu, Fe, <u>Pb</u> , Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
QC 31 → 34	↓	Al, Sb, As, Ba, Be, Cd, Ca, <u>Cr</u> , Co, Cu, Fe, <u>Pb</u> , Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
		<b>Analysis Method</b>
ICP	S	Al, Sb, As, Ba, Be, Cd, Ca, <u>Cr</u> , Co, Cu, Fe, <u>Pb</u> , Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN*

Comments: Mercury by CVAA if performed

LDC #: 39889E6  
 SDG #: 160-24917-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-6-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD: (Analyte)** Hexavalent Chromium (EPA SW846 Method 7196A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.


	Validation Area		Comments
I.	Sample receipt/Technical holding times	N	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	insoluble Cr VI out for all MS's 160-24922-1 MS/MSD (SDG: 160-24848-1, 160-24851-1)
VI.	Matrix Spike/Matrix Spike Duplicates	SW	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D=1+30, D=7+8, D=13+14, D=21+22
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP012SS02DS	160-24917-1	Soil	10/04/17
2	SHAD041DP012SS03NS	160-24917-2	Soil	10/04/17
3	SHAD041DP012SS04NS	160-24917-3	Soil	10/05/17
4	SHAD041DP012SS05NS	160-24917-4	Soil	10/05/17
5	SHAD041DP012SS06NS	160-24917-5	Soil	10/05/17
6	SHAD041DP004SS01NS	160-24917-6	Soil	10/05/17
7	SHAD041DP004SS02NS	160-24917-7	Soil	10/05/17
8	SHAD041DP004SS02DS	160-24917-8	Soil	10/05/17
9	SHAD041DP004SS03NS	160-24917-9	Soil	10/05/17
10	SHAD041DP004SS04NS	160-24917-10	Soil	10/05/17
11	SHAD041DP004SS05NS	160-24917-11	Soil	10/05/17
12	SHAD041DP004SS06NS	160-24917-12	Soil	10/05/17
13	SHAD041DP008SS01NS	160-24917-13	Soil	10/05/17
14	SHAD041DP008SS01DS	160-24917-14	Soil	10/05/17
15	SHAD041DP008SS02NS	160-24917-15	Soil	10/05/17
16	SHAD041DP017SS01NS	160-24917-16	Soil	10/04/17
17	SHAD041DP017SS02NS	160-24917-17	Soil	10/04/17

LDC #: 39889E6  
 SDG #: 160-24917-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-6-17  
 Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: 

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

	Client ID	Lab ID	Matrix	Date
18	2 SHAD041DP017SS03NS	160-24917-18	Soil	10/04/17
19	2 SHAD041DP017SS04NS	160-24917-19	Soil	10/04/17
20	2 SHAD041DP017SS05NS	160-24917-20	Soil	10/04/17
21	2 SHAD041DP017SS06NS	160-24917-21	Soil	10/04/17
22	2 SHAD041DP017SS06DS	160-24917-22	Soil	10/04/17
23	2 SHAD041DP018SS01NS	160-24917-23	Soil	10/04/17
24	2 SHAD041DP018SS02NS	160-24917-24	Soil	10/04/17
25	2 SHAD041DP018SS03NS	160-24917-25	Soil	10/04/17
26	3 SHAD041DP018SS04NS	160-24917-26	Soil	10/04/17
27	3 SHAD041DP018SS05NS	160-24917-27	Soil	10/04/17
28	3 SHAD041DP018SS06NS	160-24917-28	Soil	10/04/17
29	3 SHAD041DP012SS01NS	160-24917-29	Soil	10/04/17
30	3 SHAD041DP012SS02NS	160-24917-30	Soil	10/04/17
31				
32				
33	1 PBS1			
34	2 PBS2			
35	3 PBS3			

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Quality Control Outlier Reports

160-24917-2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-189625/1-A	11/9/2017 8:18:00 PM	OCDD	0.877 pg/g	SHAD041DP004SS01NS SHAD041DP004SS02DS SHAD041DP004SS02NS SHAD041DP004SS03NS SHAD041DP004SS04NS SHAD041DP004SS05NS SHAD041DP004SS06NS SHAD041DP008SS01DS SHAD041DP008SS01NS SHAD041DP008SS02NS SHAD041DP012SS02DS SHAD041DP012SS03NS SHAD041DP012SS04NS SHAD041DP012SS05NS SHAD041DP012SS06NS SHAD041DP017SS01NS SHAD041DP017SS02NS SHAD041DP017SS03NS SHAD041DP017SS04NS SHAD041DP017SS05NS
MB 320-189635/1-A	11/10/2017 1:56:00 AM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8-HxCDD 1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 2,3,7,8-TCDD OCDD OCDF	0.480 pg/g 0.477 pg/g 0.247 pg/g 0.303 pg/g 0.225 pg/g 0.140 pg/g 0.212 pg/g 0.161 pg/g 0.148 pg/g 0.103 pg/g 0.113 pg/g 1.60 pg/g 0.809 pg/g	SHAD041DP012SS01NS SHAD041DP012SS02NS SHAD041DP017SS06DS SHAD041DP017SS06NS SHAD041DP018SS01NS SHAD041DP018SS02NS SHAD041DP018SS03NS SHAD041DP018SS04NS SHAD041DP018SS05NS SHAD041DP018SS06NS

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP012SS04NS(RES)	OCDD	1.3 pg/g	1.3U pg/g
SHAD041DP012SS05NS(RES)	OCDD	4.3 pg/g	4.3U pg/g
SHAD041DP012SS06NS(RES)	OCDD	1.9 pg/g	1.9U pg/g
SHAD041DP017SS04NS(RES)	OCDD	2.9 pg/g	2.9U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,4,6,7,8-HpCDD	1.7 pg/g	1.7U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,4,6,7,8-HpCDF	0.42 pg/g	0.42U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,4,7,8-HxCDD	0.24 pg/g	0.24U pg/g
SHAD041DP017SS06DS(RES)	OCDD	3.9 pg/g	3.9U pg/g
SHAD041DP017SS06DS(RES)	OCDF	0.56 pg/g	0.56U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.91 pg/g	0.91U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.47 pg/g	0.47U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,7,8,9-HpCDF	0.39 pg/g	0.39U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.27 pg/g	0.27U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,7,8-HxCDF	0.37 pg/g	0.37U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,6,7,8-HxCDF	0.23 pg/g	0.23U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.31 pg/g	0.31U pg/g

Project Name and Number: 05122.01 - SHAD-041

12/14/2017 12:44:11 PM

ADR version 1.9.0.325

Page 1 of 2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
------------------------	---------------	---------	--------	--------------------

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP017SS06NS(RES)	1,2,3,7,8-PeCDD	0.26 pg/g	0.26U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,7,8-PeCDF	0.28 pg/g	0.28U pg/g
SHAD041DP017SS06NS(RES)	2,3,4,7,8-PeCDF	0.25 pg/g	0.25U pg/g
SHAD041DP017SS06NS(RES)	OCDD	2.6 pg/g	2.6U pg/g
SHAD041DP017SS06NS(RES)	OCDF	0.63 pg/g	0.63U pg/g
SHAD041DP018SS03NS(RES)	1,2,3,4,7,8,9-HpCDF	0.49 pg/g	0.49U pg/g
SHAD041DP018SS03NS(RES)	1,2,3,7,8-PeCDF	0.59 pg/g	0.59U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	1.5 pg/g	1.5U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,4,7,8-HxCDF	0.47 pg/g	0.47U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,6,7,8-HxCDF	0.15 pg/g	0.15U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,7,8,9-HxCDD	0.88 pg/g	0.88U pg/g
SHAD041DP018SS04NS(RES)	OCDD	6.2 pg/g	6.2U pg/g
SHAD041DP018SS04NS(RES)	OCDF	1.8 pg/g	1.8U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.74 pg/g	0.74U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.33 pg/g	0.33U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,7,8,9-HxCDD	0.60 pg/g	0.60U pg/g
SHAD041DP018SS05NS(RES)	OCDD	7.7 pg/g	7.7U pg/g
SHAD041DP018SS05NS(RES)	OCDF	0.79 pg/g	0.79U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	1.2 pg/g	1.2U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.84 pg/g	0.84U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.41 pg/g	0.41U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,6,7,8-HxCDF	0.31 pg/g	0.31U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.80 pg/g	0.80U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8-PeCDD	0.31 pg/g	0.31U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8-PeCDF	0.17 pg/g	0.17U pg/g
SHAD041DP018SS06NS(RES)	2,3,4,7,8-PeCDF	0.14 pg/g	0.14U pg/g
SHAD041DP018SS06NS(RES)	OCDD	2.5 pg/g	2.5U pg/g
SHAD041DP018SS06NS(RES)	OCDF	1.1 pg/g	1.1U pg/g

# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
SHAD041EQ001WS01NS (RES)	10/4/2017 2:40:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF OCDD OCDF	3.2 pg/L 2.1 pg/L 2.1 pg/L 4 pg/L 1.8 pg/L 1.5 pg/L 1.6 pg/L 2.8 pg/L 2.8 pg/L 2.1 pg/L 2 pg/L 1.9 pg/L 2 pg/L 7.1 pg/L 4.7 pg/L	SHAD041DP012SS01NS SHAD041DP012SS02DS SHAD041DP012SS02NS SHAD041DP012SS03NS SHAD041DP017SS01NS SHAD041DP017SS02NS SHAD041DP017SS03NS SHAD041DP017SS04NS SHAD041DP017SS05NS SHAD041DP017SS06DS SHAD041DP017SS06NS SHAD041DP018SS01NS SHAD041DP018SS02NS SHAD041DP018SS03NS SHAD041DP018SS04NS SHAD041DP018SS05NS SHAD041DP018SS06NS
SHAD041EQ002WS01NS (RES)	10/4/2017 2:50:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDD 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF 2,3,7,8-TCDD OCDD OCDF	1.9 pg/L 1.6 pg/L 2.7 pg/L 0.82 pg/L 0.84 pg/L 1.2 pg/L 1.2 pg/L 0.73 pg/L 0.91 pg/L 0.67 pg/L 0.64 pg/L 0.81 pg/L 4.1 pg/L 2.5 pg/L	SHAD041DP012SS01NS SHAD041DP012SS02DS SHAD041DP012SS02NS SHAD041DP012SS03NS SHAD041DP017SS01NS SHAD041DP017SS02NS SHAD041DP017SS03NS SHAD041DP017SS04NS SHAD041DP017SS05NS SHAD041DP017SS06DS SHAD041DP017SS06NS SHAD041DP018SS01NS SHAD041DP018SS02NS SHAD041DP018SS03NS SHAD041DP018SS04NS SHAD041DP018SS05NS SHAD041DP018SS06NS
SHAD041EQ003WS01NS (RES)	10/5/2017 2:30:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD OCDD	0.6 pg/L 0.91 pg/L 1.7 pg/L 2.8 pg/L	SHAD041DP004SS01NS SHAD041DP004SS02DS SHAD041DP004SS02NS SHAD041DP004SS03NS SHAD041DP004SS04NS SHAD041DP004SS05NS SHAD041DP004SS06NS SHAD041DP008SS01DS SHAD041DP008SS01NS SHAD041DP008SS02NS SHAD041DP012SS04NS SHAD041DP012SS05NS SHAD041DP012SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP004SS01NS(RE)	1,2,3,4,7,8-HxCDD	4.4 pg/g	4.4U pg/g
SHAD041DP004SS02DS(RE)	1,2,3,4,6,7,8-HpCDF	1.4 pg/g	1.4U pg/g
SHAD041DP004SS02DS(RE)	1,2,3,4,7,8-HxCDD	0.32 pg/g	0.32U pg/g
SHAD041DP004SS03NS(RES)	1,2,3,4,6,7,8-HpCDD	1.4 pg/g	1.4U pg/g
SHAD041DP004SS03NS(RES)	1,2,3,4,6,7,8-HpCDF	0.18 pg/g	0.18U pg/g
SHAD041DP004SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.31 pg/g	0.31U pg/g
SHAD041DP004SS03NS(RES)	OCDD	7.6 pg/g	7.6U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP004SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	1.1 pg/g	1.1U pg/g
SHAD041DP004SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.18 pg/g	0.18U pg/g
SHAD041DP004SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.19 pg/g	0.19U pg/g
SHAD041DP004SS04NS(RES)	OCDD	6.1 pg/g	6.1U pg/g
SHAD041DP004SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.81 pg/g	0.81U pg/g
SHAD041DP004SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.083 pg/g	0.083U pg/g
SHAD041DP004SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.36 pg/g	0.36U pg/g
SHAD041DP004SS05NS(RES)	OCDD	4.6 pg/g	4.6U pg/g
SHAD041DP004SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.95 pg/g	0.95U pg/g
SHAD041DP004SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.35 pg/g	0.35U pg/g
SHAD041DP004SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP004SS06NS(RES)	OCDD	5.5 pg/g	5.5U pg/g
SHAD041DP008SS01DS(RE)	1,2,3,4,7,8-HxCDD	1.2 pg/g	1.2U pg/g
SHAD041DP008SS01NS(RE)	1,2,3,4,7,8-HxCDD	0.91 pg/g	0.91U pg/g
SHAD041DP008SS02NS(RE)	1,2,3,4,6,7,8-HpCDD	1.9 pg/g	1.9U pg/g
SHAD041DP008SS02NS(RE)	1,2,3,4,6,7,8-HpCDF	0.38 pg/g	0.38U pg/g
SHAD041DP008SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.27 pg/g	0.27U pg/g
SHAD041DP008SS02NS(RE)	OCDD	12 pg/g	12U pg/g
SHAD041DP012SS02DS(RE)	1,2,3,4,7,8-HxCDD	15 pg/g	15U pg/g
SHAD041DP012SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.77 pg/g	0.77U pg/g
SHAD041DP012SS03NS(RE)	1,2,3,4,7,8-HxCDF	0.76 pg/g	0.76U pg/g
SHAD041DP012SS03NS(RE)	1,2,3,6,7,8-HxCDF	0.34 pg/g	0.34U pg/g
SHAD041DP012SS03NS(RE)	1,2,3,7,8,9-HxCDD	5.8 pg/g	5.8U pg/g
SHAD041DP012SS03NS(RE)	1,2,3,7,8-PeCDD	1.5 pg/g	1.5U pg/g
SHAD041DP012SS03NS(RE)	2,3,4,6,7,8-HxCDF	0.43 pg/g	0.43U pg/g
SHAD041DP012SS03NS(RE)	2,3,4,7,8-PeCDF	0.34 pg/g	0.34U pg/g
SHAD041DP012SS03NS(RE)	2,3,7,8-TCDD	0.31 pg/g	0.31U pg/g
SHAD041DP012SS03NS(RE)	OCDD	35 pg/g	35U pg/g
SHAD041DP012SS03NS(RE)	OCDF	5.0 pg/g	5.0U pg/g
SHAD041DP012SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.45 pg/g	0.45U pg/g
SHAD041DP012SS04NS(RES)	OCDD	1.3 pg/g	1.3U pg/g
SHAD041DP012SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.70 pg/g	0.70U pg/g
SHAD041DP012SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.17 pg/g	0.17U pg/g
SHAD041DP012SS05NS(RES)	OCDD	4.3 pg/g	4.3U pg/g
SHAD041DP012SS06NS(RE)	1,2,3,4,6,7,8-HpCDD	0.50 pg/g	0.50U pg/g
SHAD041DP012SS06NS(RE)	1,2,3,4,6,7,8-HpCDF	0.22 pg/g	0.22U pg/g
SHAD041DP012SS06NS(RE)	1,2,3,4,7,8-HxCDD	0.32 pg/g	0.32U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP012SS06NS(RE)	OCDD	1.9 pg/g	1.9U pg/g
SHAD041DP017SS01NS(RE)	1,2,3,4,7,8-HxCDD	12 pg/g	12U pg/g
SHAD041DP017SS01NS(RE)	1,2,3,4,7,8-HxCDF	8.7 pg/g	8.7U pg/g
SHAD041DP017SS01NS(RE)	1,2,3,7,8-PeCDF	4.0 pg/g	4.0U pg/g
SHAD041DP017SS01NS(RE)	2,3,4,7,8-PeCDF	8.5 pg/g	8.5U pg/g
SHAD041DP017SS03NS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP017SS03NS(RES)	1,2,3,4,6,7,8-HpCDF	0.29 pg/g	0.29U pg/g
SHAD041DP017SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP017SS03NS(RES)	1,2,3,6,7,8-HxCDD	0.30 pg/g	0.30U pg/g
SHAD041DP017SS03NS(RES)	1,2,3,7,8,9-HxCDD	0.34 pg/g	0.34U pg/g
SHAD041DP017SS03NS(RES)	OCDD	6.0 pg/g	6.0U pg/g
SHAD041DP017SS03NS(RES)	OCDF	0.50 pg/g	0.50U pg/g
SHAD041DP017SS04NS(RE)	1,2,3,4,6,7,8-HpCDD	0.90 pg/g	0.90U pg/g
SHAD041DP017SS04NS(RE)	1,2,3,4,6,7,8-HpCDF	0.23 pg/g	0.23U pg/g
SHAD041DP017SS04NS(RE)	1,2,3,4,7,8-HxCDD	0.16 pg/g	0.16U pg/g
SHAD041DP017SS04NS(RE)	1,2,3,6,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP017SS04NS(RE)	1,2,3,7,8,9-HxCDD	0.19 pg/g	0.19U pg/g
SHAD041DP017SS04NS(RE)	OCDD	2.9 pg/g	2.9U pg/g
SHAD041DP017SS04NS(RE)	OCDF	0.33 pg/g	0.33U pg/g
SHAD041DP017SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	2.1 pg/g	2.1U pg/g
SHAD041DP017SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP017SS05NS(RES)	1,2,3,6,7,8-HxCDD	0.19 pg/g	0.19U pg/g
SHAD041DP017SS05NS(RES)	1,2,3,7,8,9-HxCDD	0.35 pg/g	0.35U pg/g
SHAD041DP017SS05NS(RES)	OCDD	11 pg/g	11U pg/g
SHAD041DP017SS05NS(RES)	OCDF	0.35 pg/g	0.35U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,4,6,7,8-HpCDD	1.7 pg/g	1.7U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,4,6,7,8-HpCDF	0.42 pg/g	0.42U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,4,7,8-HxCDD	0.24 pg/g	0.24U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,6,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP017SS06DS(RES)	1,2,3,7,8,9-HxCDF	0.19 pg/g	0.19U pg/g
SHAD041DP017SS06DS(RES)	OCDD	3.9 pg/g	3.9U pg/g
SHAD041DP017SS06DS(RES)	OCDF	0.56 pg/g	0.56U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.91 pg/g	0.91U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.47 pg/g	0.47U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,7,8,9-HpCDF	0.39 pg/g	0.39U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.27 pg/g	0.27U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,4,7,8-HxCDF	0.37 pg/g	0.37U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP017SS06NS(RES)	1,2,3,6,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,6,7,8-HxCDF	0.23 pg/g	0.23U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.31 pg/g	0.31U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,7,8,9-HxCDF	0.43 pg/g	0.43U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,7,8-PeCDD	0.26 pg/g	0.26U pg/g
SHAD041DP017SS06NS(RES)	1,2,3,7,8-PeCDF	0.28 pg/g	0.28U pg/g
SHAD041DP017SS06NS(RES)	2,3,4,6,7,8-HxCDF	0.30 pg/g	0.30U pg/g
SHAD041DP017SS06NS(RES)	2,3,4,7,8-PeCDF	0.25 pg/g	0.25U pg/g
SHAD041DP017SS06NS(RES)	OCDD	2.6 pg/g	2.6U pg/g
SHAD041DP017SS06NS(RES)	OCDF	0.63 pg/g	0.63U pg/g
SHAD041DP018SS03NS(RE)	1,2,3,4,7,8,9-HpCDF	0.49 pg/g	0.49U pg/g
SHAD041DP018SS03NS(RE)	1,2,3,4,7,8-HxCDF	1.7 pg/g	1.7U pg/g
SHAD041DP018SS03NS(RE)	1,2,3,6,7,8-HxCDF	0.74 pg/g	0.74U pg/g
SHAD041DP018SS03NS(RE)	1,2,3,7,8,9-HxCDD	11 pg/g	11U pg/g
SHAD041DP018SS03NS(RE)	1,2,3,7,8-PeCDD	3.5 pg/g	3.5U pg/g
SHAD041DP018SS03NS(RE)	1,2,3,7,8-PeCDF	0.59 pg/g	0.59U pg/g
SHAD041DP018SS03NS(RE)	2,3,4,6,7,8-HxCDF	0.82 pg/g	0.82U pg/g
SHAD041DP018SS03NS(RE)	2,3,4,7,8-PeCDF	1.1 pg/g	1.1U pg/g
SHAD041DP018SS03NS(RE)	2,3,7,8-TCDD	0.75 pg/g	0.75U pg/g
SHAD041DP018SS03NS(RE)	OCDF	9.0 pg/g	9.0U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	3.2 pg/g	3.2U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	1.5 pg/g	1.5U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,4,7,8-HxCDF	0.47 pg/g	0.47U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,6,7,8-HxCDD	0.83 pg/g	0.83U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,6,7,8-HxCDF	0.15 pg/g	0.15U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,7,8,9-HxCDD	0.88 pg/g	0.88U pg/g
SHAD041DP018SS04NS(RES)	1,2,3,7,8,9-HxCDF	0.42 pg/g	0.42U pg/g
SHAD041DP018SS04NS(RES)	2,3,4,6,7,8-HxCDF	0.20 pg/g	0.20U pg/g
SHAD041DP018SS04NS(RES)	OCDD	6.2 pg/g	6.2U pg/g
SHAD041DP018SS04NS(RES)	OCDF	1.8 pg/g	1.8U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	3.5 pg/g	3.5U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.74 pg/g	0.74U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.33 pg/g	0.33U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,6,7,8-HxCDD	0.77 pg/g	0.77U pg/g
SHAD041DP018SS05NS(RES)	1,2,3,7,8,9-HxCDD	0.60 pg/g	0.60U pg/g
SHAD041DP018SS05NS(RES)	OCDD	7.7 pg/g	7.7U pg/g
SHAD041DP018SS05NS(RES)	OCDF	0.79 pg/g	0.79U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP018SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	1.2 pg/g	1.2U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.84 pg/g	0.84U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.41 pg/g	0.41U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,6,7,8-HxCDD	0.75 pg/g	0.75U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,6,7,8-HxCDF	0.31 pg/g	0.31U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.80 pg/g	0.80U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8,9-HxCDF	0.59 pg/g	0.59U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8-PeCDD	0.31 pg/g	0.31U pg/g
SHAD041DP018SS06NS(RES)	1,2,3,7,8-PeCDF	0.17 pg/g	0.17U pg/g
SHAD041DP018SS06NS(RES)	2,3,4,6,7,8-HxCDF	0.28 pg/g	0.28U pg/g
SHAD041DP018SS06NS(RES)	2,3,4,7,8-PeCDF	0.14 pg/g	0.14U pg/g
SHAD041DP018SS06NS(RES)	OCDD	2.5 pg/g	2.5U pg/g
SHAD041DP018SS06NS(RES)	OCDF	1.1 pg/g	1.1U pg/g



# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8290A**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP012SS02NSMS SHAD041DP012SS02NSMSD (SHAD041DP012SS02NS)	1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF	- 140	- -	74.00-135.00 74.00-133.00	27 (20.00) 27 (20.00)	1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF	J (all detects)
SHAD041DP012SS02NSMS SHAD041DP012SS02NSMSD (SHAD041DP012SS02NS)	1,2,3,7,8,9-HxCDD	-151	-57	71.00-138.00	24 (20.00)	1,2,3,7,8,9-HxCDD	>4x, No Qual
SHAD041DP012SS02NSMS SHAD041DP012SS02NSMSD (SHAD041DP012SS02NS)	1,2,3,7,8-PeCDD 2,3,7,8-TCDD	0.7 36	- 130	74.00-125.00 70.00-128.00	43 (20.00) 41 (20.00)	1,2,3,7,8-PeCDD 2,3,7,8-TCDD	J(all detects) UJ(all non-detects)
SHAD041DP012SS02NSMS SHAD041DP012SS02NSMSD (SHAD041DP012SS02NS)	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,6,7,8-HxCDD OCDD	-1527 -73 -591 -937	-1350 -81 -487 -970	76.00-125.00 73.00-135.00 74.00-134.00 73.00-135.00	- - - -	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,6,7,8-HxCDD OCDD	>4x, No Qual
SHAD041DP012SS02NSMS SHAD041DP012SS02NSMSD (SHAD041DP012SS02NS)	2,3,4,7,8-PeCDF OCDF	72 40	- 37	75.00-128.00 66.00-144.00	- -	2,3,4,7,8-PeCDF OCDF	J-(all detects) UJ(all non-detects)
SHAD041DP012SS02NSMS (SHAD041DP012SS02NS)	1,2,3,4,7,8-HxCDF	131	-	77.00-130.00	-	1,2,3,4,7,8-HxCDF	J+(all detects)

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP004SS02N S	SHAD041DP004SS02D S			
1,2,3,4,6,7,8-HpCDD	2.2	4.6	71	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	0.66	1.4	72	30.00	
1,2,3,4,7,8-HxCDD	0.27	0.32	17	30.00	
1,2,3,6,7,8-HxCDD	0.36	0.62	53	30.00	
1,2,3,7,8,9-HxCDD	0.44	0.81	59	30.00	
1,2,3,7,8,9-HxCDF	0.16	5.2 U	200	30.00	
2,3,4,6,7,8-HxCDF	5.1 U	0.23	200	30.00	
2,3,7,8-TCDF	1.0 U	0.12	200	30.00	
OCDD	13	35	92	30.00	
OCDF	0.64	1.8	95	30.00	

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP012SS02N S	SHAD041DP012SS02D S			
1,2,3,4,7,8-HxCDD**	2.2 U M	15	200**	30.00	**No Qualifiers Applied  J (all detects) UJ (all non-detects)
1,2,3,7,8-PeCDF**	11	11	0**	30.00	
2,3,4,7,8-PeCDF**	21	21	0**	30.00	
1,2,3,4,6,7,8-HpCDD	3400	810	123	30.00	
1,2,3,4,6,7,8-HpCDF	640	220	98	30.00	
1,2,3,4,7,8,9-HpCDF	12	2.2 U M	200	30.00	
1,2,3,4,7,8-HxCDF	24	15	46	30.00	
1,2,3,6,7,8-HxCDD	1300	270	131	30.00	
1,2,3,6,7,8-HxCDF	23	13	56	30.00	
1,2,3,7,8,9-HxCDD	540	160	109	30.00	
1,2,3,7,8-PeCDD	160	44	114	30.00	
2,3,4,6,7,8-HxCDF	33	15	75	30.00	
2,3,7,8-TCDD	31	8.5	114	30.00	
2,3,7,8-TCDF	16	23	36	30.00	
OCDD	3400	830	122	30.00	
OCDF	380	130	98	30.00	

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP017SS06N S	SHAD041DP017SS06D S			
1,2,3,4,6,7,8-HpCDD	0.91	1.7	61	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	0.47	0.42	11	30.00	
1,2,3,4,7,8,9-HpCDF	0.39	5.6 U	200	30.00	
1,2,3,4,7,8-HxCDD	0.27	0.24	12	30.00	
1,2,3,4,7,8-HxCDF	0.37	5.6 U	200	30.00	
1,2,3,6,7,8-HxCDD	0.25	0.26	4	30.00	
1,2,3,6,7,8-HxCDF	0.23	5.6 U	200	30.00	
1,2,3,7,8,9-HxCDD	0.31	5.6 U	200	30.00	
1,2,3,7,8,9-HxCDF	0.43	0.19	77	30.00	
1,2,3,7,8-PeCDD	0.26	5.6 U	200	30.00	
1,2,3,7,8-PeCDF	0.28	5.6 U	200	30.00	
2,3,4,6,7,8-HxCDF	0.30	5.6 U	200	30.00	
2,3,4,7,8-PeCDF	0.25	5.6 U	200	30.00	
OCDD	2.6	3.9	40	30.00	
OCDF	0.63	0.56	12	30.00	

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP008SS01N S	SHAD041DP008SS01D S			
<b>Method: 8290A</b>					
<b>Matrix: SO</b>					
1,2,3,4,6,7,8-HpCDD	42	57	30	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	11	16	37	30.00	
1,2,3,4,7,8,9-HpCDF	0.51	0.75	38	30.00	
1,2,3,4,7,8-HxCDD	0.91	1.2	27	30.00	
1,2,3,4,7,8-HxCDF	1.1	1.5	31	30.00	
1,2,3,6,7,8-HxCDD	2.2	2.8	24	30.00	
1,2,3,6,7,8-HxCDF	0.65	0.94	36	30.00	
1,2,3,7,8,9-HxCDD	2.1	2.8	29	30.00	
1,2,3,7,8,9-HxCDF	0.25	0.12	70	30.00	
1,2,3,7,8-PeCDD	0.51	0.78	42	30.00	
1,2,3,7,8-PeCDF	0.27	0.39	36	30.00	
2,3,4,6,7,8-HxCDF	0.70	1.0	35	30.00	
2,3,4,7,8-PeCDF	0.37	0.51	32	30.00	
2,3,7,8-TCDD	0.22	0.17	26	30.00	
2,3,7,8-TCDF	0.26	0.50	63	30.00	
OCDD	350	460	27	30.00	
OCDF	19	29	42	30.00	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP004SS01NS	1,2,3,4,7,8,9-HpCDF	J	2.7	5.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	4.4	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	3.7	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDF	J M	3.2	5.0	MRL	pg/g	
	2,3,7,8-TCDD	J	0.88	1.0	MRL	pg/g	
SHAD041DP004SS02DS	1,2,3,4,6,7,8-HpCDD	J	4.6	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	1.4	5.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.32	5.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.62	5.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.81	5.2	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.23	5.2	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.12	1.0	MRL	pg/g	
OCDF	J	1.8	10	MRL	pg/g		
SHAD041DP004SS02NS	1,2,3,4,6,7,8-HpCDD	J M	2.2	5.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.66	5.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.27	5.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.36	5.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.44	5.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.16	5.1	MRL	pg/g	
OCDF	J	0.64	10	MRL	pg/g		
SHAD041DP004SS03NS	1,2,3,4,6,7,8-HpCDD	J M	1.4	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.18	5.9	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.31	5.9	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.48	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.66	5.9	MRL	pg/g	
OCDD	J	7.6	12	MRL	pg/g		
SHAD041DP004SS04NS	1,2,3,4,6,7,8-HpCDD	J M	1.1	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.18	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.19	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.14	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.16	5.7	MRL	pg/g	
OCDD	J	6.1	11	MRL	pg/g		
SHAD041DP004SS05NS	1,2,3,4,6,7,8-HpCDD	J M	0.81	6.3	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.083	6.3	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.36	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.22	6.3	MRL	pg/g	
	OCDD	J	4.6	13	MRL	pg/g	
SHAD041DP004SS06NS	1,2,3,4,6,7,8-HpCDD	J M	0.95	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.35	5.8	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J M	0.52	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.28	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	0.16	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.22	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.21	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.26	5.8	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.22	5.8	MRL	pg/g	
	OCDD	J	5.5	12	MRL	pg/g	
	OCDF	J	1.8	12	MRL	pg/g	



## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP008SS01DS	1,2,3,4,7,8,9-HpCDF	J M	0.75	5.1	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	1.2	5.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	1.5	5.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	2.8	5.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.94	5.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	2.8	5.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J M	0.12	5.1	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.78	5.1	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.39	5.1	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	1.0	5.1	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.51	5.1	MRL	pg/g	
	2,3,7,8-TCDD	J	0.17	1.0	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.50	1.0	MRL	pg/g	
SHAD041DP008SS01NS	1,2,3,4,7,8,9-HpCDF	J	0.51	5.1	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.91	5.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	1.1	5.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	2.2	5.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.65	5.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	2.1	5.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.25	5.1	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.51	5.1	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.27	5.1	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.70	5.1	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.37	5.1	MRL	pg/g	
	2,3,7,8-TCDD	J	0.22	1.0	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.26	1.0	MRL	pg/g	
SHAD041DP008SS02NS	1,2,3,4,6,7,8-HpCDD	J	1.9	5.3	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.38	5.3	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.27	5.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.43	5.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.068	5.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.67	5.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.18	5.3	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.091	5.3	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.18	1.1	MRL	pg/g	
	OCDF	J	0.56	11	MRL	pg/g	
SHAD041DP012SS03NS	1,2,3,4,7,8-HxCDD	J	0.77	6.3	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J	0.76	6.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.34	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	5.8	6.3	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	1.5	6.3	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J M	0.43	6.3	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.34	6.3	MRL	pg/g	
	2,3,7,8-TCDD	J M	0.31	1.3	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.43	1.3	MRL	pg/g	
OCDF	J	5.0	13	MRL	pg/g		
SHAD041DP012SS04NS	1,2,3,4,6,7,8-HpCDD	J	0.45	6.0	MRL	pg/g	J (all detects)
	OCDD	J	1.3	12	MRL	pg/g	
SHAD041DP012SS05NS	1,2,3,4,6,7,8-HpCDD	J M	0.70	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.17	6.2	MRL	pg/g	
	OCDD	J	4.3	12	MRL	pg/g	
	OCDF	J	0.40	12	MRL	pg/g	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP012SS06NS	1,2,3,4,6,7,8-HpCDD	J M	0.50	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.22	5.8	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J	0.25	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.32	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.26	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.21	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.27	5.8	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.26	5.8	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.23	5.8	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.20	5.8	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.23	5.8	MRL	pg/g	
	OCDD	J	1.9	12	MRL	pg/g	
	OCDF	J	0.57	12	MRL	pg/g	
SHAD041DP017SS01NS	1,2,3,4,7,8,9-HpCDF	J M	3.2	5.1	MRL	pg/g	J (all detects)
	1,2,3,7,8-PeCDF	J M	4.0	5.1	MRL	pg/g	
SHAD041DP017SS03NS	1,2,3,4,6,7,8-HpCDD	J	1.3	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.29	6.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.20	6.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.30	6.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.34	6.2	MRL	pg/g	
	OCDD	J	6.0	12	MRL	pg/g	
	OCDF	J	0.50	12	MRL	pg/g	
SHAD041DP017SS04NS	1,2,3,4,6,7,8-HpCDD	J M	0.90	6.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.23	6.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.16	6.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.22	6.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.19	6.1	MRL	pg/g	
	OCDD	J	2.9	12	MRL	pg/g	
OCDF	J	0.33	12	MRL	pg/g		
SHAD041DP017SS05NS	1,2,3,4,6,7,8-HpCDD	J M	2.1	6.4	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.28	6.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.19	6.4	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.35	6.4	MRL	pg/g	
	OCDD	J	11	13	MRL	pg/g	
	OCDF	J	0.35	13	MRL	pg/g	
SHAD041DP017SS06DS	1,2,3,4,6,7,8-HpCDD	J M	1.7	5.6	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J M	0.42	5.6	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.24	5.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.26	5.6	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.19	5.6	MRL	pg/g	
	OCDD	J	3.9	11	MRL	pg/g	
	OCDF	J M	0.56	11	MRL	pg/g	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP017SS06NS	1,2,3,4,6,7,8-HpCDD	J	0.91	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.47	5.7	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J	0.39	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	JM	0.27	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	0.37	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	JM	0.25	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	JM	0.23	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	JM	0.31	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.43	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDD	JM	0.26	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.28	5.7	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.30	5.7	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.25	5.7	MRL	pg/g	
	OCDD	J	2.6	11	MRL	pg/g	
OCDF	JM	0.63	11	MRL	pg/g		
SHAD041DP018SS03NS	1,2,3,4,7,8,9-HpCDF	JM	0.49	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	JM	1.7	5.9	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	JM	0.74	5.9	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	3.5	5.9	MRL	pg/g	
	1,2,3,7,8-PeCDF	JM	0.59	5.9	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	JM	0.82	5.9	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	1.1	5.9	MRL	pg/g	
	2,3,7,8-TCDD	J	0.75	1.2	MRL	pg/g	
	2,3,7,8-TCDF	JM	0.72	1.2	MRL	pg/g	
	OCDF	J	9.0	12	MRL	pg/g	
SHAD041DP018SS04NS	1,2,3,4,6,7,8-HpCDD	J	3.2	6.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	1.5	6.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	JM	0.47	6.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	JM	0.83	6.1	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	JM	0.15	6.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.88	6.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.42	6.1	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.20	6.1	MRL	pg/g	
	OCDD	J	6.2	12	MRL	pg/g	
OCDF	J	1.8	12	MRL	pg/g		
SHAD041DP018SS05NS	1,2,3,4,6,7,8-HpCDD	J	3.5	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.74	6.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.33	6.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.77	6.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.60	6.2	MRL	pg/g	
	OCDD	J	7.7	12	MRL	pg/g	
	OCDF	J	0.79	12	MRL	pg/g	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24917-2

Laboratory: TESTAME

EDD Filename: Prep160-24917-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP018SS06NS	1,2,3,4,6,7,8-HpCDD	J	1.2	5.5	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.84	5.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.41	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.75	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.31	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.80	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.59	5.5	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.31	5.5	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.17	5.5	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.28	5.5	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.14	5.5	MRL	pg/g	
	OCDD	J	2.5	11	MRL	pg/g	
	OCDF	J	1.1	11	MRL	pg/g	



LDC #: 39889F21

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24917-2

ADR

Laboratory: Test America, Inc.

Date: 11/29/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	
VI.	Field blanks	SW	See WS
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	D=7+8, 13+14, 21+22, H=30
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP012SS02DS	160-24917-1	Soil	10/04/17
2	SHAD041DP012SS03NS	160-24917-2	Soil	10/04/17
3	SHAD041DP012SS04NS	160-24917-3	Soil	10/05/17
4	SHAD041DP012SS05NS	160-24917-4	Soil	10/05/17
5	SHAD041DP012SS06NS	160-24917-5	Soil	10/05/17
6	SHAD041DP004SS01NS	160-24917-6	Soil	10/05/17
7	SHAD041DP004SS02NS	160-24917-7	Soil	10/05/17
8	SHAD041DP004SS02DS	160-24917-8	Soil	10/05/17
9	SHAD041DP004SS03NS	160-24917-9	Soil	10/05/17
10	SHAD041DP004SS04NS	160-24917-10	Soil	10/05/17
11	SHAD041DP004SS05NS	160-24917-11	Soil	10/05/17
12	SHAD041DP004SS06NS	160-24917-12	Soil	10/05/17
13	SHAD041DP008SS01NS	160-24917-13	Soil	10/05/17
14	SHAD041DP008SS01DS	160-24917-14	Soil	10/05/17

LDC #: 39889F21

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24917-2

ADR

Laboratory: Test America, Inc.

Date: 11/20/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

	Client ID	Lab ID	Matrix	Date
15	SHAD041DP008SS02NS	160-24917-15	Soil	10/05/17
16	SHAD041DP017SS01NS	160-24917-16	Soil	10/04/17
17	SHAD041DP017SS02NS	160-24917-17	Soil	10/04/17
18	SHAD041DP017SS03NS	160-24917-18	Soil	10/04/17
19	SHAD041DP017SS04NS	160-24917-19	Soil	10/04/17
20	SHAD041DP017SS05NS	160-24917-20	Soil	10/04/17
21	SHAD041DP017SS06NS	160-24917-21	Soil	10/04/17
22	SHAD041DP017SS06DS	160-24917-22	Soil	10/04/17
23	SHAD041DP018SS01NS	160-24917-23	Soil	10/04/17
24	SHAD041DP018SS02NS	160-24917-24	Soil	10/04/17
25	SHAD041DP018SS03NS	160-24917-25	Soil	10/04/17
26	SHAD041DP018SS04NS	160-24917-26	Soil	10/04/17
27	SHAD041DP018SS05NS	160-24917-27	Soil	10/04/17
28	SHAD041DP018SS06NS	160-24917-28	Soil	10/04/17
29	SHAD041DP012SS01NS	160-24917-29	Soil	10/04/17
30	SHAD041DP012SS02NS	160-24917-30	Soil	10/04/17
31	SHAD041DP017SS05NSMS	160-24917-20MS	Soil	10/04/17
32	SHAD041DP017SS05NSMSD	160-24917-20MSD	Soil	10/04/17
33	SHAD041DP012SS02NSMS	160-24917-30MS	Soil	10/04/17
34	SHAD041DP012SS02NSMSD	160-24917-30MSD	Soil	10/04/17
35				
36				
37				
38				
39				

Notes:


# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** HRGC/HRMS Dioxins (EPA SW 846 Method 8290A)

**7 = SHAD041EQ001WS01NS, 8 = SHAD041EQ002WS01NS (Both from SDG 160-24851-2)**

**Blank units:** pg/L **Associated sample units:** pg/g

**Sampling date:** 10/4/17

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 1-2, 16-30

Compound	Blank ID		Sample Identification																
	7	8	5X	1	2	16	18	19	20	21	22	25	26	27					
A		0.81	4.05		0.31							0.75							
B	2.1	0.73	10.5		1.5					0.26		3.5							
C	4.0	2.7	20	15	0.77	12	0.20	0.16	0.28	0.27	0.24			0.33					
D	1.5		7.5				0.30	0.22	0.19	0.25	0.26		0.83	0.77					
E	2.8	1.2	14		5.8		0.34	0.19	0.35	0.31		11	0.88	0.60					
F	3.2	1.9	16				1.3	0.90	2.1	0.91	1.7		3.2	3.5					
G	7.1	4.1	35.5		35		6.0	2.9	11	2.6	3.9		6.2	7.7					
I	2.0	0.91	10			4.0				0.28		0.59							
J	2.0	0.64	10		0.34	8.5				0.25		1.1							
K	1.8	0.82	9		0.76	8.7				0.37		1.7	0.47						
L	1.6	0.84	8		0.34					0.23		0.74	0.15						
M	1.9	0.67	9.5		0.43					0.30		0.82	0.20						
N	2.8	1.2	14							0.43	0.19		0.42						
O	2.1	1.6	10.5		7.2		0.29	0.23		0.47	0.42		1.5	0.74					
P	2.1		10.5							0.39		0.49							
Q	4.7	2.5	23.5		5.0		0.50	0.33	0.35	0.63	0.56	9.0	1.8	0.79					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** HRGC/HRMS Dioxins (EPA SW 846 Method 8290A)

**7 = SHAD041EQ001WS01NS, 8 = SHAD041EQ002WS01NS (Both from SDG 160-24851-2)**

**Blank units:** pg/L **Associated sample units:** pg/g

**Sampling date:** 10/4/17

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 1-2, 16-30

Compound	Blank ID		Sample Identification					
	7	8	5X	28	29			
A		0.81	4.05					
B	2.1	0.73	10.5	0.31				
C	4.0	2.7	20	0.41				
D	1.5		7.5	0.75				
E	2.8	1.2	14	0.80				
F	3.2	1.9	16	1.2				
G	7.1	4.1	35.5	2.5				
I	2.0	0.91	10	0.17	7.6			
J	2.0	0.64	10	0.14				
K	1.8	0.82	9					
L	1.6	0.84	8	0.31				
M	1.9	0.67	9.5	0.28				
N	2.8	1.2	14	0.59				
O	2.1	1.6	10.5	0.84				
P	2.1		10.5		8.5			
Q	4.7	2.5	23.5	1.1				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

METHOD: HRGC/HRMS Dioxins (EPA SW 846 Method 8290A)

18 = SHAD041EQ003WS01 (SDG 160-24925-2)

Blank units: pg/L Associated sample units: pg/g

Sampling date: 10/5/17

Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 3- 15

Compound	Blank ID	Sample Identification											
		5X	3	4	5	6	7	8	9	10	11	12	13
C	1.7	8.5			0.32	4.4	0.27	0.32	0.31	0.19	0.36	0.28	0.91
F	0.60	3	0.45	0.70	0.50	2.2		1.4	1.1	0.81	0.95		
G	2.8	14	1.3	4.3	1.9	13		7.6	6.1	4.6	5.5		
O	0.91	4.55		0.17	0.22	0.66	1.4	0.18	0.18	0.083	0.35		

Compound	Blank ID	Sample Identification											
		5X	14	15									
C	1.7	8.5	1.2	0.27									
F	0.60	3	1.9										
G	2.8	14	12										
O	0.91	4.55		0.38									

LDC#: 39889F2

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 2  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	7	8				
C	0.27	0.32		0.05	≤5.2	
D	0.36	0.62		0.26	≤5.2	
E	0.44	0.81		0.37	≤5.2	
M	0.76U	0.23		0.53	≤5.2	
N	0.16	1.0U		0.84	≤5.2	
F	2.2	4.6		2.4	≤5.2	
O	0.66	1.4		0.74	≤5.2	
G	13	35		22	≤10	
Q	0.64	1.8		1.16	≤10	
H	0.41U	0.12		0.29	≤1.0	

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	13	14				
A	0.22	0.17		0.05	≤1.0	
B	0.51	0.78		0.27	≤5.1	
I	0.27	0.39		0.12	≤5.1	
J	0.37	0.51		0.14	≤5.1	
C	0.91	1.2		0.29	≤5.1	
D	2.2	2.8		0.6	≤5.1	
E	2.1	2.8		0.7	≤5.1	
K	1.1	1.5		0.4	≤5.1	
L	0.65	0.94		0.29	≤5.1	
N	0.25	0.12		0.13	≤5.1	
M	0.70	1.0		0.3	≤5.1	
F	42	57	30			
O	11	16		5	≤5.1	
P	0.51	0.75		0.24	≤5.1	
G	350	460	27			

LDC#: 39889F21

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 2 of 2  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	13	14				
Q	19	29		10	≤10	
H	0.26	0.50		0.24	≤1.0	

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	21	22				
B	0.26	0.84U		0.58	≤5.7	
I	0.28	0.84U		0.56	≤5.7	
J	0.25	0.84U		0.59	≤5.7	
C	0.27	0.24		0.03	≤5.7	
D	0.25	0.26		0.01	≤5.7	
E	0.31	2.2U		1.89	≤5.7	
K	0.37	0.84U		0.47	≤5.7	
L	0.23	1.1U		0.87	≤5.7	
N	0.43	0.19		0.24	≤5.7	
M	0.30	0.84U		0.54	≤5.7	
F	0.91	1.7		0.79	≤5.7	
O	0.47	0.42		0.05	≤5.7	
P	0.39	2.2U		1.81	≤5.7	
G	2.6	3.9		1.3	≤11	
Q	0.63	0.56		0.07	≤11	



LDC#: 39889F21

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Page: 3 of 3  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

METHOD: GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	1	30				
A	8.5	31	114			[Signature]
B	44	160	114			[Signature]
I	11	11		0	≤5.4	
J	21	21		0	≤5.4	
C	15	2.2U		12.8	≤37	[Signature]
D	270	1300	131			[Signature]
E	160	540	109			[Signature]
K	15	24		9	≤6.7	
L	13	23		10	≤6.2	
M	15	33		18	≤6.6	
F	810	3400	123			[Signature]
O	220	640	98			[Signature]
P	2.2U	12		9.8	≤5.4	[Signature]
G	830	3400	122			[Signature]
Q	130	380	98			[Signature]
H	23	16	36			[Signature]

# Quality Control Outlier Reports

160-24922-1

## Surrogate Outlier Report

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8260C

**Matrix:** SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP027SS 01NS	4-Bromofluorobenzene	130	79.00-119.00	All Target Analytes	J+ (all detects)
SHAD041DP028SS 02NS	4-Bromofluorobenzene	123	79.00-119.00	All Target Analytes	J+(all detects)
	DIBROMOFLUOROMETHANE	121	78.00-119.00		
	TOLUENE-D8	121	85.00-116.00		
SHAD041DP029SS 01DS	4-Bromofluorobenzene	138	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP029SS 02NS	4-Bromofluorobenzene	129	79.00-119.00	All Target Analytes	J+(all detects)
	TOLUENE-D8	124	85.00-116.00		
SHAD041DP030SS 02NS	4-Bromofluorobenzene	73	79.00-119.00	All Target Analytes	J-(all detects) UJ(all non-detects)
	TOLUENE-D8	77	85.00-116.00		

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 7196A**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP027SS06NSMS (TOT) (SHAD041DP027SS06NS)	Chromium(VI)	50	-	84.00-110.00	-	Chromium(VI)	J- (all detects) UJ (all non-detects)
SHAD041DP030SS04NSMS (TOT) (SHAD041DP030SS04NS)	Chromium(VI)	52	-	84.00-110.00	-	Chromium(VI)	J-(all detects) UJ(all non-detects)

**Method: 8270D SIM**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP027SS01NSMS SHAD041DP027SS01NSMSD (SHAD041DP027SS01NS)	1-Methylnaphthalene DIBENZO(A,H)ANTHRACENE	0 0	0 0	43.00-111.00 50.00-129.00	- -	1-Methylnaphthalene DIBENZO(A,H)ANTHRACENE	Diluted Out, No Qual
SHAD041DP027SS01NSMS SHAD041DP027SS01NSMSD (SHAD041DP027SS01NS)	BENZO(B)FLUORANTHENE	132	134	53.00-128.00	-	BENZO(B)FLUORANTHENE	J+(all detects)
SHAD041DP029SS01NSMS SHAD041DP029SS01NSMSD (SHAD041DP029SS01NS)	1-Methylnaphthalene DIBENZO(A,H)ANTHRACENE	0 0	0 0	43.00-111.00 50.00-129.00	- -	1-Methylnaphthalene DIBENZO(A,H)ANTHRACENE	Diluted Out, No Qual



# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP028SS06N S (TOT)	SHAD041DP028SS06D S (TOT)			
CHROMIUM	13	16	21	30.00	No Qualifiers Applied
LEAD	5.0	4.5	11	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP029SS01N S (TOT)	SHAD041DP029SS01D S (TOT)			
CHROMIUM	21	23	9	30.00	No Qualifiers Applied
LEAD**	48	310	146**	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP030SS04N S (TOT)	SHAD041DP030SS04D S (TOT)			
CHROMIUM	13	14	7	30.00	No Qualifiers Applied
LEAD	2.8	2.3	20	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP027SS04N S (TOT)	SHAD041DP027SS04D S (TOT)			
CHROMIUM	13	13	0	30.00	No Qualifiers Applied
LEAD	2.0	2.3	14	30.00	

**Method: 7196A**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP028SS06N S (TOT)	SHAD041DP028SS06D S (TOT)			
Chromium(VI)	0.43	0.42	2	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP029SS01N S (TOT)	SHAD041DP029SS01D S (TOT)			
Chromium(VI)	0.41	0.72	55	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP030SS04N S (TOT)	SHAD041DP030SS04D S (TOT)			
Chromium(VI)	0.30	0.30	0	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP027SS04N S (TOT)	SHAD041DP027SS04D S (TOT)			
Chromium(VI)	0.37	0.38	3	30.00	No Qualifiers Applied

**Method: 8082A**  
**Matrix: SO**

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP029SS01N S	SHAD041DP029SS01D S			
PCB-1260	35 U	19	200	30.00	No Qualifiers Applied

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8260C**  
**Matrix: SO**

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP029SS01N S	SHAD041DP029SS01D S			
ETHYLBENZENE	0.70	2.2	103	30.00	No Qualifiers Applied ** J (all detects)
Xylene (Total)**	5.8	16	94**	30.00	

**Method: 8270D SIM**  
**Matrix: SO**

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP029SS01N S	SHAD041DP029SS01D S			
BENZO(G,H,I)PERYLENE	12	12	0	30.00	No Qualifiers Applied

# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 6010C

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP027SS02NS	LEAD	J D	2.1	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS03NS	LEAD	J D	2.7	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS04DS	LEAD	J D	2.3	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS04NS	LEAD	J D	2.0	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS06NS	LEAD	J D	4.2	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP028SS04NS	LEAD	J D	3.7	8.9	LOQ	mg/Kg	J (all detects)
SHAD041DP028SS06DS	LEAD	J D	4.5	6.1	LOQ	mg/Kg	J (all detects)
SHAD041DP028SS06NS	LEAD	J D	5.0	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS02NS	LEAD	J D	5.3	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS03NS	LEAD	J D	4.2	5.4	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS04NS	LEAD	J D	2.4	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS05NS	LEAD	J D	4.9	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS06NS	LEAD	J D	5.0	5.7	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS02NS	LEAD	J D	3.4	5.0	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS03NS	LEAD	J D	2.1	5.1	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS04DS	LEAD	J D	2.3	5.6	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS04NS	LEAD	J D	2.8	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS06NS	LEAD	J D	3.4	5.3	LOQ	mg/Kg	J (all detects)

**Method:** 7196A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP027SS02NS	Chromium(VI)	J	0.45	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS03NS	Chromium(VI)	J	0.34	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS04DS	Chromium(VI)	J	0.38	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS04NS	Chromium(VI)	J	0.37	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP027SS06NS	Chromium(VI)	J	0.41	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP028SS06DS	Chromium(VI)	J	0.42	0.49	LOQ	mg/Kg	J (all detects)
SHAD041DP028SS06NS	Chromium(VI)	J	0.43	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS03NS	Chromium(VI)	J	0.20	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS04NS	Chromium(VI)	J	0.30	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP029SS06NS	Chromium(VI)	J	0.18	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS01NS	Chromium(VI)	J	0.26	0.40	LOQ	mg/Kg	J (all detects)

Project Name and Number: 05122.01 - SHAD-041

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# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 7196A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP030SS02NS	Chromium(VI)	J	0.32	0.41	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS03NS	Chromium(VI)	J	0.28	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS04DS	Chromium(VI)	J	0.30	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS04NS	Chromium(VI)	J	0.30	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP030SS06NS	Chromium(VI)	J	0.29	0.45	LOQ	mg/Kg	J (all detects)

**Method:** 8082A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP027SS01NS	PCB-1260	J	21	33	LOQ	ug/Kg	J (all detects)
SHAD041DP029SS01DS	PCB-1260	J	19	36	LOQ	ug/Kg	J (all detects)

**Method:** 8260C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP028SS01NS	ETHYLBENZENE	J Q	3.1	4.6	LOQ	ug/Kg	J (all detects)
SHAD041DP029SS01DS	ETHYLBENZENE	J	2.2	4.4	LOQ	ug/Kg	J (all detects)
SHAD041DP029SS01NS	ETHYLBENZENE Xylene (Total)	J J	0.70 5.8	4.4 8.8	LOQ LOQ	ug/Kg ug/Kg	J (all detects)

**Method:** 8270D SIM  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP028SS01NS	ACENAPHTHYLENE	J D	4.3	33	LOQ	ug/Kg	J (all detects)
	ANTHRACENE	J D	11	33	LOQ	ug/Kg	
	BENZ(A)ANTHRACENE	J D	18	33	LOQ	ug/Kg	
	BENZO(A)PYRENE	J D	20	33	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J D	24	33	LOQ	ug/Kg	
	CHRYSENE	J D	28	33	LOQ	ug/Kg	
	FLUORANTHENE	J D	25	33	LOQ	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J D	18	33	LOQ	ug/Kg	
	PHENANTHRENE	J D	14	33	LOQ	ug/Kg	
	PYRENE	J D	23	33	LOQ	ug/Kg	
SHAD041DP028SS02NS	ANTHRACENE	J D	5.4	34	LOQ	ug/Kg	J (all detects)
	BENZ(A)ANTHRACENE	J D	7.0	34	LOQ	ug/Kg	
	BENZO(B)FLUORANTHENE	J D	30	34	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J D	16	34	LOQ	ug/Kg	
	CHRYSENE	J D	19	34	LOQ	ug/Kg	

Project Name and Number: 05122.01 - SHAD-041

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## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-1

Laboratory: TA STL

EDD Filename: 160-24922-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8270D SIM

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP028SS03NS	BENZO(A)PYRENE	J	1.0	7.4	LOQ	ug/Kg	J (all detects)
	BENZO(B)FLUORANTHENE	J	3.7	7.4	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.9	7.4	LOQ	ug/Kg	
	CHRYSENE	J	2.5	7.4	LOQ	ug/Kg	
SHAD041DP029SS01DS	BENZO(G,H,I)PERYLENE	J D	12	71	LOQ	ug/Kg	J (all detects)
SHAD041DP029SS01NS	BENZO(G,H,I)PERYLENE	J D	12	70	LOQ	ug/Kg	J (all detects)
SHAD041DP030SS01NS	2-METHYLNAPHTHALENE	J	0.64	6.6	LOQ	ug/Kg	J (all detects)
	NAPHTHALENE	J	1.6	6.6	LOQ	ug/Kg	
SHAD041DP030SS06NS	2-METHYLNAPHTHALENE	J	0.60	7.6	LOQ	ug/Kg	J (all detects)

LDC #: 39889G1

**VALIDATION COMPLETENESS WORKSHEET**

Date: 4/11/17

SDG #: 160-24922-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 15% . Y <sup>2</sup> ICV ≤ 20%
IV.	Continuing calibration	A	ecv ≤ 20%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	TB . 2B
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	W	D=4+5 . 13+14 . 15+16, 25+26
XI.	Internal standards	N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP027SS01NS	160-24922-1	Soil	10/06/17
2	SHAD041DP027SS02NS	160-24922-2	Soil	10/06/17
3	SHAD041DP027SS03NS	160-24922-3	Soil	10/06/17
4	SHAD041DP027SS04NS	160-24922-4	Soil	10/06/17
5	SHAD041DP027SS04DS	160-24922-5	Soil	10/06/17
6	SHAD041DP027SS05NS	160-24922-6	Soil	10/06/17
7	SHAD041DP027SS06NS	160-24922-7	Soil	10/06/17
8	SHAD041DP028SS01NS	160-24922-8	Soil	10/06/17
9	SHAD041DP028SS02NS	160-24922-9	Soil	10/06/17
10	SHAD041DP028SS03NS	160-24922-10	Soil	10/06/17
11	SHAD041DP028SS04NS	160-24922-11	Soil	10/06/17
12	SHAD041DP028SS05NS	160-24922-12	Soil	10/06/17
13	SHAD041DP028SS06NS	160-24922-13	Soil	10/06/17

LDC #: 39889G1

VALIDATION COMPLETENESS WORKSHEET

Date: 12/1/17

SDG #: 160-24922-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP028SS06DS	160-24922-14	Soil	10/06/17
15	SHAD041DP029SS01NS	160-24922-16	Soil	10/06/17
16	SHAD041DP029SS01DS	160-24922-17	Soil	10/06/17
17	SHAD041DP029SS02NS	160-24922-18	Soil	10/06/17
18	SHAD041DP029SS03NS	160-24922-19	Soil	10/06/17
19	SHAD041DP029SS04NS	160-24922-20	Soil	10/06/17
20	SHAD041DP029SS05NS	160-24922-21	Soil	10/06/17
21	SHAD041DP029SS06NS	160-24922-22	Soil	10/06/17
22	SHAD041DP030SS01NS	160-24922-23	Soil	10/06/17
23	SHAD041DP030SS02NS	160-24922-24	Soil	10/06/17
24	SHAD041DP030SS03NS	160-24922-25	Soil	10/06/17
25	SHAD041DP030SS04NS	160-24922-26	Soil	10/06/17
26	SHAD041DP030SS04DS	160-24922-27	Soil	10/06/17
27	SHAD041DP030SS05NS	160-24922-28	Soil	10/06/17
28	SHAD041DP030SS06NS	160-24922-29	Soil	10/06/17
29	TB-100617-1	160-24922-30	Water	10/06/17
30				
31				
32				
33				
34				

Notes:

F=1,2,4							
X=3,5-6							

LDC#: 3989G1

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GCMS VOCs (EPA SW 846 Method 8260C)

Compound	Concentration (ug/kg)		(<30) RPD	Difference	Limits	Qual
	15	16				
EE	0.70	2.2		1.5	≤4.4	
GG	5.8	16		10.2	≤8.8	Jdets/A

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### VALIDATION FINDINGS WORKSHEET Internal Standards

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Were all internal standard area counts within -50 to +100% of the associated calibration standard?  
Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		15 (ND)	4DCB	185335	(196656-786624)	N/A
		16		135963		
		17		178547		
		1		123078		
		2		179180		
		8 (dots+no)	CBZ	459606	(499327-1997308)	
			4DCB	118045	(196656-786624)	
		22 (ND)		175613		
		23		177420		

(ECM) = Bromochloromethane  
 (DFB) = 1,4-Difluorobenzene  
 (CBZ) = Chlorobenzene-d5  
 (PFB) = Pentafluorobenzene  
 (4DCB) = 1,4-Dichlorobenzene-d4  
 (2DCB) = 1,2-Dichlorobenzene-d4  
 (FBZ) = Fluorobenzene

Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	SW	m/z 41 is out. No mg'd by SIM
III.	Initial calibration/ICV	A/A	150 < 1570. 100 < 20%
IV.	Continuing calibration / ending	A	100 < 20/20%
V.	Laboratory Blanks	N	
VI.	Field blanks	NO	EB
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	SW	15+15, 13+14, 15+16, 25+26
XI.	Internal standards	N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP027SS01NS	160-24922-1	Soil	10/06/17
2	SHAD041DP027SS02NS	160-24922-2	Soil	10/06/17
3	SHAD041DP027SS03NS	160-24922-3	Soil	10/06/17
4	SHAD041DP027SS04NS	160-24922-4	Soil	10/06/17
5	SHAD041DP027SS04DS	160-24922-5	Soil	10/06/17
6	SHAD041DP027SS05NS	160-24922-6	Soil	10/06/17
7	SHAD041DP027SS06NS	160-24922-7	Soil	10/06/17
8	SHAD041DP028SS01NS	160-24922-8	Soil	10/06/17
9	SHAD041DP028SS02NS	160-24922-9	Soil	10/06/17
10	SHAD041DP028SS03NS	160-24922-10	Soil	10/06/17
11	SHAD041DP028SS04NS	160-24922-11	Soil	10/06/17
12	SHAD041DP028SS05NS	160-24922-12	Soil	10/06/17
13	SHAD041DP028SS06NS	160-24922-13	Soil	10/06/17

LDC #: 39889G2b

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24922-1

ADR

Laboratory: Test America, Inc.

Date: 2/1/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP028SS06DS	160-24922-14	Soil	10/06/17
15	SHAD041DP029SS01NS	160-24922-16	Soil	10/06/17
16	SHAD041DP029SS01DS	160-24922-17	Soil	10/06/17
17	SHAD041DP029SS02NS	160-24922-18	Soil	10/06/17
18	SHAD041DP029SS03NS	160-24922-19	Soil	10/06/17
19	SHAD041DP029SS04NS	160-24922-20	Soil	10/06/17
20	SHAD041DP029SS05NS	160-24922-21	Soil	10/06/17
21	SHAD041DP029SS06NS	160-24922-22	Soil	10/06/17
22	SHAD041DP030SS01NS	160-24922-23	Soil	10/06/17
23	SHAD041DP030SS02NS	160-24922-24	Soil	10/06/17
24	SHAD041DP030SS03NS	160-24922-25	Soil	10/06/17
25	SHAD041DP030SS04NS	160-24922-26	Soil	10/06/17
26	SHAD041DP030SS04DS	160-24922-27	Soil	10/06/17
27	SHAD041DP030SS05NS	160-24922-28	Soil	10/06/17
28	SHAD041DP030SS06NS	160-24922-29	Soil	10/06/17
29	SHAD041DP027SS01NSMS	160-24922-1MS	Soil	10/06/17
30	SHAD041DP027SS01NSMSD	160-24922-1MSD	Soil	10/06/17
31	SHAD041DP029SS01NSMS	160-24922-16MS	Soil	10/06/17
32	SHAD041DP029SS01NSMSD	160-24922-16MSD	Soil	10/06/17
33				
34				
35				
36				
37				

Notes:




# VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1. N-Nitrosodiethylamine
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1. N-Nitrosodi-n-butylamine
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1. N-Nitrosomethylethylamine
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1. N-Nitrosomorpholine
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1. N-Nitrosopyrrolidine
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1. Phenacetin
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1. 2-Acetylaminofluorene
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1. Pronamide
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1. Methyl methanesulfonate
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1. Ethyl methanesulfonate
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1. o,o',o'-Triethylphosphorothioate
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1. n-Phenylene diamine
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1. 1,4-Naphthoquinone
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1. N-Nitro-o-toluidine
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1. 1,3,5-Trinitrobenzene
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1. Pentachlorobenzene
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1. 4-Aminobiphenyl
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1. 2-Naphthylamine
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1. Triphenylene
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1. Octachlorostyrene
U. Hexachlorobutadiene	UU. Phenanthrene	UUU. Benzo(b)thiophene	UUUU. 2,3,4,6-Tetrachlorophenol	U1. Famphur
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV. Benzonaphthothiophene	VVVV. 1,2,4,5-Tetrachlorobenzene	V1. 1,4-phenylenediamine
W. 2-Methylnaphthalene	WW. Carbazole	WWW. Benzo(e)pyrene	WWWWW. 2-Picoline	W1. Methapyriline
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX. 3-Methylolanthrene	X1. Pentachloroethane
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY. a,a-Dimethylphenethylamine	Y1. 3,3'-Dimethylbenzidine
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ. Hexachloropropene	Z1. o-Toluidine

LDC#: 39889G2b

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: 9  
2nd Reviewer: KR

**METHOD:** GCMS PAHs (EPA SW 846 Method 8270D)

Compound	Concentration (ug/L)		(<30) RPD	Difference	Limits	Qual
	15	16				
LLL	12	12		0	≤71	

V:\FIELD DUPLICATES\Field Duplicates\FD\_Organics\2017\39889G2b\_Sharp.wpd

LDC #: 39889G3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/1/17

SDG #: 160-24922-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration/ICV	A/A	
III.	Continuing calibration	A	
IV.	Laboratory Blanks	N	
V.	Field blanks	NO	EB
VI.	Surrogate spikes / IS	N/A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	NW	D = 4+5, 13+14, 15+16, 25+26
X.	Compound quantitation/RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP027SS01NS	160-24922-1	Soil	10/06/17
2	SHAD041DP027SS02NS	160-24922-2	Soil	10/06/17
3	SHAD041DP027SS03NS	160-24922-3	Soil	10/06/17
4	SHAD041DP027SS04NS	160-24922-4	Soil	10/06/17
5	SHAD041DP027SS04DS	160-24922-5	Soil	10/06/17
6	SHAD041DP027SS05NS	160-24922-6	Soil	10/06/17
7	SHAD041DP027SS06NS	160-24922-7	Soil	10/06/17
8	SHAD041DP028SS01NS	160-24922-8	Soil	10/06/17
9	SHAD041DP028SS02NS	160-24922-9	Soil	10/06/17
10	SHAD041DP028SS03NS	160-24922-10	Soil	10/06/17
11	SHAD041DP028SS04NS	160-24922-11	Soil	10/06/17
12	SHAD041DP028SS05NS	160-24922-12	Soil	10/06/17
13	SHAD041DP028SS06NS	160-24922-13	Soil	10/06/17
14	SHAD041DP028SS06DS	160-24922-14	Soil	10/06/17
15	SHAD041DP029SS01NS	160-24922-16	Soil	10/06/17
16	SHAD041DP029SS01DS	160-24922-17	Soil	10/06/17
17	SHAD041DP029SS02NS	160-24922-18	Soil	10/06/17

LDC #: 39889G3b

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24922-1

ADR

Laboratory: Test America, Inc.

Date: 12/11/17

Page: 2 of 3

Reviewer: [Signature]

2nd Reviewer: KK

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP029SS03NS	160-24922-19	Soil	10/06/17
19	SHAD041DP029SS04NS	160-24922-20	Soil	10/06/17
20	SHAD041DP029SS05NS	160-24922-21	Soil	10/06/17
21	SHAD041DP029SS06NS	160-24922-22	Soil	10/06/17
22	SHAD041DP030SS01NS	160-24922-23	Soil	10/06/17
23	SHAD041DP030SS02NS	160-24922-24	Soil	10/06/17
24	SHAD041DP030SS03NS	160-24922-25	Soil	10/06/17
25	SHAD041DP030SS04NS	160-24922-26	Soil	10/06/17
26	SHAD041DP030SS04DS	160-24922-27	Soil	10/06/17
27	SHAD041DP030SS05NS	160-24922-28	Soil	10/06/17
28	SHAD041DP030SS06NS	160-24922-29	Soil	10/06/17
29	SHAD041DP027SS01NSMS	160-24922-1MS	Soil	10/06/17
30	SHAD041DP027SS01NSMSD	160-24922-1MSD	Soil	10/06/17
31	SHAD041DP029SS01NSMS	160-24922-16MS	Soil	10/06/17
32	SHAD041DP029SS01NSMSD	160-24922-16MSD	Soil	10/06/17
33				
34				
35				
36				
37				

Notes:




LDC#: 39889G3a

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC PCBs (Method 8082A)

Compound	Concentration (mg/kg)		( $\leq 30$ ) RPD	Difference	Limits	Qual
	15	16				
PCB-1260	11U	19		8	$\leq 36$	

LDC #: 39889G4b  
 SDG #: 160-24922-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-7-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/N	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	MS/MSD (SDG: 160-24917-1)
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	A	SD: 11, SDG: 160-24917-1
IX.	Laboratory control samples	N	LCS
X.	Field Duplicates	N	D=4+5, D=13+14, D=15+16, D=25+26
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP027SS01NS	160-24922-1	Soil	10/06/17
2	SHAD041DP027SS02NS	160-24922-2	Soil	10/06/17
3	SHAD041DP027SS03NS	160-24922-3	Soil	10/06/17
4	SHAD041DP027SS04NS	160-24922-4	Soil	10/06/17
5	SHAD041DP027SS04DS	160-24922-5	Soil	10/06/17
6	SHAD041DP027SS05NS	160-24922-6	Soil	10/06/17
7	SHAD041DP027SS06NS	160-24922-7	Soil	10/06/17
8	SHAD041DP028SS01NS	160-24922-8	Soil	10/06/17
9	SHAD041DP028SS02NS	160-24922-9	Soil	10/06/17
10	SHAD041DP028SS03NS	160-24922-10	Soil	10/06/17
11	SHAD041DP028SS04NS	160-24922-11	Soil	10/06/17
12	SHAD041DP028SS05NS	160-24922-12	Soil	10/06/17
13	SHAD041DP028SS06NS	160-24922-13	Soil	10/06/17
14	SHAD041DP028SS06DS	160-24922-14	Soil	10/06/17
15	SHAD041DP029SS01NS	160-24922-16	Soil	10/06/17
16	SHAD041DP029SS01DS	160-24922-17	Soil	10/06/17
17	SHAD041DP029SS02NS	160-24922-18	Soil	10/06/17

LDC #: 39889G4b

### VALIDATION COMPLETENESS WORKSHEET

Date: 12-7-17

SDG #: 160-24922-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG  
2nd Reviewer: [Signature]

METHOD: Cr & Pb (EPA SW 846 Method 6010C)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP029SS03NS	160-24922-19	Soil	10/06/17
19	SHAD041DP029SS04NS	160-24922-20	Soil	10/06/17
20	SHAD041DP029SS05NS	160-24922-21	Soil	10/06/17
21	SHAD041DP029SS06NS	160-24922-22	Soil	10/06/17
22	SHAD041DP030SS01NS	160-24922-23	Soil	10/06/17
23	SHAD041DP030SS02NS	160-24922-24	Soil	10/06/17
24	SHAD041DP030SS03NS	160-24922-25	Soil	10/06/17
25	SHAD041DP030SS04NS	160-24922-26	Soil	10/06/17
26	SHAD041DP030SS04DS	160-24922-27	Soil	10/06/17
27	SHAD041DP030SS05NS	160-24922-28	Soil	10/06/17
28	SHAD041DP030SS06NS	160-24922-29	Soil	10/06/17
29	SHAD041DP028SS04NSMS	160-24922-11MS	Soil	10/06/17
30	SHAD041DP028SS04NSMSD	160-24922-11MSD	Soil	10/06/17
31				
32				
33				
34	PBS 1			
35	PBS 2			

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Sample Specific Element Reference**

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1 → 28	S	Al, Sb, As, Ba, Be, Cd, Ca, <u>Cr</u> , Co, Cu, Fe, <u>Pb</u> , Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
QC 29, 30	↓	Al, Sb, As, Ba, Be, Cd, Ca, <u>Cr</u> , Co, Cu, Fe, <u>Pb</u> , Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
<b>Analysis Method</b>		
ICP	S	Al, Sb, As, Ba, Be, Cd, Ca, <u>Cr</u> , Co, Cu, Fe, <u>Pb</u> , Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Mo, B, Si, CN <sup>-</sup> ,

Comments: Mercury by CVAA if performed

LDC #: 39889G6

## VALIDATION COMPLETENESS WORKSHEET

Date: 12-7-17

SDG #: 160-24922-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer:

METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	N	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD (Insoluble Cr VI out in #29, 31)
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D=4+5, D=13+14, D=15+16, D=25+26
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP027SS01NS	160-24922-1	Soil	10/06/17
2	SHAD041DP027SS02NS	160-24922-2	Soil	10/06/17
3	SHAD041DP027SS03NS	160-24922-3	Soil	10/06/17
4	SHAD041DP027SS04NS	160-24922-4	Soil	10/06/17
5	SHAD041DP027SS04DS	160-24922-5	Soil	10/06/17
6	SHAD041DP027SS05NS	160-24922-6	Soil	10/06/17
7	SHAD041DP027SS06NS	160-24922-7	Soil	10/06/17
8	SHAD041DP028SS01NS	160-24922-8	Soil	10/06/17
9	SHAD041DP028SS02NS	160-24922-9	Soil	10/06/17
10	SHAD041DP028SS03NS	160-24922-10	Soil	10/06/17
11	SHAD041DP028SS04NS	160-24922-11	Soil	10/06/17
12	SHAD041DP028SS05NS	160-24922-12	Soil	10/06/17
13	SHAD041DP028SS06NS	160-24922-13	Soil	10/06/17
14	SHAD041DP028SS06DS	160-24922-14	Soil	10/06/17
15	SHAD041DP029SS01NS	160-24922-16	Soil	10/06/17
16	SHAD041DP029SS01DS	160-24922-17	Soil	10/06/17
17	SHAD041DP029SS02NS	160-24922-18	Soil	10/06/17



LDC #: 39889G6

VALIDATION COMPLETENESS WORKSHEET

Date: 12-7-17

SDG #: 160-24922-1

ADR

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Laboratory: Test America, Inc.

Reviewer: MG  
2nd Reviewer: [Signature]

METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)

	Client ID	Lab ID	Matrix	Date
18	2 SHAD041DP029SS03NS	160-24922-19	Soil	10/06/17
19	2 SHAD041DP029SS04NS	160-24922-20	Soil	10/06/17
20	2 SHAD041DP029SS05NS	160-24922-21	Soil	10/06/17
21	2 SHAD041DP029SS06NS	160-24922-22	Soil	10/06/17
22	2 SHAD041DP030SS01NS	160-24922-23	Soil	10/06/17
23	2 SHAD041DP030SS02NS	160-24922-24	Soil	10/06/17
24	2 SHAD041DP030SS03NS	160-24922-25	Soil	10/06/17
25	2 SHAD041DP030SS04NS	160-24922-26	Soil	10/06/17
26	2 SHAD041DP030SS04DS	160-24922-27	Soil	10/06/17
27	2 SHAD041DP030SS05NS	160-24922-28	Soil	10/06/17
28	2 SHAD041DP030SS06NS	160-24922-29	Soil	10/06/17
29	1 SHAD041DP027SS06NSMS	160-24922-7MS	Soil	10/06/17
30	1 SHAD041DP027SS06NSMSD	160-24922-7MSD	Soil	10/06/17
31	2 SHAD041DP030SS04NSMS	160-24922-26MS	Soil	10/06/17
32	2 SHAD041DP030SS04NSMSD	160-24922-26MSD	Soil	10/06/17
33				
34				
35				
36	1 PBS1			
37	2 PBS2			

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Quality Control Outlier Reports

160-24922-2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** AQ

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-189688/1-A	11/13/2017 1:40:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD OCDD	0.655 pg/L 2.32 pg/L 0.600 pg/L 2.12 pg/L	SHAD041DW01WS01NS

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-189776/1-A	11/12/2017 12:02:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD OCDD OCDF	0.109 pg/g 0.0639 pg/g 0.0539 pg/g 0.324 pg/g 0.173 pg/g 0.113 pg/g	SHAD041DP027SS01NS SHAD041DP027SS02NS SHAD041DP027SS03NS SHAD041DP027SS04DS SHAD041DP027SS04NS SHAD041DP027SS05NS SHAD041DP027SS06NS SHAD041DP028SS01NS SHAD041DP028SS02NS SHAD041DP028SS03NS SHAD041DP028SS04NS SHAD041DP028SS05NS SHAD041DP028SS06NS
MB 320-189954/1-A	11/15/2017 9:53:00 AM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF OCDD OCDF	0.101 pg/g 0.0650 pg/g 0.152 pg/g 0.0521 pg/g 0.0560 pg/g 0.639 pg/g 0.0797 pg/g	SHAD041DP028SS06DS SHAD041DP029SS01DS SHAD041DP029SS01NS SHAD041DP029SS02NS SHAD041DP029SS03NS SHAD041DP029SS04NS SHAD041DP029SS05NS SHAD041DP029SS06NS SHAD041DP030SS01NS SHAD041DP030SS02NS SHAD041DP030SS03NS SHAD041DP030SS04NS
MB 320-190166/1-A	11/11/2017 10:55:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF OCDD OCDF	0.708 pg/g 0.497 pg/g 0.405 pg/g 0.518 pg/g 0.374 pg/g 0.465 pg/g 0.633 pg/g 0.412 pg/g 0.384 pg/g 0.491 pg/g 0.477 pg/g 1.94 pg/g 0.834 pg/g	SHAD041DP030SS04DS SHAD041DP030SS05NS SHAD041DP030SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP027SS02NS(RES)	1,2,3,4,7,8-HxCDD	0.39 pg/g	0.39U pg/g
SHAD041DP027SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP027SS04DS(RES)	1,2,3,4,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP027SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.38 pg/g	0.38U pg/g
SHAD041DP027SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.59 pg/g	0.59U pg/g
SHAD041DP027SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.26 pg/g	0.26U pg/g

Project Name and Number: 05122.01 - SHAD-041

12/14/2017 3:24:35 PM

ADR version 1.9.0.325

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# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method:</b>	8290A
<b>Matrix:</b>	SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP027SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.15 pg/g	0.15U pg/g
SHAD041DP028SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.48 pg/g	0.48U pg/g
SHAD041DP028SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.50 pg/g	0.50U pg/g
SHAD041DP028SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.21 pg/g	0.21U pg/g
SHAD041DP028SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.77 pg/g	0.77U pg/g
SHAD041DP028SS05NS(RES)	OCDF	0.34 pg/g	0.34U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,4,6,7,8-HpCDD	0.32 pg/g	0.32U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,4,6,7,8-HpCDF	0.15 pg/g	0.15U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,7,8,9-HxCDD	0.13 pg/g	0.13U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,7,8,9-HxCDF	0.055 pg/g	0.055U pg/g
SHAD041DP028SS06DS(RES)	OCDD	1.5 pg/g	1.5U pg/g
SHAD041DP028SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.46 pg/g	0.46U pg/g
SHAD041DP028SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.15 pg/g	0.15U pg/g
SHAD041DP028SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.31 pg/g	0.31U pg/g
SHAD041DP028SS06NS(RES)	OCDF	0.31 pg/g	0.31U pg/g
SHAD041DP029SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.34 pg/g	0.34U pg/g
SHAD041DP029SS02NS(RE)	1,2,3,7,8,9-HxCDF	0.21 pg/g	0.21U pg/g
SHAD041DP029SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP029SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.47 pg/g	0.47U pg/g
SHAD041DP029SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.076 pg/g	0.076U pg/g
SHAD041DP029SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.30 pg/g	0.30U pg/g
SHAD041DP029SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.16 pg/g	0.16U pg/g
SHAD041DP029SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29U pg/g
SHAD041DP029SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.050 pg/g	0.050U pg/g
SHAD041DP029SS05NS(RES)	OCDD	0.80 pg/g	0.80U pg/g
SHAD041DP029SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.15 pg/g	0.15U pg/g
SHAD041DP029SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.068 pg/g	0.068U pg/g
SHAD041DP029SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP029SS06NS(RES)	OCDD	1.2 pg/g	1.2U pg/g
SHAD041DP030SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.49 pg/g	0.49U pg/g
SHAD041DP030SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.31 pg/g	0.31U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,4,6,7,8-HpCDF	0.21 pg/g	0.21U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,4,7,8-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,4,7,8-HxCDF	0.078 pg/g	0.078U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,6,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,7,8,9-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,7,8,9-HxCDF	0.13 pg/g	0.13U pg/g
SHAD041DP030SS04DS(RES)	2,3,4,6,7,8-HxCDF	0.088 pg/g	0.088U pg/g

**Project Name and Number: 05122.01 - SHAD-041**

12/14/2017 3:24:35 PM

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# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method:</b>	<b>8290A</b>
<b>Matrix:</b>	<b>SO</b>

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP030SS04DS(RES)	OCDF	2.0 pg/g	2.0U pg/g
SHAD041DP030SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.23 pg/g	0.23U pg/g
SHAD041DP030SS04NS(RES)	1,2,3,7,8,9-HxCDD	0.21 pg/g	0.21U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.27 pg/g	0.27U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,6,7,8-HxCDD	0.15 pg/g	0.15U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.12 pg/g	0.12U pg/g
SHAD041DP030SS05NS(RES)	OCDD	5.6 pg/g	5.6U pg/g
SHAD041DP030SS05NS(RES)	OCDF	0.60 pg/g	0.60U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	1.4 pg/g	1.4U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.48 pg/g	0.48U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,6,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,7,8,9-HxCDF	0.21 pg/g	0.21U pg/g
SHAD041DP030SS06NS(RES)	2,3,4,6,7,8-HxCDF	0.18 pg/g	0.18U pg/g
SHAD041DP030SS06NS(RES)	2,3,4,7,8-PeCDF	0.12 pg/g	0.12U pg/g
SHAD041DP030SS06NS(RES)	OCDD	6.4 pg/g	6.4U pg/g
SHAD041DP030SS06NS(RES)	OCDF	0.90 pg/g	0.90U pg/g



# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
SHAD041EQ004WS01NS (RES)	10/6/2017 2:30:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDF OCDD	0.69 pg/L 1.4 pg/L 0.26 pg/L 1.8 pg/L	SHAD041DP027SS01NS SHAD041DP027SS02NS SHAD041DP027SS03NS SHAD041DP027SS04DS SHAD041DP027SS04NS SHAD041DP027SS05NS SHAD041DP027SS06NS SHAD041DP028SS01NS SHAD041DP028SS02NS SHAD041DP028SS03NS SHAD041DP028SS04NS SHAD041DP028SS05NS SHAD041DP028SS06DS SHAD041DP028SS06NS SHAD041DP029SS01DS SHAD041DP029SS01NS SHAD041DP029SS02NS SHAD041DP029SS03NS SHAD041DP029SS04NS SHAD041DP029SS05NS SHAD041DP029SS06NS SHAD041DP030SS01NS SHAD041DP030SS02NS SHAD041DP030SS03NS SHAD041DP030SS04DS SHAD041DP030SS04NS SHAD041DP030SS05NS SHAD041DP030SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP027SS02NS(RES)	1,2,3,4,7,8-HxCDD	0.39 pg/g	0.39U pg/g
SHAD041DP027SS02NS(RES)	1,2,3,7,8,9-HxCDF	0.18 pg/g	0.18U pg/g
SHAD041DP027SS03NS(RES)	1,2,3,4,6,7,8-HpCDD	0.73 pg/g	0.73U pg/g
SHAD041DP027SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP027SS03NS(RES)	OCDD	6.5 pg/g	6.5U pg/g
SHAD041DP027SS04DS(RES)	1,2,3,4,6,7,8-HpCDD	2.8 pg/g	2.8U pg/g
SHAD041DP027SS04DS(RES)	1,2,3,4,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP027SS04DS(RES)	OCDD	8.3 pg/g	8.3U pg/g
SHAD041DP027SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.84 pg/g	0.84U pg/g
SHAD041DP027SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.38 pg/g	0.38U pg/g
SHAD041DP027SS04NS(RES)	OCDD	4.3 pg/g	4.3U pg/g
SHAD041DP027SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.59 pg/g	0.59U pg/g
SHAD041DP027SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.26 pg/g	0.26U pg/g
SHAD041DP027SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.15 pg/g	0.15U pg/g
SHAD041DP027SS06NS(RES)	OCDD	1.1 pg/g	1.1U pg/g
SHAD041DP028SS02NS(RES)	1,2,3,4,7,8-HxCDD	3.7 pg/g	3.7U pg/g
SHAD041DP028SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.48 pg/g	0.48U pg/g
SHAD041DP028SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.50 pg/g	0.50U pg/g
SHAD041DP028SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	2.5 pg/g	2.5U pg/g

Project Name and Number: 05122.01 - SHAD-041

12/14/2017 2:44:23 PM

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP028SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.77 pg/g	0.77U pg/g
SHAD041DP028SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.13 pg/g	0.13U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,4,6,7,8-HpCDD	0.32 pg/g	0.32U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP028SS06DS(RES)	1,2,3,7,8,9-HxCDF	0.055 pg/g	0.055U pg/g
SHAD041DP028SS06DS(RES)	OCDD	1.5 pg/g	1.5U pg/g
SHAD041DP028SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.46 pg/g	0.46U pg/g
SHAD041DP028SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.31 pg/g	0.31U pg/g
SHAD041DP028SS06NS(RES)	OCDD	3.4 pg/g	3.4U pg/g
SHAD041DP029SS01DS(RE)	1,2,3,4,7,8-HxCDD	4.8 pg/g	4.8U pg/g
SHAD041DP029SS01NS(RE)	1,2,3,4,7,8-HxCDD	3.9 pg/g	3.9U pg/g
SHAD041DP029SS02NS(RE)	1,2,3,4,6,7,8-HpCDD	3.0 pg/g	3.0U pg/g
SHAD041DP029SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.34 pg/g	0.34U pg/g
SHAD041DP029SS02NS(RE)	1,2,3,7,8,9-HxCDF	0.21 pg/g	0.21U pg/g
SHAD041DP029SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP029SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.47 pg/g	0.47U pg/g
SHAD041DP029SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.30 pg/g	0.30U pg/g
SHAD041DP029SS04NS(RES)	OCDD	3.7 pg/g	3.7U pg/g
SHAD041DP029SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.16 pg/g	0.16U pg/g
SHAD041DP029SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29U pg/g
SHAD041DP029SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.050 pg/g	0.050U pg/g
SHAD041DP029SS05NS(RES)	OCDD	0.80 pg/g	0.80U pg/g
SHAD041DP029SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.15 pg/g	0.15U pg/g
SHAD041DP029SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP029SS06NS(RES)	OCDD	1.2 pg/g	1.2U pg/g
SHAD041DP030SS01NS(RE)	1,2,3,4,7,8-HxCDD	2.7 pg/g	2.7U pg/g
SHAD041DP030SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.49 pg/g	0.49U pg/g
SHAD041DP030SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.31 pg/g	0.31U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,4,7,8-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP030SS04DS(RES)	1,2,3,7,8,9-HxCDF	0.13 pg/g	0.13U pg/g
SHAD041DP030SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP030SS05NS(RES)	1,2,3,7,8,9-HxCDF	0.12 pg/g	0.12U pg/g
SHAD041DP030SS05NS(RES)	OCDD	5.6 pg/g	5.6U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	1.4 pg/g	1.4U pg/g

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: 8290A

Matrix: SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP030SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP030SS06NS(RES)	1,2,3,7,8,9-HxCDF	0.21 pg/g	0.21U pg/g
SHAD041DP030SS06NS(RES)	OCDD	6.4 pg/g	6.4U pg/g

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP028SS06N S	SHAD041DP028SS06D S			
1,2,3,4,6,7,8-HpCDD	0.46	0.32	36	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	0.15	0.15	0	30.00	
1,2,3,4,7,8,9-HpCDF	6.1 U	0.13	200	30.00	
1,2,3,4,7,8-HxCDD	0.31	0.25	21	30.00	
1,2,3,6,7,8-HxCDD	6.1 U	0.089	200	30.00	
1,2,3,7,8,9-HxCDD	6.1 U	0.13	200	30.00	
1,2,3,7,8,9-HxCDF	6.1 U	0.055	200	30.00	
2,3,4,6,7,8-HxCDF	6.1 U	0.051	200	30.00	
OCDD	3.4	1.5	78	30.00	
OCDF	0.31	0.42	30	30.00	

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP029SS01N S	SHAD041DP029SS01D S			
1,2,3,4,6,7,8-HpCDD	190	250	27	30.00	No Qualifiers Applied  ** J (all detects)
1,2,3,4,6,7,8-HpCDF	32	42	27	30.00	
1,2,3,4,7,8-HxCDD	3.9	4.8	21	30.00	
1,2,3,4,7,8-HxCDF	2.7	3.4	23	30.00	
1,2,3,6,7,8-HxCDD	17	22	26	30.00	
1,2,3,6,7,8-HxCDF	1.5	2.0	29	30.00	
1,2,3,7,8,9-HxCDD	11	13	17	30.00	
1,2,3,7,8-PeCDD	3.8	4.4	15	30.00	
1,2,3,7,8-PeCDF	0.67	0.71	6	30.00	
2,3,4,6,7,8-HxCDF	1.7	2.0	16	30.00	
2,3,4,7,8-PeCDF	1.1	1.3	17	30.00	
2,3,7,8-TCDD	0.61	0.76	22	30.00	
2,3,7,8-TCDF	0.98	1.0	2	30.00	
OCDD	1200	1600	29	30.00	
OCDF**	49	67	31**	30.00	

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP030SS04N S	SHAD041DP030SS04D S			
1,2,3,4,6,7,8-HpCDD	1.3	1.3	0	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	0.23	0.21	9	30.00	
1,2,3,4,7,8-HxCDD	6.3 U	0.28	200	30.00	
1,2,3,4,7,8-HxCDF	6.3 U	0.078	200	30.00	
1,2,3,6,7,8-HxCDD	6.3 U	0.18	200	30.00	
1,2,3,6,7,8-HxCDF	6.3 U	0.064	200	30.00	
1,2,3,7,8,9-HxCDD	0.21	0.26	21	30.00	
1,2,3,7,8,9-HxCDF	6.3 U	0.13	200	30.00	
2,3,4,6,7,8-HxCDF	6.3 U	0.088	200	30.00	
OCDD	13	29	76	30.00	
OCDF	13 U	2.0	200	30.00	

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP027SS04N S	SHAD041DP027SS04D S			
1,2,3,4,6,7,8-HpCDD	0.84	2.8	108	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	5.8 U	0.43	200	30.00	
1,2,3,4,7,8-HxCDD	0.38	0.22	53	30.00	
1,2,3,6,7,8-HxCDD	5.8 U	0.44	200	30.00	
1,2,3,7,8,9-HxCDD	0.17	0.27	45	30.00	
OCDD	4.3	8.3	63	30.00	
OCDF	12 U	0.65	200	30.00	

Project Name and Number: 05122.01 - SHAD-041

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# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041IDW01WS01NS	1,2,3,4,7,8-HxCDD	J	3.9	48	MRL	pg/L	J (all detects)
	1,2,3,4,7,8-HxCDF	J	4.4	48	MRL	pg/L	
	1,2,3,6,7,8-HxCDD	J	33	48	MRL	pg/L	
	1,2,3,6,7,8-HxCDF	J	2.3	48	MRL	pg/L	
	1,2,3,7,8,9-HxCDD	J	19	48	MRL	pg/L	
	1,2,3,7,8-PeCDD	J	4.6	48	MRL	pg/L	
	2,3,4,6,7,8-HxCDF	J	4.1	48	MRL	pg/L	
	OCDF	J	73	96	MRL	pg/L	

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP027SS01NS	1,2,3,7,8-PeCDF	J M	1.4	5.0	MRL	pg/g	J (all detects)
	2,3,4,7,8-PeCDF	J	2.4	5.0	MRL	pg/g	
	2,3,7,8-TCDD	J	0.85	1.0	MRL	pg/g	
SHAD041DP027SS02NS	1,2,3,4,6,7,8-HpCDF	J	2.6	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.39	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	1.2	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.21	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	1.2	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.18	6.0	MRL	pg/g	
	OCDF	J	3.8	12	MRL	pg/g	
SHAD041DP027SS03NS	1,2,3,4,6,7,8-HpCDD	J	0.73	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.25	6.2	MRL	pg/g	
	OCDD	J	6.5	12	MRL	pg/g	
SHAD041DP027SS04DS	1,2,3,4,6,7,8-HpCDD	J	2.8	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.43	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.22	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.44	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J M	0.27	5.8	MRL	pg/g	
	OCDD	J	8.3	12	MRL	pg/g	
	OCDF	J	0.65	12	MRL	pg/g	
SHAD041DP027SS04NS	1,2,3,4,6,7,8-HpCDD	J	0.84	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.38	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.17	5.8	MRL	pg/g	
	OCDD	J	4.3	12	MRL	pg/g	
SHAD041DP027SS05NS	1,2,3,4,7,8-HxCDD	J	0.59	6.6	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J M	0.35	6.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	6.1	6.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M	0.16	6.6	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	3.6	6.6	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.40	6.6	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.21	6.6	MRL	pg/g	
	OCDF	J	7.4	13	MRL	pg/g	
SHAD041DP027SS06NS	1,2,3,4,6,7,8-HpCDD	J	0.26	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J M	0.15	6.0	MRL	pg/g	
	OCDD	J	1.1	12	MRL	pg/g	
SHAD041DP028SS01NS	1,2,3,7,8-PeCDF	J	3.9	5.1	MRL	pg/g	J (all detects)

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# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP028SS02NS	1,2,3,4,7,8-HxCDD	J	3.7	5.1	MRL	pg/g	J (all detects)
	1,2,3,7,8-PeCDD	J	4.5	5.1	MRL	pg/g	
	2,3,7,8-TCDD	J	0.71	1.0	MRL	pg/g	
SHAD041DP028SS03NS	1,2,3,4,7,8-HxCDD	J M	0.48	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J	0.61	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	3.9	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.55	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	2.3	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDD	J M	0.39	5.7	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.79	5.7	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.39	5.7	MRL	pg/g	
	OCDF	J	9.2	11	MRL	pg/g	
SHAD041DP028SS04NS	1,2,3,4,6,7,8-HpCDF	J	0.75	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.50	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M	0.15	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.30	6.0	MRL	pg/g	
	OCDF	J	1.7	12	MRL	pg/g	
SHAD041DP028SS05NS	1,2,3,4,6,7,8-HpCDD	J M	2.5	7.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.21	7.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.77	7.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M	0.083	7.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.47	7.1	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.13	7.1	MRL	pg/g	
	OCDF	J	0.34	14	MRL	pg/g	
SHAD041DP028SS06DS	1,2,3,4,6,7,8-HpCDD	J	0.32	6.5	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.15	6.5	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J	0.13	6.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.25	6.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M	0.089	6.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.13	6.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.055	6.5	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.051	6.5	MRL	pg/g	
	OCDD	J	1.5	13	MRL	pg/g	
	OCDF	J	0.42	13	MRL	pg/g	
SHAD041DP028SS06NS	1,2,3,4,6,7,8-HpCDD	J	0.46	6.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.15	6.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.31	6.1	MRL	pg/g	
	OCDD	J	3.4	12	MRL	pg/g	
	OCDF	J	0.31	12	MRL	pg/g	
SHAD041DP029SS01DS	1,2,3,4,7,8-HxCDD	J	4.8	5.5	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J	3.4	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	2.0	5.5	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	4.4	5.5	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.71	5.5	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	2.0	5.5	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	1.3	5.5	MRL	pg/g	
	2,3,7,8-TCDD	J	0.76	1.1	MRL	pg/g	
	2,3,7,8-TCDF	J	1.0	1.1	MRL	pg/g	

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP029SS01NS	1,2,3,4,7,8-HxCDD	J	3.9	5.4	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J	2.7	5.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	1.5	5.4	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	3.8	5.4	MRL	pg/g	
	1,2,3,7,8-PeCDF	JM	0.67	5.4	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	1.7	5.4	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	1.1	5.4	MRL	pg/g	
	2,3,7,8-TCDD	J	0.61	1.1	MRL	pg/g	
	2,3,7,8-TCDF	J	0.98	1.1	MRL	pg/g	
SHAD041DP029SS02NS	1,2,3,4,6,7,8-HpCDD	JM	3.0	6.3	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.64	6.3	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	JM	0.34	6.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.61	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	JM	0.67	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.21	6.3	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.15	6.3	MRL	pg/g	
OCDF	J	1.3	13	MRL	pg/g		
SHAD041DP029SS03NS	1,2,3,4,6,7,8-HpCDD	JM	4.0	6.3	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.80	6.3	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.22	6.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.48	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	JM	0.44	6.3	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.099	6.3	MRL	pg/g	
OCDF	J	1.5	13	MRL	pg/g		
SHAD041DP029SS04NS	1,2,3,4,6,7,8-HpCDD	JM	0.47	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.076	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.30	6.0	MRL	pg/g	
	OCDD	J	3.7	12	MRL	pg/g	
	OCDF	J	0.27	12	MRL	pg/g	
SHAD041DP029SS05NS	1,2,3,4,6,7,8-HpCDD	JM	0.16	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.29	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.050	5.8	MRL	pg/g	
	OCDD	J	0.80	12	MRL	pg/g	
SHAD041DP029SS06NS	1,2,3,4,6,7,8-HpCDD	JM	0.15	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	JM	0.068	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	JM	0.20	5.8	MRL	pg/g	
	OCDD	J	1.2	12	MRL	pg/g	
SHAD041DP030SS01NS	1,2,3,4,7,8,9-HpCDF	J	2.2	5.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	2.7	5.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J	2.2	5.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	2.0	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	1.7	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDF	J	0.38	5.0	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	2.2	5.0	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.63	5.0	MRL	pg/g	
	2,3,7,8-TCDD	JM	0.25	1.0	MRL	pg/g	
	2,3,7,8-TCDF	J	0.42	1.0	MRL	pg/g	
SHAD041DP030SS02NS	1,2,3,4,6,7,8-HpCDF	J	2.1	5.3	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.49	5.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.59	5.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.84	5.3	MRL	pg/g	
	OCDF	J	4.1	11	MRL	pg/g	

Project Name and Number: 05122.01 - SHAD-041

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## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24922-2

Laboratory: TA STL

EDD Filename: 160-24922-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP030SS03NS	1,2,3,4,6,7,8-HpCDF	J	2.1	5.5	MRL	pg/g	J (all detects)
	1,2,3,4,7,8,9-HpCDF	J	0.23	5.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.31	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J	0.57	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J	0.17	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.66	5.5	MRL	pg/g	
	OCDF	J	4.1	11	MRL	pg/g	
SHAD041DP030SS04DS	1,2,3,4,6,7,8-HpCDD	J	1.3	6.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.21	6.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	JM	0.28	6.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	JM	0.078	6.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	JM	0.18	6.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	JM	0.064	6.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	JM	0.26	6.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.13	6.2	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.088	6.2	MRL	pg/g	
	OCDF	J	2.0	12	MRL	pg/g	
SHAD041DP030SS04NS	1,2,3,4,6,7,8-HpCDD	JM	1.3	6.3	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	JM	0.23	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.21	6.3	MRL	pg/g	
SHAD041DP030SS05NS	1,2,3,4,6,7,8-HpCDD	J	1.3	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.27	5.9	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	JM	0.25	5.9	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	JM	0.15	5.9	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.12	5.9	MRL	pg/g	
	OCDD	J	5.6	12	MRL	pg/g	
	OCDF	J	0.60	12	MRL	pg/g	
SHAD041DP030SS06NS	1,2,3,4,6,7,8-HpCDD	J	1.4	5.7	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.48	5.7	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	JM	0.26	5.7	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	JM	0.18	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.20	5.7	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.21	5.7	MRL	pg/g	
	1,2,3,7,8-PeCDD	J	0.34	5.7	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J	0.18	5.7	MRL	pg/g	
	2,3,4,7,8-PeCDF	J	0.12	5.7	MRL	pg/g	
	OCDD	J	6.4	11	MRL	pg/g	
	OCDF	J	0.90	11	MRL	pg/g	

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	
VI.	Field blanks	SW	see WS
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	SW	1+4+5, 13+14, 15+16, 25+26
X.	Internal standards	SW	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP027SS01NS	160-24922-1	Soil	10/06/17
2	SHAD041DP027SS02NS	160-24922-2	Soil	10/06/17
3	SHAD041DP027SS03NS	160-24922-3	Soil	10/06/17
4	SHAD041DP027SS04NS	160-24922-4	Soil	10/06/17
5	SHAD041DP027SS04DS	160-24922-5	Soil	10/06/17
6	SHAD041DP027SS05NS	160-24922-6	Soil	10/06/17
7	SHAD041DP027SS06NS	160-24922-7	Soil	10/06/17
8	SHAD041DP028SS01NS	160-24922-8	Soil	10/06/17
9	SHAD041DP028SS02NS	160-24922-9	Soil	10/06/17
10	SHAD041DP028SS03NS	160-24922-10	Soil	10/06/17
11	SHAD041DP028SS04NS	160-24922-11	Soil	10/06/17
12	SHAD041DP028SS05NS	160-24922-12	Soil	10/06/17
13	SHAD041DP028SS06NS	160-24922-13	Soil	10/06/17
14	SHAD041DP028SS06DS	160-24922-14	Soil	10/06/17

LDC #: 39889H21

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24922-2

ADR

Laboratory: Test America, Inc.

Date: 11/20/17

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Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

	Client ID	Lab ID	Matrix	Date
15	SHAD041DP029SS01NS	160-24922-16	Soil	10/06/17
16	SHAD041DP029SS01DS	160-24922-17	Soil	10/06/17
17	SHAD041DP029SS02NS	160-24922-18	Soil	10/06/17
18	SHAD041DP029SS03NS	160-24922-19	Soil	10/06/17
19	SHAD041DP029SS04NS	160-24922-20	Soil	10/06/17
20	SHAD041DP029SS05NS	160-24922-21	Soil	10/06/17
21	SHAD041DP029SS06NS	160-24922-22	Soil	10/06/17
22	SHAD041DP030SS01NS	160-24922-23	Soil	10/06/17
23	SHAD041DP030SS02NS	160-24922-24	Soil	10/06/17
24	SHAD041DP030SS03NS	160-24922-25	Soil	10/06/17
25	SHAD041DP030SS04NS	160-24922-26	Soil	10/06/17
26	SHAD041DP030SS04DS	160-24922-27	Soil	10/06/17
27	SHAD041DP030SS05NS	160-24922-28	Soil	10/06/17
28	SHAD041DP030SS06NS	160-24922-29	Soil	10/06/17
29	SHAD041DP028SS06NSMS	160-24922-13MS	Soil	10/06/17
30	SHAD041DP028SS06NSMSD	160-24922-13MSD	Soil	10/06/17
31	SHAD041DP030SS04NSMS	160-24922-26MS	Soil	10/06/17
32	SHAD041DP030SS04NSMSD	160-24922-26MSD	Soil	10/06/17
33	SHAD041DP030SS06NSMS	160-24922-29MS	Soil	10/06/17
34	SHAD041DP030SS06NSMSD	160-24922-29MSD	Soil	10/06/17
35				
36				
37				
38				
39				

Notes:




# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

VALIDATION FINDINGS WORKSHEET  
Field Blanks

METHOD: HRGC/HRMS Dioxins (EPA SW 846 Method 8290A)

19 = SHAD041EQ004WS01 (SDG 160-24925-2)

Blank units: pg/L Associated sample units: pg/g  
Sampling date: 10/6/17  
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: ALL

Compound	Blank ID	Sample Identification												
		5X	2	3	4	5	6	7	9	10	11	12	13	
C	1.4	0.39	0.25	0.38	0.22	0.59	0.15	3.7	0.48	0.50				
F	0.69	3.45	0.73	0.84	2.8		0.26					2.5	0.46	
G	1.8	9	6.5	4.3	8.3		1.1						3.4	
N	0.26	1.3	0.18									0.13		

Compound	Blank ID	Sample Identification												
		5X	14	15	16	17	18	19	20	21	22	23	24	
C	1.4	0.25	3.9	4.8	0.34	0.22	0.30	0.29	0.20	2.7				
F	0.69	3.45	0.32		3.0		0.47	0.16	0.15					
G	1.8	9	1.5				3.7	0.80	1.2					
N	0.26	1.3	0.055		0.21			0.050						

Compound	Blank ID	Sample Identification												
		5X	25	26	27	28								
C	1.4		0.28	0.25	0.26									
F	0.69	3.45	1.3	1.3	1.4									
G	1.8	9		5.6	6.4									
N	0.26	1.3	0.13	0.12	0.21									

LDC#: 3988947

**VALIDATION FINDINGS WORKSHEET**  
Field Duplicates

Page: 1 of 2  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	4	5				
C	0.38	0.22		0.16	≤5.8	
D	2.3U	0.44		1.86	≤5.8	
E	0.17	0.27		0.1	≤5.8	
F	0.84	2.8		1.96	≤5.8	
O	1.2U	0.43		0.77	≤5.8	
G	4.3	8.3		4	≤12	
Q	4.7U	0.65		4.05	≤12	

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	13	14				
C	0.31	0.25		0.06	≤6.5	
D	2.4U	0.089		2.311	≤6.5	
E	2.4U	0.13		2.27	≤6.5	
N	1.2U	0.055		1.145	≤6.5	
M	0.92U	0.051		0.869	≤6.5	
F	0.46	0.32		0.14	≤6.5	
O	0.15	0.15		0	≤6.5	
P	2.4U	0.13		2.27	≤6.5	
G	3.4	1.5		1.9	≤13	
Q	0.31	0.42		0.11	≤13	

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	15	16				
A	0.61	0.76		0.15	≤1.1	
B	3.8	4.4		0.6	≤5.5	
I	0.67	0.71		0.04	≤5.5	
J	1.1	1.3		0.2	≤5.5	
C	3.9	4.8		0.9	≤5.5	

LDC#: 39889H21

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Page: 2 of 2  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

METHOD: GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	15	16				
D	17	22		5	≤5.5	
E	11	13		2	≤5.5	
K	2.7	3.4		0.7	≤5.5	
L	1.5	2.0		0.5	≤5.5	
M	1.7	2.0		0.3	≤5.5	
F	190	250	27			
O	32	42	27			
G	1200	1600	29			
Q	49	67		18	≤11	[Signature]
H	0.98	1.0		0.02	≤1.1	

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	25	26				
C	2.5U	0.28		2.22	≤6.3	
D	2.5U	0.18		2.32	≤6.3	
E	0.21	0.26		0.05	≤6.3	
K	0.94U	0.078		0.862	≤6.3	
L	1.3U	0.064		1.236	≤6.3	
N	1.3U	0.13		1.17	≤6.3	
M	0.94U	0.088		0.852	≤6.3	
F	1.3	1.3		0	≤6.3	
O	0.23	0.21		0.02	≤6.3	
G	13	29		16	≤13	
Q	5.0U	2.0		3	≤13	

LDC #: 3008947

**VALIDATION FINDINGS WORKSHEET**  
Internal Standards

Page: 1 of 1  
Reviewer: CI  
2nd Reviewer: BR

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290A)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y/N N/A Are all internal standard recoveries within the 40-135% criteria?

Y/N N/A Was the S/N ratio all internal standard peaks  $\geq 10$ ?

#	Date	Lab ID/Reference	Internal Standard	% Recovery (Limit: 40-135%)	Qualifications
		2 (det+ND)	13C-F	39 (40-135)	N/A (F)
			13C-O	38	(O,P)
			13C-G	38	(F,R)
		3 (det+ND)	13-G	35 (40-135)	N/A (F,R)
		4		38	
		6 (dets)		35	
		7 (dets+ND)		34	
		10 (dets+ND)	13C-F	38	(F)
			13C-O	36	(O,P)
			13C-G	27	(F,R)
		11 (dets)	13C-G	34	(F,R)
		12 (dets+ND)	13C-D	39	(O,E)
			13C-F	38	(F)
			13C-O	37	(O,P)
			13C-G	28	(F,R)
		13 (dets+ND)	13C-F	39	
			13C-O	37	
			13C-G	28	



# Quality Control Outlier Reports

160-24924-1

# Surrogate Outlier Report

Lab Reporting Batch ID: 160-24924-1

Laboratory: TA STL

EDD Filename: 160-24924-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8260C  
**Matrix:** SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP013SS 01NS	4-Bromofluorobenzene	153	79.00-119.00	All Target Analytes	J+ (all detects)
	TOLUENE-D8	117	85.00-116.00		
SHAD041DP013SS 02NS	4-Bromofluorobenzene	120	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP013SS 03NS	4-Bromofluorobenzene	121	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP022SS 01NS	4-Bromofluorobenzene	48	79.00-119.00	All Target Analytes	J-(all detects) UJ(all non-detects)
	TOLUENE-D8	60	85.00-116.00		
SHAD041DP022SS 02NS	1,2-DICHLOROETHANE-D4	152	71.00-136.00	All Target Analytes	J+(all detects)
	4-Bromofluorobenzene	234	79.00-119.00		
	DIBROMOFLUOROMETHANE	145	78.00-119.00		
	TOLUENE-D8	196	85.00-116.00		
SHAD041DP022SS 03NS	4-Bromofluorobenzene	122	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP026SS 02NS	4-Bromofluorobenzene	133	79.00-119.00	All Target Analytes	J+(all detects)
	TOLUENE-D8	122	85.00-116.00		
SHAD041DP026SS 03NS	4-Bromofluorobenzene	121	79.00-119.00	All Target Analytes	J+(all detects)

**Method:** 8260C  
**Matrix:** AQ

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
TB-100617-7	TOLUENE-D8	113	89.00-112.00	All Target Analytes	J+(all detects)

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24924-1

Laboratory: TA STL

EDD Filename: 160-24924-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP022SS03NSMS (TOT) SHAD041DP022SS03NSMSD (TOT) (SHAD041DP022SS03NS)	CHROMIUM	157	-	85.00-113.00	49 (20.00)	CHROMIUM	J (all detects) UJ (all non-detects)

**Method: 7196A**  
**Matrix: SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP022SS03NSMS (TOT) (SHAD041DP022SS03NS)	Chromium(VI)	48	-	84.00-110.00	-	Chromium(VI)	J-(all detects) UJ(all non-detects)

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24924-1

Laboratory: TA STL

EDD Filename: 160-24924-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 6010C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP013SS02NS	LEAD	J D	1.7	4.5	LOQ	mg/Kg	J (all detects)
SHAD041DP013SS03NS	LEAD	J D	3.4	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP013SS04NS	LEAD	J D	1.6	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP013SS06NS	LEAD	J D	4.4	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP022SS04NS	LEAD	J D	1.4	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP022SS05NS	LEAD	J D	2.6	5.1	LOQ	mg/Kg	J (all detects)
SHAD041DP022SS06NS	LEAD	J D	4.8	5.2	LOQ	mg/Kg	J (all detects)
SHAD041DP026SS04NS	LEAD	J D	2.4	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP026SS06NS	LEAD	J D	5.5	5.6	LOQ	mg/Kg	J (all detects)

**Method:** 7196A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP013SS02NS	Chromium(VI)	J	0.32	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP013SS03NS	Chromium(VI)	J	0.28	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP013SS06NS	Chromium(VI)	J	0.24	0.47	LOQ	mg/Kg	J (all detects)
SHAD041DP022SS06NS	Chromium(VI)	J	0.23	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP026SS03NS	Chromium(VI)	J	0.40	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP026SS04NS	Chromium(VI)	J	0.34	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP026SS06NS	Chromium(VI)	J	0.39	0.44	LOQ	mg/Kg	J (all detects)

**Method:** 8082A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP022SS01NS	PCB-1260	J	12	33	LOQ	ug/Kg	J (all detects)

**Method:** 8260C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP013SS01NS	ETHYLBENZENE	J Q	0.88	4.3	LOQ	ug/Kg	J (all detects)
	Xylene (Total)	J Q	4.9	8.6	LOQ	ug/Kg	



## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24924-1

Laboratory: TA STL

EDD Filename: 160-24924-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8270D SIM  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP013SS01NS	BENZO(G,H,I)PERYLENE	J D	31	66	LOQ	ug/Kg	J (all detects)
SHAD041DP013SS02NS	BENZO(B)FLUORANTHENE	J	1.9	6.9	LOQ	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	1.5	6.9	LOQ	ug/Kg	
SHAD041DP022SS01NS	BENZ(A)ANTHRACENE	J D	17	66	LOQ	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J D	21	66	LOQ	ug/Kg	
	BENZO(K)FLUORANTHENE	J D	15	66	LOQ	ug/Kg	
SHAD041DP022SS02NS	BENZO(B)FLUORANTHENE	J D	13	33	LOQ	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J D	14	33	LOQ	ug/Kg	
SHAD041DP022SS03NS	BENZO(B)FLUORANTHENE	J	1.5	6.7	LOQ	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	1.9	6.7	LOQ	ug/Kg	
SHAD041DP026SS02NS	ANTHRACENE	J D	5.1	33	LOQ	ug/Kg	J (all detects)
	BENZ(A)ANTHRACENE	J D	13	33	LOQ	ug/Kg	
	BENZO(A)PYRENE	J D	11	33	LOQ	ug/Kg	
	BENZO(B)FLUORANTHENE	J D	19	33	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J D	13	33	LOQ	ug/Kg	
	CHRYSENE	J D	14	33	LOQ	ug/Kg	
	FLUORANTHENE	J D	19	33	LOQ	ug/Kg	
	PHENANTHRENE	J D	20	33	LOQ	ug/Kg	
PYRENE	J D	24	33	LOQ	ug/Kg		
SHAD041DP026SS03NS	2-METHYLNAPHTHALENE	J	0.71	7.4	LOQ	ug/Kg	J (all detects)



# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24924-1

Laboratory: TA STL

EDD Filename: 160-24924-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP026SS05N S (TOT)	SHAD041DP026SS05D S (TOT)			
CHROMIUM	14	15	7	30.00	No Qualifiers Applied
LEAD	7.2	8.9	21	30.00	

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP013SS05N S (TOT)	SHAD041DP013SS05D S (TOT)			
CHROMIUM	17	17	0	30.00	No Qualifiers Applied
LEAD	6.3	7.2	13	30.00	

**Method: 7196A**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP026SS05N S (TOT)	SHAD041DP026SS05D S (TOT)			
Chromium(VI)	1.2	1.1	9	30.00	No Qualifiers Applied

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP013SS05N S (TOT)	SHAD041DP013SS05D S (TOT)			
Chromium(VI)	0.57	0.86	41	30.00	No Qualifiers Applied

LDC #: 3988911

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/1/17

SDG #: 160-24924-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	RSD < 15% . 8 <sup>2</sup> (CV < 20%)
IV.	Continuing calibration / 2nd leg	SW	CV < 20% / 50%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	TB = 20-23. 2B
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	ND	D = 4+15, 17+18
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP026SS02NS	160-24924-1	Soil	10/05/17
2	SHAD041DP026SS03NS	160-24924-2	Soil	10/05/17
3	SHAD041DP026SS04NS	160-24924-3	Soil	10/05/17
4	SHAD041DP026SS05NS	160-24924-4	Soil	10/05/17
5	SHAD041DP026SS05DS	160-24924-5	Soil	10/05/17
6	SHAD041DP026SS06NS	160-24924-6	Soil	10/05/17
7	SHAD041DP022SS01NS	160-24924-7	Soil	10/05/17
8	SHAD041DP022SS02NS	160-24924-8	Soil	10/05/17
9	SHAD041DP022SS03NS	160-24924-9	Soil	10/05/17
10	SHAD041DP022SS04NS	160-24924-10	Soil	10/05/17
11	SHAD041DP022SS05NS	160-24924-11	Soil	10/05/17
12	SHAD041DP022SS06NS	160-24924-12	Soil	10/05/17
13	SHAD041DP013SS01NS	160-24924-13	Soil	10/05/17

LDC #: 3988911

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24924-1

ADR

Laboratory: Test America, Inc.

Date: 10/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP013SS02NS	160-24924-14	Soil	10/05/17
15	SHAD041DP013SS03NS	160-24924-15	Soil	10/05/17
16	SHAD041DP013SS04NS	160-24924-16	Soil	10/05/17
17	SHAD041DP013SS05NS	160-24924-17	Soil	10/05/17
18	SHAD041DP013SS05DS	160-24924-18	Soil	10/05/17
19	SHAD041DP013SS06NS	160-24924-19	Soil	10/05/17
20	TB-100617-7	160-24924-20	Water	10/05/17
21	TB-100617-8	160-24924-21	Water	10/05/17
22	TB-100617-9	160-24924-22	Water	10/05/17
23	TB-100617-10	160-24924-23	Water	10/05/17
24	SHAD041DP022SS03NSMS	160-24924-9MS	Soil	10/05/17
25	SHAD041DP022SS03NSMSD	160-24924-9MSD	Soil	10/05/17
26				
27				
28				
29				
30				

Notes:

F = 1, 2, 4					
X = 3, 5					

# TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3-Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

**VALIDATION FINDINGS WORKSHEET**  
Continuing Calibration

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A  
 Y N/A  
 Y N/A

Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?

Were all %D and RRFs within the validation criteria of  $\leq 20\%$  D and  $\geq 0.05$  RRF ?

#	Date	Standard ID	Compound	Finding %D (Limit: <20.0%)	Finding RRF (Limit: >0.05)	Associated Samples	Qualifications
	19/11/17	FCCV 3058	C	20.6		11-19. MIB CND)	✓ 1/11/17



**VALIDATION FINDINGS WORKSHEET**  
**Internal Standards**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A  
 Were all internal standard area counts within -50 to +100% of the associated calibration standard?

Y N N/A  
 Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1 (ND)	4DCB	276134 (287566 - 1150262)		J+M/A
		8	FBZ CBZ	70605 (750572 - 3002286) 263063 (459494 - 1837976)		
		13	4DCB 4DCB	64578 (287566 - 1150262) 251308		↓
		7	FBZ CBZ 4DCB	59158 (793739 - 3174956) 211306 (499327 - 1997308) 31106 (196656 - 786624)		J+M/A ↓

(BCM) = Bromochloromethane  
 (DFB) = 1,4-Difluorobenzene  
 (CBZ) = Chlorobenzene-d5  
 (PFB) = Pentafluorobenzene  
 (4DCB) = 1,4-Dichlorobenzene-d4  
 (2DCB) = 1,2-Dichlorobenzene-d4  
 (FBZ) = Fluorobenzene

Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform

LDC #: 3988912b

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24924-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	IN	m/z=51 is out. No used by SIM mode
III.	Initial calibration/ICV	A/A	RSB < 15%. CV < 20%
IV.	Continuing calibration	A	CCV < 20/30%
V.	Laboratory Blanks	N	
VI.	Field blanks	NO	EB
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	NO	D = A+S, 17+18
XI.	Internal standards	SN	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP026SS02NS	160-24924-1	Soil	10/05/17
2	SHAD041DP026SS03NS	160-24924-2	Soil	10/05/17
3	SHAD041DP026SS04NS	160-24924-3	Soil	10/05/17
4	SHAD041DP026SS05NS	160-24924-4	Soil	10/05/17
5	SHAD041DP026SS05DS	160-24924-5	Soil	10/05/17
6	SHAD041DP026SS06NS	160-24924-6	Soil	10/05/17
7	SHAD041DP022SS01NS	160-24924-7	Soil	10/05/17
8	SHAD041DP022SS02NS	160-24924-8	Soil	10/05/17
9	SHAD041DP022SS03NS	160-24924-9	Soil	10/05/17
10	SHAD041DP022SS04NS	160-24924-10	Soil	10/05/17
11	SHAD041DP022SS05NS	160-24924-11	Soil	10/05/17
12	SHAD041DP022SS06NS	160-24924-12	Soil	10/05/17
13	SHAD041DP013SS01NS	160-24924-13	Soil	10/05/17

LDC #: 39889I2b

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24924-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP013SS02NS	160-24924-14	Soil	10/05/17
15	SHAD041DP013SS03NS	160-24924-15	Soil	10/05/17
16	SHAD041DP013SS04NS	160-24924-16	Soil	10/05/17
17	SHAD041DP013SS05NS	160-24924-17	Soil	10/05/17
18	SHAD041DP013SS05DS	160-24924-18	Soil	10/05/17
19	SHAD041DP013SS06NS	160-24924-19	Soil	10/05/17
20	SHAD041DP022SS03NSMS	160-24924-9MS	Soil	10/05/17
21	SHAD041DP022SS03NSMSD	160-24924-9MSD	Soil	10/05/17
22				
23				
24				
25				
26				

Notes:






LDC #: 39889I3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12/1/17

SDG #: 160-24924-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: Q

2nd Reviewer: KUC

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration/ICV	A, A	
III.	Continuing calibration	A	
IV.	Laboratory Blanks	N	
V.	Field blanks	NO EB	
VI.	Surrogate spikes /FS	N/A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	ND	D = 1+5, 17+18
X.	Compound quantitation/RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP026SS02NS	160-24924-1	Soil	10/05/17
2	SHAD041DP026SS03NS	160-24924-2	Soil	10/05/17
3	SHAD041DP026SS04NS	160-24924-3	Soil	10/05/17
4	SHAD041DP026SS05NS	160-24924-4	Soil	10/05/17
5	SHAD041DP026SS05DS	160-24924-5	Soil	10/05/17
6	SHAD041DP026SS06NS	160-24924-6	Soil	10/05/17
7	SHAD041DP022SS01NS	160-24924-7	Soil	10/05/17
8	SHAD041DP022SS02NS	160-24924-8	Soil	10/05/17
9	SHAD041DP022SS03NS	160-24924-9	Soil	10/05/17
10	SHAD041DP022SS04NS	160-24924-10	Soil	10/05/17
11	SHAD041DP022SS05NS	160-24924-11	Soil	10/05/17
12	SHAD041DP022SS06NS	160-24924-12	Soil	10/05/17
13	SHAD041DP013SS01NS	160-24924-13	Soil	10/05/17
14	SHAD041DP013SS02NS	160-24924-14	Soil	10/05/17
15	SHAD041DP013SS03NS	160-24924-15	Soil	10/05/17
16	SHAD041DP013SS04NS	160-24924-16	Soil	10/05/17
17	SHAD041DP013SS05NS	160-24924-17	Soil	10/05/17

LDC #: 39889I3b

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24924-1

ADR

Laboratory: Test America, Inc.

Date: 10/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP013SS05DS	160-24924-18	Soil	10/05/17
19	SHAD041DP013SS06NS	160-24924-19	Soil	10/05/17
20	SHAD041DP022SS03NSMS	160-24924-9MS	Soil	10/05/17
21	SHAD041DP022SS03NSMSD	160-24924-9MSD	Soil	10/05/17
22				
23				
24				
25				
26				

Notes:


LDC #: 3988914b

## VALIDATION COMPLETENESS WORKSHEET

Date: 10-7-17

SDG #: 160-24924-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer: C

METHOD: Cr &amp; Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/N	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD (Cr % rec out in 20, Cr RPDoot)
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	A	SD: 9
IX.	Laboratory control samples	N	
X.	Field Duplicates	N	D = 4+5, D = 17+18
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP026SS02NS	160-24924-1	Soil	10/05/17
2	SHAD041DP026SS03NS	160-24924-2	Soil	10/05/17
3	SHAD041DP026SS04NS	160-24924-3	Soil	10/05/17
4	SHAD041DP026SS05NS	160-24924-4	Soil	10/05/17
5	SHAD041DP026SS05DS	160-24924-5	Soil	10/05/17
6	SHAD041DP026SS06NS	160-24924-6	Soil	10/05/17
7	SHAD041DP022SS01NS	160-24924-7	Soil	10/05/17
8	SHAD041DP022SS02NS	160-24924-8	Soil	10/05/17
9	SHAD041DP022SS03NS	160-24924-9	Soil	10/05/17
10	SHAD041DP022SS04NS	160-24924-10	Soil	10/05/17
11	SHAD041DP022SS05NS	160-24924-11	Soil	10/05/17
12	SHAD041DP022SS06NS	160-24924-12	Soil	10/05/17
13	SHAD041DP013SS01NS	160-24924-13	Soil	10/05/17
14	SHAD041DP013SS02NS	160-24924-14	Soil	10/05/17
15	SHAD041DP013SS03NS	160-24924-15	Soil	10/05/17
16	SHAD041DP013SS04NS	160-24924-16	Soil	10/05/17
17	SHAD041DP013SS05NS	160-24924-17	Soil	10/05/17

LDC #: 39889I4b

# VALIDATION COMPLETENESS WORKSHEET

Date: 12-7-17

SDG #: 160-24924-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP013SS05DS	160-24924-18	Soil	10/05/17
19	SHAD041DP013SS06NS	160-24924-19	Soil	10/05/17
20	SHAD041DP022SS03NSMS	160-24924-9MS	Soil	10/05/17
21	SHAD041DP022SS03NSMSD	160-24924-9MSD	Soil	10/05/17
22				
23				
24				
25				
26	PBS			

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





LDC #: 3988916  
 SDG #: 160-24924-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-7-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: (1)

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	N	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	insoluble Cr VI out in #20, 160-24922-1 MS/MSD (SDG: 160-24922-1)
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D=4+5, D=17+18
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP026SS02NS	160-24924-1	Soil	10/05/17
2	SHAD041DP026SS03NS	160-24924-2	Soil	10/05/17
3	SHAD041DP026SS04NS	160-24924-3	Soil	10/05/17
4	SHAD041DP026SS05NS	160-24924-4	Soil	10/05/17
5	SHAD041DP026SS05DS	160-24924-5	Soil	10/05/17
6	SHAD041DP026SS06NS	160-24924-6	Soil	10/05/17
7	SHAD041DP022SS01NS	160-24924-7	Soil	10/05/17
8	SHAD041DP022SS02NS	160-24924-8	Soil	10/05/17
9	SHAD041DP022SS03NS	160-24924-9	Soil	10/05/17
10	SHAD041DP022SS04NS	160-24924-10	Soil	10/05/17
11	SHAD041DP022SS05NS	160-24924-11	Soil	10/05/17
12	SHAD041DP022SS06NS	160-24924-12	Soil	10/05/17
13	SHAD041DP013SS01NS	160-24924-13	Soil	10/05/17
14	SHAD041DP013SS02NS	160-24924-14	Soil	10/05/17
15	SHAD041DP013SS03NS	160-24924-15	Soil	10/05/17
16	SHAD041DP013SS04NS	160-24924-16	Soil	10/05/17
17	SHAD041DP013SS05NS	160-24924-17	Soil	10/05/17

LDC #: 3988916  
SDG #: 160-24924-1  
Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
ADR

Date: 12-7-17  
Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: [Signature]

**METHOD: (Analyte)** Hexavalent Chromium (EPA SW846 Method 7196A)

	Client ID	Lab ID	Matrix	Date
18	2 SHAD041DP013SS05DS	160-24924-18	Soil	10/05/17
19	2 SHAD041DP013SS06NS	160-24924-19	Soil	10/05/17
20	2 SHAD041DP022SS03NSMS	160-24924-9MS	Soil	10/05/17
21	2 SHAD041DP022SS03NSMSD	160-24924-9MSD	Soil	10/05/17
22				
23				
24				
25	1 PBS1			
26	2 PBS2			

Notes:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Quality Control Outlier Reports

160-24925-1

# QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 160-24925-1  
EDD Filename: 160-24925-1

Laboratory: TA STL  
eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: 7196A Preparation Method: METHOD  
Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
SHAD041EQ003WS01NS (RES/TO	Sampling To Analysis	47.75	24.00	HOURS	J- (all detects)
SHAD041EQ003WS01NSDUP (RE:		47.75	24.00	HOURS	UJ (all non-detects)
SHAD041EQ003WS01NSMS (RES:		47.75	24.00	HOURS	

# Surrogate Outlier Report

Lab Reporting Batch ID: 160-24925-1

Laboratory: TA STL

EDD Filename: 160-24925-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 8260C**  
**Matrix: SO**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041DP010SS 01NS	DIBROMOFLUOROMETHANE	74	78.00-119.00	All Target Analytes	J- (all detects) UJ (all non-detects)
	TOLUENE-D8	84	85.00-116.00		
SHAD041DP010SS 02NS	4-Bromofluorobenzene	120	79.00-119.00	All Target Analytes	J+(all detects)
SHAD041DP015SS 01NS	4-Bromofluorobenzene	127	79.00-119.00	All Target Analytes	J+(all detects)
	TOLUENE-D8	124	85.00-116.00		

**Method: 8270D SIM**  
**Matrix: AQ**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SHAD041EQ003W S01NS	2-FLUOROBIPHENYL	46	53.00-106.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
	Nitrobenzene-d5	51	55.00-111.00		
SHAD041EQ004W S01NS	2-FLUOROBIPHENYL	29	53.00-106.00	All Base/Neutral Target Analytes	J-(all detects) UJ(all non-detects)
	Nitrobenzene-d5	45	55.00-111.00		



# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24925-1

Laboratory: TA STL

EDD Filename: 160-24925-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 7196A  
**Matrix:** SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP015SS02NSMS (TOT) (SHAD041DP015SS02NS)	Chromium(VI)	51	-	84.00-110.00	-	Chromium(VI)	J- (all detects) UJ (all non-detects)

## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24925-1

Laboratory: TA STL

EDD Filename: 160-24925-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 6010C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP008SS03NS	LEAD	J D	2.3	5.3	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS04NS	LEAD	J D	2.9	6.0	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS05NS	LEAD	J D	3.4	5.9	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS06NS	LEAD	J D	2.3	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS02DS	LEAD	J D	2.2	4.7	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS02NS	LEAD	J D	4.5	4.6	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS04NS	LEAD	J D	2.0	5.7	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS05NS	LEAD	J D	4.2	5.5	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS06NS	LEAD	J D	5.0	5.2	LOQ	mg/Kg	J (all detects)

**Method:** 7196A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP008SS03NS	Chromium(VI)	J	0.31	0.41	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS04NS	Chromium(VI)	J	0.36	0.48	LOQ	mg/Kg	J (all detects)
SHAD041DP008SS06NS	Chromium(VI)	J	0.28	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS02DS	Chromium(VI)	J	0.27	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS02NS	Chromium(VI)	J	0.22	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS03NS	Chromium(VI)	J	0.34	0.45	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS04NS	Chromium(VI)	J	0.33	0.46	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS05NS	Chromium(VI)	J	0.15	0.42	LOQ	mg/Kg	J (all detects)
SHAD041DP010SS06NS	Chromium(VI)	J	0.24	0.51	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS02NS	Chromium(VI)	J	0.34	0.41	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS03NS	Chromium(VI)	J	0.26	0.43	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS04NS	Chromium(VI)	J	0.34	0.41	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS05NS	Chromium(VI)	J	0.26	0.44	LOQ	mg/Kg	J (all detects)
SHAD041DP015SS06NS	Chromium(VI)	J	0.23	0.48	LOQ	mg/Kg	J (all detects)

**Method:** 8260C  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP008SS05NS	TRICHLOROETHENE	J	0.41	4.7	LOQ	ug/Kg	J (all detects)
SHAD041DP010SS01NS	ETHYLBENZENE	J Q	1.5	4.1	LOQ	ug/Kg	J (all detects)

Project Name and Number: 05122.01 - SHAD-041

# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24925-1

Laboratory: TA STL

EDD Filename: 160-24925-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8260C

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
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**Method:** 8270D SIM

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP015SS01NS	BENZ(A)ANTHRACENE	J D	17	66	LOQ	ug/Kg	J (all detects)
	BENZO(A)PYRENE	J D	13	66	LOQ	ug/Kg	
	BENZO(B)FLUORANTHENE	J D M	22	66	LOQ	ug/Kg	
	BENZO(G,H,I)PERYLENE	J D	14	66	LOQ	ug/Kg	
	CHRYSENE	J D	17	66	LOQ	ug/Kg	
	FLUORANTHENE	J D	20	66	LOQ	ug/Kg	
	PYRENE	J D	18	66	LOQ	ug/Kg	

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24925-1

Laboratory: TA STL

EDD Filename: 160-24925-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method: 6010C**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP010SS02N S (TOT)	SHAD041DP010SS02D S (TOT)			
CHROMIUM	11	11	0	30.00	No Qualifiers Applied
LEAD	4.5	2.2	69	30.00	

**Method: 7196A**  
**Matrix: SO**

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP010SS02N S (TOT)	SHAD041DP010SS02D S (TOT)			
Chromium(VI)	0.22	0.27	20	30.00	No Qualifiers Applied

LDC #: 39889J1

## VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24925-1

ADR

Laboratory: Test America, Inc.

Date: 11/17

Page: 1 of 3

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 15%. $V^2$   CV ≤ 20%
IV.	Continuing calibration	M	CV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	NO	TB=19-25, 27-30. EB=18, 26
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	NO	D=6+7
XI.	Internal standards	A/N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	3 SHAD041DP008SS03NS	160-24925-1	Soil	10/05/17
2	3 SHAD041DP008SS04NS	160-24925-2	Soil	10/05/17
3	3 SHAD041DP008SS05NS	160-24925-3	Soil	10/05/17
4	3 SHAD041DP008SS06NS	160-24925-4	Soil	10/05/17
5	3 SHAD041DP010SS01NS	160-24925-5	Soil	10/05/17
6	3 SHAD041DP010SS02NS	160-24925-6	Soil	10/05/17
7	3 SHAD041DP010SS02DS	160-24925-7	Soil	10/05/17
8	5 SHAD041DP010SS03NS	160-24925-8	Soil	10/05/17
9	5 SHAD041DP010SS04NS	160-24925-9	Soil	10/05/17
10	5 SHAD041DP010SS05NS	160-24925-10	Soil	10/05/17
11	6 SHAD041DP010SS06NS	160-24925-11	Soil	10/05/17
12	5 SHAD041DP015SS01NS	160-24925-12	Soil	10/05/17
13	4 SHAD041DP015SS02NS	160-24925-13	Soil	10/05/17



LDC #: 39889J1

### VALIDATION COMPLETENESS WORKSHEET

Date: 12/1/17

SDG #: 160-24925-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP015SS03NS	160-24925-14	Soil	10/05/17
15	SHAD041DP015SS04NS	160-24925-15	Soil	10/05/17
16	SHAD041DP015SS05NS	160-24925-16	Soil	10/05/17
17	SHAD041DP015SS06NS	160-24925-17	Soil	10/05/17
18	SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
19	TB-100517-1	160-24925-19	Water	10/05/17
20	TB-100517-2	160-24925-20	Water	10/05/17
21	TB-100517-3	160-24925-21	Water	10/05/17
22	TB-100517-4	160-24925-22	Water	10/05/17
23	TB-100517-5	160-24925-23	Water	10/05/17
24	TB-100517-6	160-24925-24	Water	10/05/17
25	TB-100517-7	160-24925-25	Water	10/05/17
26	SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
27	TB100617-2	160-24925-27	Water	10/06/17
28	TB100617-3	160-24925-28	Water	10/06/17
29	TB100617-4	160-24925-29	Water	10/06/17
30	TB100617-5	160-24925-30	Water	10/06/17
31	SHAD041DP015SS02NSMS	160-24925-13MS	Soil	10/05/17
32	SHAD041DP015SS02NSMSD	160-24925-13MSD	Soil	10/05/17
33	SHAD041EQ003WS01NSMS	160-24925-18MS	Water	10/05/17
34	SHAD041EQ003WS01NSMSD	160-24925-18MSD	Water	10/05/17
35				
36				
37				
38				
39				

Notes:

F=1-4					
X=5-6					

# TARGET COMPOUND WORKSHEET

## METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3-Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1. 2-Propanol
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 378891

### VALIDATION FINDINGS WORKSHEET

Continuing Calibration

Page: 1 of 1  
Reviewer: Q  
2nd Reviewer: BLC

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument? N  
Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's? N  
Were all %D and RRFs within the validation criteria of  $\leq 20\%$  D and  $\geq 0.05$  RRF? Y

#	Date	Standard ID	Compound	Finding %D (Limit: <20.0%)	Finding RRF (Limit: >0.05)	Associated Samples	Qualifications
	10/17/17	Feb 13058	C	20.6		1-7, MB(ND)	STH/A

**VALIDATION FINDINGS WORKSHEET**  
**Internal Standards**

Page: 1 of 1  
 Reviewer: g  
 2nd Reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
 Were all internal standard area counts within -50 to +100% of the associated calibration standard?  
 Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

Y N/A  
Y N/A

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		5 (ND)	4DCB	212769 (287566-1150262)		✓
		6 (ND)	✓	280760		✓
		12 (ND)	CBZ	422429 (499327-1997308)		✓
			4DCB	90682 (196656-786624)		✓

(BCM) = Bromochloromethane  
 (DFB) = 1,4-Difluorobenzene  
 (CBZ) = Chlorobenzene-d5  
 (PFB) = Pentafluorobenzene  
 (4DCB) = 1,4-Dichlorobenzene-d4  
 (2DCB) = 1,2-Dichlorobenzene-d4  
 (FBZ) = Fluorobenzene

Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform



LDC #: 39889J2b

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24925-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	M	M/2=51 is out. No legal by SIM mode
III.	Initial calibration/ICV	A, M	RSD ≤ 15%. Y2 ICV ≤ 20%
IV.	Continuing calibration / ending	M	CCV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	NO	EB = 17, 18, 19
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	NO	D = 6+7
XI.	Internal standards	N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB=Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP008SS03NS	160-24925-1	Soil	10/05/17
2	SHAD041DP008SS04NS	160-24925-2	Soil	10/05/17
3	SHAD041DP008SS05NS	160-24925-3	Soil	10/05/17
4	SHAD041DP008SS06NS	160-24925-4	Soil	10/05/17
5	SHAD041DP010SS01NS	160-24925-5	Soil	10/05/17
6	SHAD041DP010SS02NS	160-24925-6	Soil	10/05/17
7	SHAD041DP010SS02DS	160-24925-7	Soil	10/05/17
8	SHAD041DP010SS03NS	160-24925-8	Soil	10/05/17
9	SHAD041DP010SS04NS	160-24925-9	Soil	10/05/17
10	SHAD041DP010SS05NS	160-24925-10	Soil	10/05/17
11	SHAD041DP010SS06NS	160-24925-11	Soil	10/05/17
12	SHAD041DP015SS01NS	160-24925-12	Soil	10/05/17
13	SHAD041DP015SS02NS	160-24925-13	Soil	10/05/17

LDC #: 39889J2b

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24925-1

ADR

Laboratory: Test America, Inc.

Date: 12/11/17

Page: 3 of 3

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP015SS03NS	160-24925-14	Soil	10/05/17
15	SHAD041DP015SS04NS	160-24925-15	Soil	10/05/17
16	SHAD041DP015SS05NS	160-24925-16	Soil	10/05/17
17	SHAD041DP015SS06NS	160-24925-17	Soil	10/05/17
18	SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
19	SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
20	SHAD041DP015SS02NSMS	160-24925-13MS	Soil	10/05/17
21	SHAD041DP015SS02NSMSD	160-24925-13MSD	Soil	10/05/17
22				
23				
24				
25				
26				

Notes:


# VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1. N-Nitrosodiethylamine
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1. N-Nitrosodi-n-butylamine
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1. N-Nitrosomethylethylamine
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1. N-Nitrosomorpholine
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1. N-Nitrosopyrrolidine
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1. Phenacetin
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1. 2-Acetylaminofluorene
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1. Pronamide
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1. Methyl methanesulfonate
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1. Ethyl methanesulfonate
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1. o,o',o'-Triethylphosphorothioate
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1. n-Phenylene diamine
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1. 1,4-Naphthoquinone
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1. N-Nitro-o-toluidine
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1. 1,3,5-Trinitrobenzene
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1. Pentachlorobenzene
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1. 4-Aminobiphenyl
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethylbenzothiophene (4MDT)	R1. 2-Naphthylamine
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1. Triphenylene
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1. Octachlorostyrene
U. Hexachlorobutadiene	UU. Phenanthrene	UUU. Benzo(b)thiophene	UUUU. 2,3,4,6-Tetrachlorophenol	U1. Famphur
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV. Benzonaphthothiophene	VVVV. 1,2,4,5-Tetrachlorobenzene	V1. 1,4-phenylenediamine
W. 2-Methylnaphthalene	WW. Carbazole	WWW. Benzo(e)pyrene	WWWW. 2-Picoline	W1. Methapyriene
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX. 3-Methylcholanthrene	X1. Pentachloroethane
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY. a,a-Dimethylphenethylamine	Y1. 3,3'-Dimethylbenzidine
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ. Hexachloropropene	Z1. o-Toluidine

LDC #: 29889/26

### VALIDATION FINDINGS WORKSHEET Initial Calibration Verification

Page: 1 of 1  
Reviewer: AK  
2nd Reviewer: AK

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".  
 N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?  
 Y N/A Were all %D within the validation criteria of  $\leq 20$  %D?

#	Date	Standard ID	Compound	Finding %D (Limit: $\leq 20.0\%$ )	Associated Samples	Qualifications
	<u>6/26/17</u>	<u>I4334</u>	<u>EE</u>	<u>21.7</u>	<u>All HAs (NO)</u>	<u>✓ + dete/A</u>





LDC #: 39889J3b

**VALIDATION COMPLETENESS WORKSHEET**

Date: 11/17

SDG #: 160-24925-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration/ICV	<del>A</del> A	
III.	Continuing calibration	A	
IV.	Laboratory Blanks	N	
V.	Field blanks	ND	ZB=18, 19
VI.	Surrogate spikes / IS	N/R	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	ND	D=6+7
X.	Compound quantitation/RL/LOQ/LODs	N	
XI.	Target compound identification	N	
XII.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP008SS03NS	160-24925-1	Soil	10/05/17
2	SHAD041DP008SS04NS	160-24925-2	Soil	10/05/17
3	SHAD041DP008SS05NS	160-24925-3	Soil	10/05/17
4	SHAD041DP008SS06NS	160-24925-4	Soil	10/05/17
5	SHAD041DP010SS01NS	160-24925-5	Soil	10/05/17
6	SHAD041DP010SS02NS	160-24925-6	Soil	10/05/17
7	SHAD041DP010SS02DS	160-24925-7	Soil	10/05/17
8	SHAD041DP010SS03NS	160-24925-8	Soil	10/05/17
9	SHAD041DP010SS04NS	160-24925-9	Soil	10/05/17
10	SHAD041DP010SS05NS	160-24925-10	Soil	10/05/17
11	SHAD041DP010SS06NS	160-24925-11	Soil	10/05/17
12	SHAD041DP015SS01NS	160-24925-12	Soil	10/05/17
13	SHAD041DP015SS02NS	160-24925-13	Soil	10/05/17
14	SHAD041DP015SS03NS	160-24925-14	Soil	10/05/17
15	SHAD041DP015SS04NS	160-24925-15	Soil	10/05/17
16	SHAD041DP015SS05NS	160-24925-16	Soil	10/05/17
17	SHAD041DP015SS06NS	160-24925-17	Soil	10/05/17

LDC #: 39889J3b

### VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24925-1

ADR

Laboratory: Test America, Inc.

Date: 12/1/17

Page: 2 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

	Client ID	Lab ID	Matrix	Date
18	SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
19	SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
20	SHAD041DP015SS02NSMS	160-24925-13MS	Soil	10/05/17
21	SHAD041DP015SS02NSMSD	160-24925-13MSD	Soil	10/05/17
22				
23				
24				
25				
26				

Notes:


LDC #: 39889J4b  
 SDG #: 160-24925-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-7-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: CT

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / N	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	EB = 18, 19
VI.	Matrix Spike/Matrix Spike Duplicates	N	MS/MSD (SDG: 160-24922-1, 160-24851-1)
VII.	Duplicate sample analysis	N	
VIII.	Serial Dilution	A	SD: 13, SDG 160-24922-1, 160-24851-1
IX.	Laboratory control samples	N	LCS
X.	Field Duplicates	N	D = 6 + 7
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP008SS03NS	160-24925-1	Soil	10/05/17
2	SHAD041DP008SS04NS	160-24925-2	Soil	10/05/17
3	SHAD041DP008SS05NS	160-24925-3	Soil	10/05/17
4	SHAD041DP008SS06NS	160-24925-4	Soil	10/05/17
5	SHAD041DP010SS01NS	160-24925-5	Soil	10/05/17
6	SHAD041DP010SS02NS	160-24925-6	Soil	10/05/17
7	SHAD041DP010SS02DS	160-24925-7	Soil	10/05/17
8	SHAD041DP010SS03NS	160-24925-8	Soil	10/05/17
9	SHAD041DP010SS04NS	160-24925-9	Soil	10/05/17
10	SHAD041DP010SS05NS	160-24925-10	Soil	10/05/17
11	SHAD041DP010SS06NS	160-24925-11	Soil	10/05/17
12	SHAD041DP015SS01NS	160-24925-12	Soil	10/05/17
13	SHAD041DP015SS02NS	160-24925-13	Soil	10/05/17
14	SHAD041DP015SS03NS	160-24925-14	Soil	10/05/17
15	SHAD041DP015SS04NS	160-24925-15	Soil	10/05/17
16	SHAD041DP015SS05NS	160-24925-16	Soil	10/05/17
17	SHAD041DP015SS06NS	160-24925-17	Soil	10/05/17

LDC #: 39889J4b

### VALIDATION COMPLETENESS WORKSHEET

Date: 12-7-17

SDG #: 160-24925-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer: CL

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

	Client ID	Lab ID	Matrix	Date
18	3 SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
19	3 SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
20	2 SHAD041DP015SS02NSMS	160-24925-13MS	Soil	10/05/17
21	2 SHAD041DP015SS02NSMSD	160-24925-13MSD	Soil	10/05/17
22				
23				
24	1 PBS1			
25	2 PBS2			
26	3 PBW			

Notes:





LDC #: 39889J6  
 SDG #: 160-24925-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 12-7-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: CL

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		and # 22, 23 also Comments
I.	Sample receipt/Technical holding times	SW	(# 18 run past 24 hr H.T.)
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	
V.	Field blanks	N	EB = 18, 19
VI.	Matrix Spike/Matrix Spike Duplicates	SW	MS/MSD (SDG: 160-24924-1) Insoluble Cr VI out in #20 and 160-24 924-1
VII.	Duplicate sample analysis	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D = 6 + 7
X.	Sample result verification	N	
XI.	Overall assessment of data	N	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet

ND = No compounds detected  
 R = Rinsate  
 FB = Field blank

D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank

SB = Source blank  
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP008SS03NS	160-24925-1	Soil	10/05/17
2	SHAD041DP008SS04NS	160-24925-2	Soil	10/05/17
3	SHAD041DP008SS05NS	160-24925-3	Soil	10/05/17
4	SHAD041DP008SS06NS	160-24925-4	Soil	10/05/17
5	SHAD041DP010SS01NS	160-24925-5	Soil	10/05/17
6	SHAD041DP010SS02NS	160-24925-6	Soil	10/05/17
7	SHAD041DP010SS02DS	160-24925-7	Soil	10/05/17
8	SHAD041DP010SS03NS	160-24925-8	Soil	10/05/17
9	SHAD041DP010SS04NS	160-24925-9	Soil	10/05/17
10	SHAD041DP010SS05NS	160-24925-10	Soil	10/05/17
11	SHAD041DP010SS06NS	160-24925-11	Soil	10/05/17
12	SHAD041DP015SS01NS	160-24925-12	Soil	10/05/17
13	SHAD041DP015SS02NS	160-24925-13	Soil	10/05/17
14	SHAD041DP015SS03NS	160-24925-14	Soil	10/05/17
15	SHAD041DP015SS04NS	160-24925-15	Soil	10/05/17
16	SHAD041DP015SS05NS	160-24925-16	Soil	10/05/17
17	SHAD041DP015SS06NS	160-24925-17	Soil	10/05/17

LDC #: 39889J6  
SDG #: 160-24925-1  
Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
ADR

Date: 12-7-17  
Page: 2 of 2  
Reviewer: MG  
2nd Reviewer:

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

	Client ID	Lab ID	Matrix	Date
18	3 SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
19	3 SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
20	2 SHAD041DP015SS02NSMS	160-24925-13MS	Soil	10/05/17
21	2 SHAD041DP015SS02NSMSD	160-24925-13MSD	Soil	10/05/17
22	3 SHAD041EQ003WS01NSMS	160-24925-18MS	Water	10/05/17
23	3 SHAD041EQ003WS01NSDUP	160-24925-18DUP	Water	10/05/17
24				
25				
26	1 PBS1			
27	2 PBS2			
28	3 PBW			

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Quality Control Outlier Reports

160-24948-1

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24948-1

Laboratory: TA STL

EDD Filename: 160-24948-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: EPA 901.1

Matrix: SO

Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	20-03-8	20-03-8 DUP			
RADIUM-226	1.40	1.30	7	30.00	No Qualifiers Applied

LDC #: 39889K29a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12-7-17

SDG #: 160-24948-1

ADR/IV

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer: **METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	Not reviewed for ADR validation <i>not required</i>
VII.	Duplicates	A <sup>W</sup>	Not reviewed for ADR validation <i>DUP</i>
VIII.	Laboratory control samples	A <sup>W</sup>	Not reviewed for ADR validation <i>LCS</i>
IX.	Field duplicates	N	<i>D = 15+16</i>
X.	<del>Carrier recovery</del>	<del>N</del>	<del>Not reviewed for ADR validation</del>
XI.	Minimum detectable activity (MDA)	A <sup>W</sup>	Not reviewed for ADR validation
XII.	Sample result verification	A <sup>W</sup>	Not reviewed for ADR validation
XIII.	Overall assessment of data	A <sup>W</sup>	Not reviewed for ADR validation

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	25-01-5**	160-24948-1**	Soil	10/03/17
2	25-02-2**	160-24948-2**	Soil	10/03/17
3	25-03-7**	160-24948-3**	Soil	10/03/17
4	25-04-9**	160-24948-4**	Soil	10/03/17
5	<sup>4</sup> <del>27</del> -01-3**	160-24948-5**	Soil	10/03/17
6	24-02-4**	160-24948-6**	Soil	10/03/17
7	24-03-6**	160-24948-7**	Soil	10/03/17
8	24-04-9**	160-24948-8**	Soil	10/03/17
9	19-01-2**	160-24948-9**	Soil	10/03/17
10	19-02-6**	160-24948-10**	Soil	10/03/17
11	19-03-8**	160-24948-11**	Soil	10/03/17
12	19-04-9**	160-24948-12**	Soil	10/03/17
13	20-01-0**	160-24948-13**	Soil	10/03/17
14	20-02-4**	160-24948-14**	Soil	10/03/17
15	20-03-8	160-24948-15	Soil	10/03/17
16	20-03-8-DUP	160-24948-16	Soil	10/03/17



LDC #: 39889K29a

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24948-1

ADR/IV

Laboratory: Test America, Inc.

Date: 12-7-17

Page: 2 of 2

Reviewer: MG

2nd Reviewer:

**METHOD:** Radium 226 (EPA Method 901.1)

	Client ID	Lab ID	Matrix	Date
17	20-04-9	160-24948-17	Soil	10/03/17
18	25-01-5DUP	160-24948-1DUP	Soil	10/03/17
19				
20				
21				
22				
23	PBS			

Notes:

# Quality Control Outlier Reports

160-24949-1

(No Outliers)

LDC #: 39889L29a

### VALIDATION COMPLETENESS WORKSHEET

Date: 12-11-17

SDG #: 160-24949-1

ADR

Page: 1 of 1

Laboratory: Test America, Inc.

Reviewer: MG  
2nd Reviewer: [Signature]

**METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	
<del>X.</del>	<del>Carrier recovery</del>	<del>N</del>	
XI.	Minimum detectable activity (MDA)	A✓	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

MM

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	02-02-9	160-24949-1	Soil	10/04/17
2	06-03-4	160-24949-2	Soil	10/04/17
3	06-05-12	160-24949-3	Soil	10/04/17
4	06-06-14	160-24949-4	Soil	10/04/17
5	02-06-2	160-24949-5	Soil	10/04/17
6	06-04-8	160-24949-6	Soil	10/04/17
7	02-01-0	160-24949-7	Soil	10/04/17
8	02-03-14	160-24949-8	Soil	10/04/17
9	06-01-0	160-24949-9	Soil	10/04/17
10	02-04-12	160-24949-10	Soil	10/04/17
11	06-02-2	160-24949-11	Soil	10/04/17
12	02-05-6	160-24949-12	Soil	10/04/17
13	06-04-8DUP	160-24949-6DUP	Soil	10/04/17
14	02-01-0DUP	160-24949-7DUP	Soil	10/04/17
15				
16	PBS			

# Quality Control Outlier Reports

160-24950-1

## Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24950-1

Laboratory: TA STL

EDD Filename: 160-24950-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** EPA 901.1

**Matrix:** SO

Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	28-06-14	28-06-14 DUP			
RADIUM-226	1.23	1.57	24	30.00	No Qualifiers Applied
Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	29-01-0	29-01-0 DUP			
RADIUM-226	1.40	0.934	40	30.00	No Qualifiers Applied
Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	30-04-9	30-04-9 DUP			
RADIUM-226	1.68	1.53	9	30.00	No Qualifiers Applied
Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	27-04-9	27-04-9 DUP			
RADIUM-226	1.16	1.27	9	30.00	No Qualifiers Applied



LDC #: 39889M29a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12-11-17

SDG #: 160-24950-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer: **METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D=6+14, D=17+13, D=15+16, D=22+28
X.	Carrier recovery	N	
XI.	Minimum detectable activity (MDA)	AN	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	30-01-0	160-24950-1	Soil	10/06/17
2	29-02-3	160-24950-2	Soil	10/06/17
3	29-04-8	160-24950-3	Soil	10/06/17
4	29-03-4	160-24950-4	Soil	10/06/17
5	29-06-14	160-24950-5	Soil	10/06/17
6	29-01-0-DUP	160-24950-6	Soil	10/06/17
7	30-06-14	160-24950-7	Soil	10/06/17
8	29-05-13	160-24950-8	Soil	10/06/17
9	30-05-13	160-24950-9	Soil	10/06/17
10	30-02-01	160-24950-10	Soil	10/06/17
11	30-03-4	160-24950-11	Soil	10/06/17
12	30-04-9	160-24950-12	Soil	10/06/17
13	30-04-9-DUP	160-24950-13	Soil	10/06/17
14	29-01-0	160-24950-14	Soil	10/06/17
15	28-06-14	160-24950-15	Soil	10/06/17
16	28-06-14-DUP	160-24950-16	Soil	10/06/17

**METHOD:** Radium 226 (EPA Method 901.1)

	Client ID	Lab ID	Matrix	Date
17	28-02-1	160-24950-17	Soil	10/06/17
18	28-03-3	160-24950-18	Soil	10/06/17
19	28-05-12	160-24950-19	Soil	10/06/17
20	28-01-0	160-24950-20	Soil	10/06/17
21	28-04-5	160-24950-21	Soil	10/06/17
22	27-04-9-DUP	160-24950-22	Soil	10/06/17
23	27-05-12	160-24950-23	Soil	10/06/17
24	27-06-14	160-24950-24	Soil	10/06/17
25	27-03-7	160-24950-25	Soil	10/06/17
26	27-01-0	160-24950-26	Soil	10/06/17
27	27-02-4	160-24950-27	Soil	10/06/17
28	27-04-9	160-24950-28	Soil	10/06/17
29	30-01-0DUP	160-24950-1DUP	Soil	10/06/17
30	28-06-14DUP	160-24950-15DUP	Soil	10/06/17
31				
32				
33				
34	PBS1			
35	PBS2			

Notes:

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# Quality Control Outlier Reports

160-24951-1

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24951-1

Laboratory: TA STL

EDD Filename: 160-24951-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: EPA 901.1

Matrix: SO

Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	13-02-2	13-02-2 DUP			
RADIUM-226	0.905	0.977	8	30.00	No Qualifiers Applied

LDC #: 39889N29a **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24951-1

Laboratory: Test America, Inc.

ADR

Date: 12-11-17

Page: 1 of 1

Reviewer: MG

2nd Reviewer: [Signature]

**METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D = 5+9
<del>X.</del>	<del>Carrier recovery</del>	<del>N</del>	
XI.	Minimum detectable activity (MDA)	AK	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	10-03-4	160-24951-1	Soil	10/05/17
2	10-06-14	160-24951-2	Soil	10/05/17
3	10-04-8	160-24951-3	Soil	10/05/17
4	22-03-2	160-24951-4	Soil	10/05/17
5	13-02-2-DUP	160-24951-5	Soil	10/05/17
6	13-04-9	160-24951-6	Soil	10/05/17
7	15-03-4	160-24951-7	Soil	10/05/17
8	13-03-5	160-24951-8	Soil	10/05/17
9	13-02-2	160-24951-9	Soil	10/05/17
10	15-02-1	160-24951-11	Soil	10/05/17
11	13-01-0	160-24951-12	Soil	10/05/17
12	22-06-14	160-24951-13	Soil	10/05/17
13	22-03-2DUP	160-24951-4DUP	Soil	10/05/17
14	15-02-1DUP	160-24951-11DUP	Soil	10/05/17
15				
16	PBS			



# Quality Control Outlier Reports

160-24952-1

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24952-1

Laboratory: TA STL

EDD Filename: 160-24952-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: EPA 901.1

Matrix: SO

Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	10-02-2	10-02-2 DUP			
RADIUM-226	0.902	0.836	8	30.00	No Qualifiers Applied

**METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D = 1+7
<del>X.</del>	<del>Carrier recovery</del>	<del>N</del>	
XI.	Minimum detectable activity (MDA)	AX	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	10-02-2-DUP	160-24952-1	Soil	10/05/17
2	15-05-13	160-24952-2	Soil	10/05/17
3	15-01-0	160-24952-3	Soil	10/05/17
4	15-04-8	160-24952-4	Soil	10/05/17
5	15-06-14	160-24952-5	Soil	10/05/17
6	10-05-10	160-24952-6	Soil	10/05/17
7	10-02-2	160-24952-7	Soil	10/05/17
8	10-01-0	160-24952-8	Soil	10/05/17
9	8-05-11	160-24952-9	Soil	10/05/17
10	8-06-14	160-24952-10	Soil	10/05/17
11	8-04-7	160-24952-11	Soil	10/05/17
12	8-02-2	160-24952-12	Soil	10/05/17
13	8-03-4	160-24952-13	Soil	10/05/17
14	8-01-0	160-24952-14	Soil	10/05/17
15	4-05-12	160-24952-15	Soil	10/05/17
16	4-06-14	160-24952-16	Soil	10/05/17

LDC #: 39889O29a

### VALIDATION COMPLETENESS WORKSHEET

Date: 12-11-17

SDG #: 160-24952-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer:

METHOD: Radium 226 (EPA Method 901.1)

	Client ID	Lab ID	Matrix	Date
17	4-4-9	160-24952-17	Soil	10/05/17
18	12-5-11	160-24952-18	Soil	10/05/17
19	12-6-14	160-24952-19	Soil	10/05/17
20	4-3-5	160-24952-20	Soil	10/05/17
21	12-4-9	160-24952-21	Soil	10/05/17
22	4-02-2	160-24952-22	Soil	10/05/17
23	4-01-0	160-24952-23	Soil	10/05/17
24	10-02-2-DUPDUP	160-24952-1DUP	Soil	10/05/17
25	12-4-9DUP	160-24952-21DUP	Soil	10/05/17
26				
27				
28				
29	PBS1			
30	PBS2			

Notes:

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# Quality Control Outlier Reports

160-24953-1



## Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24953-1

Laboratory: TA STL

EDD Filename: 160-24953-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

Method: EPA 901.1

Matrix: SO

Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	13-05-12	13-05-12 DUP			
RADIUM-226	2.35	2.22	6	30.00	No Qualifiers Applied

Analyte	Concentration (pCi/g)		Sample RPD	eQAPP RPD	Flag
	26-05-11	26-05-11 DUP			
RADIUM-226	2.21	2.24	1	30.00	No Qualifiers Applied

**METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D=7+9, D=11+13
<del>X.</del>	<del>Carrier recovery</del>	<del>N</del>	
XI.	Minimum detectable activity (MDA)	SW <sub>N</sub>	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	22-02-1	160-24953-1	Soil	10/05/17
2	26-04-9	160-24953-2	Soil	10/05/17
3	22-05-10	160-24953-3	Soil	10/05/17
4	22-04-5	160-24953-4	Soil	10/05/17
5	26-03-4	160-24953-5	Soil	10/05/17
6	26-06-14	160-24953-6	Soil	10/05/17
7	26-05-11-DUP	160-24953-7	Soil	10/05/17
8	26-02-1	160-24953-8	Soil	10/05/17
9	26-05-11	160-24953-9	Soil	10/05/17
10	26-01-08	160-24953-10	Soil	10/05/17
11	13-05-12-DUP	160-24953-11	Soil	10/05/17
12	13-06-14	160-24953-12	Soil	10/05/17
13	13-05-12	160-24953-13	Soil	10/05/17
14	22-02-1DUP	160-24953-1DUP	Soil	10/05/17
15				
16	PBS			



# Quality Control Outlier Reports

160-24955-1

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24955-1

Laboratory: TA STL

EDD Filename: 160-24955-1

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** EPA 901.1  
**Matrix:** SO

<i>Analyte</i>	<i>Concentration (pCi/g)</i>		<i>Sample RPD</i>	<i>eQAPP RPD</i>	<i>Flag</i>
	17-06-14	17-06-14 DUP			
RADIUM-226	1.52	1.09	33	30.00	No Qualifiers Applied

<i>Analyte</i>	<i>Concentration (pCi/g)</i>		<i>Sample RPD</i>	<i>eQAPP RPD</i>	<i>Flag</i>
	18-02-1	18-02-1 DUP			
RADIUM-226	8.64	4.66	60	30.00	No Qualifiers Applied

<i>Analyte</i>	<i>Concentration (pCi/g)</i>		<i>Sample RPD</i>	<i>eQAPP RPD</i>	<i>Flag</i>
	12-02-1	12-02-1 DUP			
RADIUM-226	1.70	1.45	16	30.00	No Qualifiers Applied



LDC #: 39889Q29a

**VALIDATION COMPLETENESS WORKSHEET**

Date: 12-11-17

SDG #: 160-24955-1

ADR

Page: 1 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer:                     **METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	DUP
VIII.	Laboratory control samples	N	LCS
IX.	Field duplicates	N	D=8+15, D=9+10, D=11+16
<del>X.</del>	<del>Carrier recovery</del>	<del>N</del>	<del></del>
XI.	Minimum detectable activity (MDA)	SWX	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

	Client ID	Lab ID	Matrix	Date
1	17-03-7	160-24955-1	Soil	10/04/17
2	17-05-12	160-24955-2	Soil	10/04/17
3	11-02-2	160-24955-3	Soil	10/04/17
4	11-01-0	160-24955-4	Soil	10/04/17
5	12-03-4	160-24955-5	Soil	10/04/17
6	18-06-14	160-24955-6	Soil	10/04/17
7	11-04-9	160-24955-7	Soil	10/04/17
8	12-02-1-DUP	160-24955-8	Soil	10/04/17
9	18-02-1	160-24955-9	Soil	10/04/17
10	18-02-1-DUP	160-24955-10	Soil	10/04/17
11	17-06-14-DUP	160-24955-11	Soil	10/04/17
12	18-04-7	160-24955-12	Soil	10/04/17
13	17-01-0	160-24955-13	Soil	10/04/17
14	11-05-14	160-24955-14	Soil	10/04/17
15	12-02-1	160-24955-15	Soil	10/04/17
16	17-06-14	160-24955-16	Soil	10/04/17

LDC #: 39889Q29a

### VALIDATION COMPLETENESS WORKSHEET

Date: 12-11-17

SDG #: 160-24955-1

ADR

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: MG

2nd Reviewer:

METHOD: Radium 226 (EPA Method 901.1)

	Client ID	Lab ID	Matrix	Date
17	18-03-4	160-24955-17	Soil	10/04/17
18	11-03-5	160-24955-18	Soil	10/04/17
19	11-06-12	160-24955-19	Soil	10/04/17
20	17-02-3	160-24955-20	Soil	10/04/17
21	18-05-11	160-24955-21	Soil	10/04/17
22	12-01-0	160-24955-22	Soil	10/04/17
23	18-01-0	160-24955-23	Soil	10/04/17
24	17-03-7DUP	160-24955-1DUP	Soil	10/04/17
25	11-03-5DUP	160-24955-18DUP	Soil	10/04/17
26				
27				
28				
29	PBS1			
30	PBS2			

Notes:

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# Quality Control Outlier Reports

160-24955-2

**METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	N	
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
<i>9/13</i> <del>X.</del>	<del>Carrier recovery</del>	<del>N</del>	
XI.	Minimum detectable activity (MDA)	SW	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	18-06-14	160-24955-6	Soil	10/04/17
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Notes:  
 re-count to confirm big hit







**Enclosure II**

**Stage 4 Data Validation Reports**

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 12, 2017

**Parameters:** Volatiles

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24848-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SHAD041DP025SS01NS	160-24848-2	Soil	10/03/17
SHAD041DP025SS02NS	160-24848-3	Soil	10/03/17
SHAD041DP025SS03NS	160-24848-4	Soil	10/03/17
SHAD041DP025SS04NS	160-24848-5	Soil	10/03/17
SHAD041DP024SS01NS	160-24848-6	Soil	10/03/17
SHAD041DP024SS02NS	160-24848-7	Soil	10/03/17
SHAD041DP024SS03NS	160-24848-8	Soil	10/03/17
SHAD041DP024SS04NS	160-24848-9	Soil	10/03/17
SHAD041DP019SS01NS	160-24848-10	Soil	10/03/17
SHAD041DP019SS02NS	160-24848-11	Soil	10/03/17
SHAD041DP019SS03NS	160-24848-12	Soil	10/03/17
SHAD041DP019SS04NS	160-24848-13	Soil	10/03/17
SHAD041DP020SS01NS	160-24848-14	Soil	10/03/17
SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.



The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. GC/MS Instrument Performance Check**

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 15.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination ( $r^2$ ) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## **V. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## VI. Field Blanks

Sample TB-100317-01 was identified as a trip blank. No contaminants were found.

## VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Compound	Flag	A or P
SHAD041DP025SS01NS	Bromofluorobenzene Toluene-d8 Dibromofluoromethane	175 (79-119) 153 (85-116) 132 (78-119)	All compounds	NA	-
SHAD041DP002SS01NS	Bromofluorobenzene 1,2-Dichloroethane-d4 Toluene-d8 Dibromofluoromethane	33 (79-119) 49 (71-136) 35 (85-116) 46 (78-119)	All compounds	J- (all detects) UJ (all non-detects)	A

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
SHAD041DP002SS01NSMS/MSD (SHAD041DP002SS01NS)	1,1,1-Trichloroethane	205 (73-130)	-	NA	-
	1,1,2,2-Tetrachloroethane	271 (70-124)	134 (70-124)		
	1,1,2-Trichloroethane	206 (78-121)	-		
	1,1-Dichloroethane	203 (76-125)	-		
	1,1-Dichloroethene	194 (70-131)	-		
	1,2-Dichlorobenzene	198 (78-121)	-		
	1,2-Dichloroethane	199 (73-128)	-		
	1,2-Dichloropropane	208 (76-123)	-		
	1,4-Dichlorobenzene	210 (75-120)	-		
	Benzene	197 (77-121)	-		
	Bromoform	291 (67-132)	144 (67-132)		
	Carbon tetrachloride	200 (70-135)	-		
	Dibromochloromethane	212 (74-126)	-		
	Chloroform	199 (78-123)	-		
	Chloromethane	182 (50-136)	-		
	cis-1,2-Dichloroethene	204 (77-123)	-		
	cis-1,3-Dichloropropene	177 (74-126)	-		
	Bromodichloromethane	197 (75-127)	-		
	Methylene chloride	199 (70-128)	-		
	Tetrachloroethene	201 (73-128)	-		
Toluene	218 (77-121)	-			
trans-1,2-Dichloroethene	195 (74-125)	-			
trans-1,3-Dichloropropene	200 (71-130)	-			
Trichloroethene	189 (77-123)	-			
Vinyl chloride	166 (56-135)	-			
SHAD041DP002SS01NSMS/MSD (SHAD041DP002SS01NS)	Ethylbenzene	224 (76-122)	-	J+ (all detects)	A

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
SHAD041DP002SS01NSMS/MSD (SHAD041DP002SS01NS)	1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,4-Dichlorobenzene Benzene Bromoform Carbon tetrachloride Dibromochloromethane Chloroform Chloromethane cis-1,2-Dichloroethene cis-1,3-Dichloropropene Bromodichloromethane Methylene chloride Tetrachloroethene Toluene trans-1,2-Dichloroethene trans-1,3-Dichloropropene Trichloroethene Vinyl chloride	66 (≤20) 67 (≤20) 62 (≤20) 64 (≤20) 66 (≤20) 75 (≤20) 60 (≤20) 63 (≤20) 77 (≤20) 65 (≤20) 67 (≤20) 68 (≤20) 66 (≤20) 65 (≤20) 61 (≤20) 63 (≤20) 60 (≤20) 62 (≤20) 63 (≤20) 74 (≤20) 71 (≤20) 64 (≤20) 62 (≤20) 67 (≤20) 61 (≤20)	NA	-
SHAD041DP002SS01NSMS/MSD (SHAD041DP002SS01NS)	Ethylbenzene	80 (≤20)	J (all detects)	A

### IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

### X. Field Duplicates

No field duplicates were identified in this SDG.

### XI. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Affected Compound	Flag	A or P
SHAD041DP002SS01NS	1,4-Dichlorobenzene-d4	130783 (196656-786624)	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A

Sample	Internal Standards	Area (Limits)	Affected Compound	Flag	A or P
SHAD041DP025SS01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	428271 (499327-1997308) 92229 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
SHAD041DP020SS01NS	Chlorobenzene-d5 1,4-Dichlorobenzene-d4	399178 (499327-1997308) 72751 (196656-786624)	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A

## XII. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP002SS01NS	All compounds reported below the LOQ.	J (all detects)	A

## XIII. Target Compound Identifications

All target compound identifications met validation criteria.

## XIV. System Performance

The system performance was acceptable.



## **XV. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to surrogate %R, MS/MSD %R and RPD, internal standards area, and results below the LOQ, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**Sharpe Army Depot, Quarterly GM, 3Q17**  
**Volatiles - Data Qualification Summary - SDG 160-24848-1**

Sample	Compound	Flag*	A or P	Reason
SHAD041DP002SS01NS	All compounds	J- (all detects) UJ (all non-detects)	A	Surrogates (%R)
SHAD041DP002SS01NS	Ethylbenzene	J+ (all detects)	A	Matrix spike/Matrix spike duplicate (%R)
SHAD041DP002SS01NS	Ethylbenzene	J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD)
SHAD041DP002SS01NS	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects)	A	Internal standards (area)
SHAD041DP025SS01NS SHAD041DP020SS01NS	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total 1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Internal standards (area)
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP002SS01NS	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

\* A non-biased (J) flag will always supersede biased (J+ or J-) flags since it is not possible to assess the direction of the potential bias.

**Sharpe Army Depot, Quarterly GM, 3Q17**  
**Volatiles - Laboratory Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

**Sharpe Army Depot, Quarterly GM, 3Q17**  
**Volatiles - Field Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

**METHOD:** GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	FSD ≤ 1570.1 <sup>2</sup> ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1
VII.	Surrogate spikes	M	
VIII.	Matrix spike/Matrix spike duplicates	M	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N/A	
XI.	Internal standards	M	
XII.	Compound quantitation RL/LOQ/LODs	A	
XIII.	Target compound identification	A	
XIV.	System performance	A	
XV.	Overall assessment of data	D	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank  
 N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:  
 SW = See worksheet FB = Field blank EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TB 100317 01	160-24848-1	Water	10/03/17
2	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
3	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
4	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
5	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
6	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
7	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
8	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
9	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
10	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
11	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
12	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
13	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17

LDC #: 39889A1

VALIDATION COMPLETENESS WORKSHEET

Date: 11/29/17

SDG #: 160-24848-1

Level IV

Page: 2 of 2

Laboratory: Test America, Inc.

Reviewer: [Signature]  
2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

	Client ID	Lab ID	Matrix	Date
14	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
15	<del>SHAD041DP020SS02NS</del>	<del>160-24848-15</del>	<del>Soil</del>	<del>10/03/17</del>
16	SHAD041DP020SS03NS	160-24848-16	Soil	10/03/17
17	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
18	<del>SHAD041DP020SS04DS</del>	<del>160-24848-18</del>	<del>Soil</del>	<del>10/03/17</del>
19	SHAD041DP002SS01NS**	160-24848-19**	Soil	10/04/17
20	<del>SHAD041DP002SS02NS</del>	<del>160-24848-20</del>	<del>Soil</del>	<del>10/04/17</del>
21	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
22	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
23	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
24	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
25	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
26	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
27	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
28	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
29	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
30	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
31	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
32	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
33	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
34	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
35				
36				
37				
38				
39				

Notes:




VALIDATION FINDINGS CHECKLIST

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
Were all technical holding times met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was cooler temperature criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIa. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $> 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIb. Initial Calibration Verification</b>				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $< 20\%$ or percent recoveries (%R) 80-120%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Laboratory Blanks</b>				
Was a laboratory blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Field blanks</b>				
Were field blanks were identified in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Surrogate spikes</b>				
Were all surrogate percent recovery (%R) within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**VALIDATION FINDINGS CHECKLIST**

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	/			
Was a MS/MSD analyzed every 20 samples of each matrix?	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		/		
<b>IX. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>X. Field duplicates</b>				
Were field duplicate pairs identified in this SDG?		/		
Were target compounds detected in the field duplicates?			/	
<b>XI. Internal standards</b>				
Were internal standard area counts within -50% to +100% of the associated calibration standard?		/		
Were retention times within + 30 seconds of the associated calibration standard?	/			
<b>XII. Compound quantitation</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			



# TARGET COMPOUND WORKSHEET

**METHOD: VOA**

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.







FORM III  
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica St. Louis

Job No.: 160-24848-1

SDG No.: \_\_\_\_\_

Matrix: Solid Level: Low

Lab File ID: XSMP9077.D

Lab ID: 160-24848-19 MS

Client ID: SHAD041DP002SS01NS MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	47.3	1.0 U	96.9	205	73-130	Q J
1,1,2,2-Tetrachloroethane	47.3	1.0 U	128	271	70-124	Q J
1,1,2-Trichloroethane	47.3	1.0 U	97.4	206	78-121	Q J
1,1-Dichloroethane	47.3	1.0 U	96.1	203	76-125	Q J
1,1-Dichloroethene	47.3	5.0 U	91.8	194	70-131	Q J
1,2-Dichlorobenzene	47.3	1.0 U	93.8	198	78-121	Q J
1,2-Dichloroethane	47.3	1.0 U	94.1	199	73-128	Q J
1,2-Dichloropropane	47.3	1.0 U	98.3	208	76-123	Q J
1,4-Dichlorobenzene	47.3	1.0 U	99.5	210	75-120	Q J
Benzene	47.3	1.0 U	93.4	197	77-121	Q J
Bromoform	47.3	1.0 U	138	291	67-132	Q J
Carbon tetrachloride	47.3	1.0 U	94.6	200	70-135	Q J
Chlorodibromomethane	47.3	1.0 U	100	212	74-126	Q J
Chloroform	47.3	1.0 U	94.3	199	78-123	Q J
Chloromethane	47.3	5.0 U	85.9	182	50-136	Q J
cis-1,2-Dichloroethene	47.3	1.0 U	96.4	204	77-123	Q J
cis-1,3-Dichloropropene	47.3	1.0 U	83.6	177	74-126	Q J
Bromodichloromethane	47.3	1.0 U	93.3	197	75-127	Q J
Ethylbenzene	47.3	<i>dots</i> 0.81 J	107	224	76-122	Q J
Methylene Chloride	47.3	5.0 U	94.3	199	70-128	Q J
Tetrachloroethene	47.3	1.0 U	94.9	201	73-128	Q J
Toluene	47.3	1.0 U	103	218	77-121	Q J
trans-1,2-Dichloroethene	47.3	1.0 U	92.3	195	74-125	Q J
trans-1,3-Dichloropropene	47.3	1.0 U	94.8	200	71-130	Q J
Trichloroethene	47.3	1.0 U	89.3	189	77-123	Q J
Vinyl chloride	47.3	1.0 U	78.6	166	56-135	Q J

# Column to be used to flag recovery and RPD values

FORM III  
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica St. Louis

Job No.: 160-24848-1

SDG No.: \_\_\_\_\_

Matrix: Solid Level: Low

Lab File ID: XSMP9078.D

Lab ID: 160-24848-19 MSD

Client ID: SHAD041DP002SS01NS MSD

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
1,1,1-Trichloroethane	47.7	49.0	103	66	20	73-130	J
1,1,2,2-Tetrachloroethane	47.7	64.1	134	67	20	70-124	J
1,1,2-Trichloroethane	47.7	51.5	108	62	20	78-121	J
1,1-Dichloroethane	47.7	49.4	103	64	20	76-125	J
1,1-Dichloroethene	47.7	46.4	97	66	20	70-131	J
1,2-Dichlorobenzene	47.7	42.8	90	75	20	78-121	J
1,2-Dichloroethane	47.7	50.7	106	60	20	73-128	J
1,2-Dichloropropane	47.7	51.3	108	63	20	76-123	J
1,4-Dichlorobenzene	47.7	44.2	93	77	20	75-120	J
Benzene	47.7	47.5	100	65	20	77-121	J
Bromoform	47.7	68.5	144	67	20	67-132	J
Carbon tetrachloride	47.7	46.4	97	68	20	70-135	J
Chlorodibromomethane	47.7	50.6	106	66	20	74-126	J
Chloroform	47.7	48.3	101	65	20	78-123	J
Chloromethane	47.7	45.6	96	61	20	50-136	J
cis-1,2-Dichloroethene	47.7	50.3	105	63	20	77-123	J
cis-1,3-Dichloropropene	47.7	45.0	94	60	20	74-126	J
Bromodichloromethane	47.7	48.9	102	62	20	75-127	J
Ethylbenzene	47.7	<i>dots</i> 45.9	94	80	20	76-122	J
Methylene Chloride	47.7	49.0	103	63	20	70-128	J
Tetrachloroethene	47.7	43.4	91	74	20	73-128	J
Toluene	47.7	49.1	103	71	20	77-121	J
trans-1,2-Dichloroethene	47.7	47.5	100	64	20	74-125	J
trans-1,3-Dichloropropene	47.7	49.7	104	62	20	71-130	J
Trichloroethene	47.7	44.4	93	67	20	77-123	J
Vinyl chloride	47.7	42.0	88	61	20	56-135	J

# Column to be used to flag recovery and RPD values



Fluorobenzene	Chlorobenzene-d5	1,4-Dichlorobenzene-d4
Benzene Bromodichloromethane Carbon tetrachloride Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane cis-1,3-Dichloropropene Methylene Chloride 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	Dibromochloromethane 1,1,2-Trichloroethane trans-1,3-Dichloropropene Tetrachloroethene Toluene Ethylbenzene Xylenes, total	1,1,2,2-Tetrachloroethane 1,4-Dichlorobenzene 1,2-Dichlorobenzene Bromoform







**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (A_x)(C_b) / (A_b)(C_x)$

Where: ave. RRF = initial calibration average RRF  
 RRF = continuing calibration RRF  
 $A_x$  = Area of compound,  
 $C_x$  = Concentration of compound,  
 $A_b$  = Area of associated internal standard  
 $C_b$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	XXXV9071	10/8/17	S (1st internal standard)	0.2730	0.2763	0.2763	1.2	1.2
			EE (2nd internal standard)	1.9551	2.158	2.158	10.4	10.4
			HHH (3rd internal standard)	1.6093	1.592	1.592	1.1	1.1
			(4th internal standard)					
2			F (5th internal standard)					
			S (2nd internal standard)					
			AA (3rd internal standard)					
			BB (4th internal standard)					
3			F (5th internal standard)					
			S (2nd internal standard)					
			AA (3rd internal standard)					
			BB (4th internal standard)					
4			BB (5th internal standard)					
			S (2nd internal standard)					
			AA (3rd internal standard)					
			BB (4th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * ((SSC - SC) / SA)$       Where: SSC = Spiked sample concentration      SC = Sample concentration  
 SA = Spike added

RPD =  $|MSC - MSC| * 2 / (MSC + MSDC)$       MSC = Matrix spike concentration      MSDC = Matrix spike duplicate concentration

MS/MSD sample: 2/30

Compound	Spike Added		Sample Concentration	Spiked Sample Concentration		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD		MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	47.3	47.7	ND	91.8	46.4	194	194	97	97	66	66
Trichloroethene				89.3	44.4	189	189	93	93	67	67
Benzene				93.4	47.5	197	197	100	100	65	65
Toluene				103	49.1	218	218	103	103	71	71
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$

Where: SSC = Spiked sample concentration  
SA = Spike added

RPD =  $100 * (LCS - LCSDC) / (LCS + LCSDC)$

LCS = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 160-32081A

Compound	Spike Added ( <u>150</u> )		Spiked Sample Concentration ( <u>50.0</u> )		LCS		LCSD		Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
1,1-Dichloroethene	<u>50.0</u>	<u>50.0</u>	<u>51.5</u>	<u>50.0</u>	<u>103</u>	<u>103</u>	<u>100</u>	<u>100</u>	<u>3</u>	<u>3</u>	<u>100</u>	<u>100</u>	<u>3</u>	<u>3</u>
Trichloroethene			<u>51.3</u>	<u>50.0</u>	<u>103</u>	<u>103</u>	<u>100</u>	<u>100</u>	<u>3</u>	<u>3</u>	<u>100</u>	<u>100</u>	<u>3</u>	<u>2</u>
Benzene			<u>51.1</u>	<u>50.5</u>	<u>102</u>	<u>102</u>	<u>101</u>	<u>101</u>	<u>1</u>	<u>1</u>	<u>101</u>	<u>101</u>	<u>1</u>	<u>1</u>
Toluene			<u>50.8</u>	<u>50.8</u>	<u>102</u>	<u>102</u>	<u>102</u>	<u>102</u>	<u>0</u>	<u>0</u>	<u>102</u>	<u>102</u>	<u>0</u>	<u>0</u>
Chlorobenzene														

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

## VALIDATION FINDINGS WORKSHEET

### Surrogate Results Verification

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$ Where: SF = Surrogate Found  
SS = Surrogate SpikedSample ID: 2

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	50.0	65.8	132	132	0
1,2-Dichloroethane-d4	↓	65.9	132	132	
Toluene-d8	↓	76.4	153	153	↓
Bromofluorobenzene	↓	87.3	175	175	↓

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					





## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 13, 2017

**Parameters:** Polynuclear Aromatic Hydrocarbons

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24848-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SHAD041DP025SS01NS	160-24848-2	Soil	10/03/17
SHAD041DP025SS02NS	160-24848-3	Soil	10/03/17
SHAD041DP025SS03NS	160-24848-4	Soil	10/03/17
SHAD041DP025SS04NS	160-24848-5	Soil	10/03/17
SHAD041DP024SS01NS	160-24848-6	Soil	10/03/17
SHAD041DP024SS02NS	160-24848-7	Soil	10/03/17
SHAD041DP024SS03NS	160-24848-8	Soil	10/03/17
SHAD041DP024SS04NS	160-24848-9	Soil	10/03/17
SHAD041DP019SS01NS	160-24848-10	Soil	10/03/17
SHAD041DP019SS02NS	160-24848-11	Soil	10/03/17
SHAD041DP019SS03NS	160-24848-12	Soil	10/03/17
SHAD041DP019SS04NS	160-24848-13	Soil	10/03/17
SHAD041DP020SS01NS	160-24848-14	Soil	10/03/17
SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polynuclear Aromatic Hydrocarbons (PAHs) by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. GC/MS Instrument Performance Check**

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## **V. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **VI. Field Blanks**

No field blanks were identified in this SDG.

## VII. Surrogates

Surrogates were added to all samples as required by the method. Surrogate recoveries (%R) were not within QC limits for sample SHAD041DP002SS01NS. No data were qualified for samples analyzed at greater than or equal to 5X dilution.

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were not within QC limits. No data were qualified since there were no associated samples in this SDG.

## IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Internal Standards

All internal standard areas and retention times were within QC limits.

## XII. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP002SS01NS	All compounds reported below the LOQ.	J (all detects)	A

## XIII. Target Compound Identifications

All target compound identifications were within validation criteria.



#### **XIV. System Performance**

The system performance was acceptable.

#### **XV. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**Sharpe Army Depot, SHAD-041, TO 16  
 Polynuclear Aromatic Hydrocarbons - Data Qualification Summary - SDG 160-24848-1**

Sample	Compound	Flag	A or P	Reason
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP002SS01NS	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

**Sharpe Army Depot, SHAD-041, TO 16  
 Polynuclear Aromatic Hydrocarbons - Laboratory Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

**Sharpe Army Depot, SHAD-041, TO 16  
 Polynuclear Aromatic Hydrocarbons - Field Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

LDC #: 39889A2b

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24848-1

Level IV

Laboratory: Test America, Inc.

Date: 11/29/17

Page: 6 of 7

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	AA	RSD ≤ 15/0. ICV ≤ 20/0
IV.	Continuing calibration / pending	A	CCV ≤ 20/50/0
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	TW	
VIII.	Matrix spike/Matrix spike duplicates	TW	RPO out for 30/31 - No ass'd sp/
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	
XIII.	Target compound identification	A	
XIV.	System performance	A	
XV.	Overall assessment of data	A	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17

LDC #: 39889A2b  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**

Level IV

Date: 11/29/17  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270D-SIM)

	Client ID	Lab ID	Matrix	Date
14	<del>SHAD041DP020SS02NS</del>	<del>160-24848-15</del>	Soil	10/03/17
15	<del>SHAD041DP020SS03NS</del>	<del>160-24848-16</del>	Soil	10/03/17
16	<del>SHAD041DP020SS04NS</del>	<del>160-24848-17</del>	Soil	10/03/17
17	<del>SHAD041DP020SS04DS</del>	<del>160-24848-18</del>	Soil	10/03/17
18	SHAD041DP002SS01NS **	160-24848-19 **	Soil	10/04/17
19	<del>SHAD041DP002SS02NS</del>	<del>160-24848-20</del>	Soil	10/04/17
20	<del>SHAD041DP002SS03NS</del>	<del>160-24848-21</del>	Soil	10/04/17
21	<del>SHAD041DP002SS04NS</del>	<del>160-24848-22</del>	Soil	10/04/17
22	<del>SHAD041DP002SS05NS</del>	<del>160-24848-23</del>	Soil	10/04/17
23	<del>SHAD041DP002SS06NS</del>	<del>160-24848-24</del>	Soil	10/04/17
24	<del>SHAD041DP006SS01NS</del>	<del>160-24848-25</del>	Soil	10/04/17
25	<del>SHAD041DP006SS02NS</del>	<del>160-24848-26</del>	Soil	10/04/17
26	<del>SHAD041DP006SS03NS</del>	<del>160-24848-27</del>	Soil	10/04/17
27	<del>SHAD041DP006SS04NS</del>	<del>160-24848-28</del>	Soil	10/04/17
28	<del>SHAD041DP006SS05NS</del>	<del>160-24848-29</del>	Soil	10/04/17
29	<del>SHAD041DP006SS06NS</del>	<del>160-24848-30</del>	Soil	10/04/17
30	<del>SHAD041DP006SS04NSMS</del>	<del>160-24848-28MS</del>	Soil	10/04/17
31	<del>SHAD041DP006SS04NSMSD</del>	<del>160-24848-28MSD</del>	Soil	10/04/17
32				
33				
34				
35				
36				

Notes:


VALIDATION FINDINGS CHECKLIST

Method: PAH (EPA SW 846 Method 8270D-SIM)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
Were all technical holding times met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was cooler temperature criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check (Not required)</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIa. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq$ <sup>15</sup> 20% and relative response factors (RRF) $\geq$ 0.05?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of $> 0.990$ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>IIIb. Initial Calibration Verification</b>				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq$ 30% or percent recoveries (%R) 70-130%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20%?
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq$ 20% and relative response factors (RRF) $\geq$ 0.05?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Laboratory Blanks</b>				
Was a laboratory blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a laboratory blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VI. Field blanks</b>				
Were field blanks identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Surrogate spikes</b>				
Were all surrogate percent differences (%R) within QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any percent recoveries (%R) was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	



VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>IX. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per analytical batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>X. Field duplicates</b>				
Were field duplicate pairs identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field duplicates?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>XI. Internal standards</b>				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were retention times within + 30 seconds of the associated calibration standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XII. Compound quantitation</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XIII. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were chromatogram peaks verified and accounted for?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XIV. System performance</b>				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

# VALIDATION FINDINGS WORKSHEET

**METHOD: GC/MS SVOA**

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU. Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV. Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW. Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

**METHOD:** GC/MS PAH

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$        $A_x$  = Area of compound,       $A_{is}$  = Area of associated internal standard  
 average RRF = sum of the RRFs/number of standards       $C_x$  = Concentration of compound,       $C_{is}$  = Concentration of internal standard  
 $\%RSD = 100 * (S/X)$       S = Standard deviation of the RRFs,      X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported		Recalculated		Reported		Recalculated	
				RRF (1.0 std)	RRF (1.0 std)	RRF (1.0 std)	Average RRF (initial)	Average RRF (initial)	%RSD	%RSD	
1	ICAL (SMSI)	10/19/17	Naphthalene (2nd internal standard)	1.1256	1.1256	1.1005	1.1005	4.9	4.9		
			Fluorene (3rd internal standard)	1.6036	1.6036	1.5694	1.5694	8.3	8.3		
			Phenanthrene (4th internal standard)	1.3614	1.3614	1.2720	1.2720	7.6	7.6		
			Pyrene (5th internal standard)	1.4261	1.4261	1.3900	1.3900	5.9	5.9		
			Benzo(a)pyrene (6th internal standard)	1.3052	1.3052	1.2909	1.2909	4.6	4.6		
2			Naphthalene (2nd internal standard)								
			Fluorene (3rd internal standard)								
			Phenanthrene (4th internal standard)								
			Pyrene (5th internal standard)								
			Benzo(a)pyrene (6th internal standard)								
3			Naphthalene (2nd internal standard)								
			Fluorene (3rd internal standard)								
			Phenanthrene (4th internal standard)								
			Pyrene (5th internal standard)								
			Benzo(a)pyrene (6th internal standard)								
4			Naphthalene (2nd internal standard)								
			Fluorene (3rd internal standard)								
			Phenanthrene (4th internal standard)								
			Pyrene (5th internal standard)								
			Benzo(a)pyrene (6th internal standard)								

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Results Verification**

**METHOD:** GC/MS PAHs (EPA SW 846 Method 8270D-SIM)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$       Where:      ave. RRF = initial calibration average RRF  
 $\text{RRF} = (A_x)(C_{is}) / (A_{is})(C_x)$       RRF = continuing calibration RRF  
 $A_x$  = Area of compound,       $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,       $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported		Recalculated	
					RRF (CC)	%D	RRF (CC)	%D
1	14969	10/25/17	Naphthalene (2nd internal standard)	1.1005	1.072	2.6	1.072	2.6
			Fluorene (3rd internal standard)	1.5694	1.497	4.6	1.497	4.6
			Phenanthrene (4th internal standard)	1.2720	1.283	0.9	1.283	0.9
			Pyrene (5th internal standard)	1.3900	1.387	0.2	1.387	0.2
			Benzo(a)pyrene (6th internal standard)	1.2909	1.265	2.0	1.265	2.0
2	15000	10/26/17	Naphthalene (2nd internal standard)	1.1005	1.070	2.8	1.070	2.8
			Fluorene (3rd internal standard)	1.5694	1.465	6.6	1.465	6.6
			Phenanthrene (4th internal standard)	1.2720	1.302	2.3	1.302	2.3
			Pyrene (5th internal standard)	1.3900	1.309	5.8	1.309	5.8
			Benzo(a)pyrene (6th internal standard)	1.2909	1.287	0.3	1.287	0.3
3			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Phenanthrene (4th internal standard)					
			Pyrene (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
4			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Phenanthrene (4th internal standard)					
			Pyrene (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

**METHOD:** GC/MS PAHs (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS * 100$

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5	1.50	1.045	70	70	0
2-Fluorobiphenyl	✓	0.920	61	61	
Terphenyl-d14	✓	1.302	87	87	✓

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

**METHOD:** GC/MS PAHs (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SSC - SC) / SA$       Where: SSC = Spiked sample concentration      SC = Sample concentration  
 SA = Spike added  
 RPD =  $|MSC - MSC| * 2 / (MSC + MSDC)$       MSC = Matrix spike concentration      MSDC = Matrix spike duplicate concentration  
 MS/MSD samples: 30/31

Compound	Spike Added (MS)		Sample Concentration (MS)		Spiked Sample Concentration (MS)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	MS	MSD	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Acenaphthene	39.9	40.0	ND	ND	27.6	23.3	69	69	58	58	17	17
Pyrene	↓	↓	↓	↓	34.1	28.9	86	86	72	72	17	17

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: Q

2nd Reviewer: MLC

**METHOD:** GC/MS PAHs (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SC/SA)$

Where: SSC = Spike concentration  
SA = Spike added

RPD =  $100 * (LCS - LCSDC) / (LCS + LCSDC)$

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 160-331070

Compound	Spike Added ( <u>MS</u> )		Spike Concentration ( <u>RPD</u> )		LCS		LCSD		Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalc	Reported	Recalc	Reported	Recalc
Acenaphthene	33.3	NA	20.9	NA	63	63								
Pyrene	↓	↓	24.8	↓	74	74								

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 13, 2017

**Parameters:** Polychlorinated Biphenyls

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24848-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SHAD041DP025SS01NS	160-24848-2	Soil	10/03/17
SHAD041DP025SS02NS	160-24848-3	Soil	10/03/17
SHAD041DP025SS03NS	160-24848-4	Soil	10/03/17
SHAD041DP025SS04NS	160-24848-5	Soil	10/03/17
SHAD041DP024SS01NS	160-24848-6	Soil	10/03/17
SHAD041DP024SS02NS	160-24848-7	Soil	10/03/17
SHAD041DP024SS03NS	160-24848-8	Soil	10/03/17
SHAD041DP024SS04NS	160-24848-9	Soil	10/03/17
SHAD041DP019SS01NS	160-24848-10	Soil	10/03/17
SHAD041DP019SS02NS	160-24848-11	Soil	10/03/17
SHAD041DP019SS03NS	160-24848-12	Soil	10/03/17
SHAD041DP019SS04NS	160-24848-13	Soil	10/03/17
SHAD041DP020SS01NS	160-24848-14	Soil	10/03/17
SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17



## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Biphenyls (PCBs) by Environmental Protection Agency (EPA) SW 846 Method 8082A

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were established as required by the method.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## **III. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

Retention times of all compounds in the calibration standards were within the established retention time windows.

## **IV. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **V. Field Blanks**

No field blanks were identified in this SDG.

## **VI. Surrogates/Internal Standards**

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

All internal standard areas and retention times were within QC limits.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

### VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

### IX. Field Duplicates

No field duplicates were identified in this SDG.

### X. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP002SS01NS	All compounds reported below the LOQ.	J (all detects)	A

### XI. Target Compound Identification

All target compound identifications met validation criteria.

### XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**Sharpe Army Depot, SHAD-041, TO 16  
 Polychlorinated Biphenyls - Data Qualification Summary - SDG 160-24848-1**

Sample	Compound	Flag	A or P	Reason
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP002SS01NS	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

**Sharpe Army Depot, SHAD-041, TO 16  
 Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG  
 160-24848-1**

No Sample Data Qualified in this SDG

**Sharpe Army Depot, SHAD-041, TO 16  
 Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG 160-  
 24848-1**

No Sample Data Qualified in this SDG



LDC #: 39889A3b

## VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24848-1

Level IV

Laboratory: Test America, Inc.

Date: 11/20/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration/ICV	A/A	RSO = 20%. ICV = 20%
III.	Continuing calibration	A	CCV = 20%
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Surrogate spikes / IS	A/A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LOS
IX.	Field duplicates	N	
X.	Compound quantitation/RL/LOQ/LODs	A	
XI.	Target compound identification	A	
XII.	Overall assessment of data	A	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
14	<del>SHAD041DP020SS02NS</del>	<del>160-24848-15</del>	<del>Soil</del>	<del>10/03/17</del>
15	<del>SHAD041DP020SS03NS</del>	<del>160-24848-16</del>	<del>Soil</del>	<del>10/03/17</del>
16	<del>SHAD041DP020SS04NS</del>	<del>160-24848-17</del>	<del>Soil</del>	<del>10/03/17</del>
17	<del>SHAD041DP020SS04DS</del>	<del>160-24848-18</del>	<del>Soil</del>	<del>10/03/17</del>

LDC #: 39889A3b

# VALIDATION COMPLETENESS WORKSHEET

Date: 11/30/17

SDG #: 160-24848-1

Level IV

Page: 2

Laboratory: Test America, Inc.

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC Polychlorinated Biphenyls (EPA SW846 Method 8082A)

	Client ID	Lab ID	Matrix	Date
18	SHAD041DP002SS01NS **	160-24848-19 **	Soil	10/04/17
19	<del>SHAD041DP002SS02NS</del>	<del>160-24848-20</del>	<del>Soil</del>	<del>10/04/17</del>
20	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
31	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
32	SHAD041DP002SS03NSMS	160-24848-21MS	Soil	10/04/17
33	SHAD041DP002SS03NSMSD	160-24848-21MSD	Soil	10/04/17
34	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
35	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
36				
37				
38				
39				
40				

Notes:


Method:  GC  HPLC

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
Were all technical holding times met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was cooler temperature criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIa. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) < 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIb. Initial calibration verification</b>				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) < 20% or percent recoveries (%R) 80-120%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Continuing calibration</b>				
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) < 20% or percent recoveries (%R) 80-120%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Laboratory Blanks</b>				
Was a laboratory blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a laboratory blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>V. Field Blanks</b>				
Were field blanks identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VI. Surrogate spikes</b>				
Were all surrogate percent recovery (%R) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IX. Field duplicates</b>				
Were field duplicate pairs identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field duplicates?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>X. Compound quantitation</b>				
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XI. Target compound identification</b>				
Were the retention times of reported detects within the RT windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>XIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 2989A36

# VALIDATION FINDINGS WORKSHEET

## Initial Calibration Calculation Verification

Page: 1 of 1  
Reviewer: Q  
2nd Reviewer: CK

METHOD: GC  HPLC \_\_\_\_\_

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

Where: A = Area of compound  
C = Concentration of compound  
S = Standard deviation of calibration factors  
X = Mean of calibration factors

CF = A/C  
Average CF = sum of the CF/number of standards  
%RSD =  $100 * (S/X)$

#	Standard ID	Calibration Date	Compound	Reported		Recalculated		Reported		Recalculated	
				CF (1000 std)	CF (1000 std)	Ave CF (initial)	Ave CF (initial)	%RSD	%RSD		
1	1CAZ	9/18/17	PUB-1260-1(R-3)	0.0375	0.0375	0.0375	0.0375	5.8	5.8	5.8	5.8
2											
3											
4											

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



LDC #: 29889A26

**VALIDATION FINDINGS WORKSHEET**  
Continuing Calibration Results Verification

Page: 1 of 1  
Reviewer: 9  
2nd Reviewer: 18K

METHOD: GC  HPLC \_\_\_\_\_

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. CF} - \text{CF}) / \text{ave. CF}$       Where:    ave. CF = initial calibration average CF  
CF = continuing calibration CF  
A = Area of compound  
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF (cal)/ CCV Conc.	Reported		Recalculated	
					CF/ Conc. CCV	%D	CF/ Conc. CCV	%D
1	KCCV997	10/13/17	REB-260-1 (10X10P)	0.0363	0.0398	9.9	0.0398	9.8
2	KCCV988	10/13/17	✓	0.0363	0.0406	11.9	0.0406	11.8
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**

Page: 1 of 1  
 Reviewer: Q  
 2nd reviewer: KK

LDC #: 27007A 30  
 METHOD: ✓ GC     HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100  
 Where: SF = Surrogate Found  
 SS = Surrogate Spiked

Sample ID:    

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	
<u>DEB</u>	<u>RTX-C-Redz</u>	<u>20.1</u>	<u>19.6</u>	<u>98</u>	<u>98</u>	<u>0</u>

Sample ID:    

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	

Sample ID:    

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery		Percent Difference
				Reported	Recalculated	

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

**METHOD:**  GC  HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery =  $100 * (SSC - SC) / SA$       Where      SSC = Spiked sample concentration      SC = Sample concentration  
 SA = Spike added  
 RPD =  $((SSCMS - SSCMSD) * 2) / (SSCMS + SSCMSD) * 100$       MSD = Matrix spike duplicate

MS/MSD samples: 39/31

Compound	Spike Added (MS/MSD)		Sample Conc. (RPD)	Spike Sample Concentration (MS/MSD)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD		MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
<del>X</del> PUB-1260	169	169	NO	167	176	99	99	104	104	5	5

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification**

METHOD:  GC  HPLC

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SSC-SC)/SA$  Where: SSC = Spiked sample concentration SC = Concentration  
 RPD =  $100 * (SSCLCS - SSCLCSD) / ((SSCLCS + SSCLCSD) / 2)$  SA = Spike added  
 LCS = Laboratory control sample percent recovery LCS = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: 160-331017

Compound	Spike Added		Spiked Sample Concentration		LCS		LCS/LCSD		LCS		LCS/LCSD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)												
Diesel (8015)												
Benzene (8021B)												
Methane (RSK-175)												
2,4-D (8151)												
Dinoseb (8151)												
Naphthalene (8310)												
Anthracene (8310)												
HMX (8330)												
2,4,6-Trinitrotoluene (8330)												
<u>PCP-1260</u>	<u>167</u>	<u>NA</u>	<u>187</u>	<u>NA</u>	<u>112</u>	<u>112</u>						

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

VALIDATION FINDINGS WORKSHEET  
Sample Calculation Verification

LDC #: 3889A36

Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

METHOD:  GC  HPLC

Y/N N/A Were all reported results recalculated and verified for all level IV samples?  
 Y/N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration =  $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$  Example:  
 Sample ID: 1-13, 18=ND Compound Name: PAB-1260  
~~#24~~ # 24 (1) on RTX-cpust =  
 Concentration =  $(\frac{84630321}{50.57}) (0.0363) = 50.52$   
 $(84630321) (0.0363)$   
 $Conc = \frac{(50.57 \times 304.787.0 + 88.9) (10) (1)}{4 \times 30.35 \times 0.99} = 210.1 \mu g$

#	Sample ID	Compound	Reported Concentrations	Recalculated Results Concentrations	Qualifications
	<u>24</u>	<u>PAB-1260</u>	<u>210</u>		

Comments: \_\_\_\_\_



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 13, 2017

**Parameters:** Metals

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24848-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SHAD041DP025SS01NS	160-24848-2	Soil	10/03/17
SHAD041DP025SS02NS	160-24848-3	Soil	10/03/17
SHAD041DP025SS03NS	160-24848-4	Soil	10/03/17
SHAD041DP025SS04NS	160-24848-5	Soil	10/03/17
SHAD041DP024SS01NS	160-24848-6	Soil	10/03/17
SHAD041DP024SS02NS	160-24848-7	Soil	10/03/17
SHAD041DP024SS03NS	160-24848-8	Soil	10/03/17
SHAD041DP024SS04NS	160-24848-9	Soil	10/03/17
SHAD041DP019SS01NS	160-24848-10	Soil	10/03/17
SHAD041DP019SS02NS	160-24848-11	Soil	10/03/17
SHAD041DP019SS03NS	160-24848-12	Soil	10/03/17
SHAD041DP019SS04NS	160-24848-13	Soil	10/03/17
SHAD041DP020SS01NS	160-24848-14	Soil	10/03/17
SHAD041DP020SS02NS	160-24848-15	Soil	10/03/17

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Chromium and Lead by Environmental Protection Agency (EPA) SW 846 Method 6010C

All sample results were subjected to Stage 4 evaluation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition.

All technical holding time requirements were met.

## **II. Instrument Calibration**

Initial and continuing calibrations were performed as required by the method.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits.

## **III. ICP Interference Check Sample Analysis**

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

## **IV. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **V. Field Blanks**

No field blanks were identified in this SDG.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were not within QC limits. No data were qualified since there were no associated samples in this SDG. Relative percent differences (RPD) were within QC limits.

## **VII. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VIII. Serial Dilution**

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

## **IX. Laboratory Control Samples**

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## X. Field Duplicates

No field duplicates were identified in this SDG.

## XI. Sample Result Verification

All sample result verifications were acceptable.

All compounds reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP020SS02NS	All compounds reported below the LOQ.	J (all detects)	A

## XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.



**Sharpe Army Depot, SHAD-041, TO 16  
Metals - Data Qualification Summary - SDG 160-24848-1**

Sample	Compound	Flag*	A or P	Reason
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP020SS02NS	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

**Sharpe Army Depot, SHAD-041, TO 16  
Metals - Laboratory Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

**Sharpe Army Depot, SHAD-041, TO 16  
Metals - Field Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

LDC #: 39889A4b  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR/IV

Date: 12-6-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Instrument Calibration	A	
III.	ICP Interference Check Sample (ICS) Analysis	A	
IV.	Laboratory Blanks	A	ICB/CCB only
V.	Field Blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	Not reviewed for ADR validation. MS/MSD
VII.	Duplicate sample analysis	N	Not reviewed for ADR validation.
VIII.	Serial Dilution	SW	SD: 18, 27
IX.	Laboratory control samples	A	Not reviewed for ADR validation. LCS
X.	Field Duplicates	N	D=16+17
XI.	Sample Result Verification	A	Not reviewed for ADR validation.
XII.	Overall Assessment of Data	A	Not reviewed for ADR validation.

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
14	SHAD041DP020SS02NS**	160-24848-15**	Soil	10/03/17
15	SHAD041DP020SS03NS**	160-24848-16**	Soil	10/03/17
16	SHAD041DP020SS04NS**	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17

LDC #: 39889A4b  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR/IV

Date: 12-6-17  
 Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD:** Cr & Pb (EPA SW 846 Method 6010C)

	Client ID	Lab ID	Matrix	Date
18	<del>SHAD041DP002SS01NS</del>	160-24848-19	Soil	10/04/17
19	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
31	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
32	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
33	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
34				
35				
36				
37	PBS1			
38	PBS2			

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Metals (EPA SW 846 Method 6010/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. ICP/MS Tune</b>				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?			✓	
Were %RSD of isotopes in the tuning solution $\leq 5\%$ ?			✓	
<b>III. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients $> 0.995$ ?	✓			
<b>IV. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>V. ICP Interference Check Sample</b>				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
<b>VI. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\pm RL$ ( $\pm 2X RL$ for soil) was used for samples that were $\leq 5X$ the RL, including when only one of the duplicate sample values were $< 5X$ the RL.	✓			
<b>VII. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)</b>				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
<b>IX. ICP Serial Dilution</b>				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?		✓		
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
<b>X. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
<b>XI. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>XII. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>XIII. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	









**VALIDATION FINDINGS WORKSHEET**  
**Initial and Continuing Calibration Calculation Verification**

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated		Reported		Acceptable (Y/N)
					%R		%R		
1512 ICV	ICP (Initial calibration)	Cr	4973	5000	99		99		Y
	ICP/MS (Initial calibration)								
	CVAA (Initial calibration)								
0018 CCV	ICP (Continuing calibration)	Pb	4922	5000	98		98		↓
	ICP/MS (Continuing calibration)								
	CVAA (Continuing calibration)								
	GFAA (Initial calibration)								
	GFAA (Continuing calibration)								

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39889A46

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
 Reviewer: MG  
 2nd Reviewer: \_\_\_\_\_

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation,  
 Found = SSR (spiked sample result) - SR (sample result).  
 True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration  
 D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (mg/L)  
 SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated		Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
1530 ICSA B	ICP interference check	Pb	2268 (ug/L)	2500 (ug/L)	91	91	Y
0005 LCS	Laboratory control sample	Cr	82.80 (mg/kg)	91.0 (mg/kg)	91	91	
0201 30	Matrix spike	Pb	104.8 (mg/kg) (SSR-SR)	87.4 (mg/kg)	120	120	
0201 / 0205 30 / 31	Duplicate	Cr	110.5 (mg/kg)	126.5 (mg/kg)	14	13	
0152 / 0156 18	ICP serial dilution	Pb	244.1 (mg/kg)	270.7 (mg/kg)	11	11	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.



LDC #: 39809A46

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

Page: 1 of 1  
 Reviewer: MG  
 2nd reviewer:           

**METHOD:** Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
- N N/A Are all detection limits below the CRDL?

Detected analyte results for # 1, Pb were recalculated and verified using the following equation:

Concentration =  $\frac{(RD)(FV)(Dil)}{(In. Vol.)}$

Recalculation:

RD = Raw data concentration  
 FV = Final volume (ml)  
 In. Vol. = Initial volume (ml) or weight (G)  
 Dil = Dilution factor

$$\frac{(1.017 \text{ mg/L})(0.050 \text{ L})(5)}{(0.0005360 \text{ kg})(0.959)} = 494.63 \text{ mg/kg}$$

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)	
1	1	Pb	490	490	Y	
2	2	Cr	10	10		
3	3	Pb	11	11		
4	4	Cr	9.4	9.4		
5	5	Pb	5.1	5.1		
6	6	Cr	19	19		
7	7	Pb	5.0	5.0		
8	8	Cr	9.5	9.5		
9	9	Pb	2.8	2.8		
10	10	Cr	11	11		
11	11	Pb	4.7	4.7		
12	12	Cr	11	11		
13	13	Pb	330	330		
14	14	Cr	16	16		
15	15	Pb	4.0	4.0		↓

Note: \_\_\_\_\_

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 13, 2017

**Parameters:** Hexavalent Chromium

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24848-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SHAD041DP025SS01NS	160-24848-2	Soil	10/03/17
SHAD041DP025SS02NS	160-24848-3	Soil	10/03/17
SHAD041DP025SS03NS	160-24848-4	Soil	10/03/17
SHAD041DP025SS04NS	160-24848-5	Soil	10/03/17
SHAD041DP024SS01NS	160-24848-6	Soil	10/03/17
SHAD041DP024SS02NS	160-24848-7	Soil	10/03/17
SHAD041DP024SS03NS	160-24848-8	Soil	10/03/17
SHAD041DP024SS04NS	160-24848-9	Soil	10/03/17
SHAD041DP019SS01NS	160-24848-10	Soil	10/03/17
SHAD041DP019SS02NS	160-24848-11	Soil	10/03/17
SHAD041DP019SS03NS	160-24848-12	Soil	10/03/17
SHAD041DP019SS04NS	160-24848-13	Soil	10/03/17
SHAD041DP020SS01NS	160-24848-14	Soil	10/03/17
SHAD041DP020SS02NS	160-24848-15	Soil	10/03/17

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Hexavalent Chromium by Environmental Protection Agency (EPA) SW 846 Method 7196A

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition.

All technical holding time requirements were met.

## **II. Initial Calibration**

All criteria for the initial calibration of each method were met.

## **III. Continuing Calibration**

Continuing calibration frequency and analysis criteria were met for each method when applicable.

## **IV. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **V. Field Blanks**

No field blanks were identified in this SDG.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were not within QC limits. No data were qualified since there were no associated samples in this SDG. Relative percent differences (RPD) were within QC limits.

## **VII. Duplicate Sample Analysis**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

## **VIII. Laboratory Control Samples**

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## **IX. Field Duplicates**

No field duplicates were identified in this SDG.



## X. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP020SS02NS	All analytes reported below the LOQ.	J (all detects)	A

## XI. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**Sharpe Army Depot, SHAD-041, TO 16  
Hexavalent Chromium - Data Qualification Summary - SDG 160-24848-1**

Sample	Analytes	Flag*	A or P	Reason
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS SHAD041DP020SS01NS SHAD041DP020SS02NS	All analytes reported below the LOQ.	J (all detects)	A	Sample result verification

**Sharpe Army Depot, SHAD-041, TO 16  
Hexavalent Chromium - Laboratory Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

**Sharpe Army Depot, SHAD-041, TO 16  
Hexavalent Chromium - Field Blank Data Qualification Summary - SDG 160-24848-1**

No Sample Data Qualified in this SDG

LDC #: 39889A6  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 -ADR/IV

Date: 12-6-17  
 Page: 1 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

**METHOD: (Analyte)** Hexavalent Chromium (EPA SW846 Method 7196A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	Not reviewed for ADR validation. MS/MSD
VII.	Duplicate sample analysis	N	Not reviewed for ADR validation.
VIII.	Laboratory control samples	A	Not reviewed for ADR validation. LCS
IX.	Field duplicates	N	D=16+17
X.	Sample result verification	A	Not reviewed for ADR validation.
XI	Overall assessment of data	A	Not reviewed for ADR validation

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinstate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
13	SHAD041DP020SS01NS**	160-24848-14**	Soil	10/03/17
14	SHAD041DP020SS02NS**	160-24848-15**	Soil	10/03/17
15	<del>SHAD041DP020SS03NS**</del>	<del>160-24848-16**</del>	<del>Soil</del>	<del>10/03/17</del>
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	<del>SHAD041DP020SS04DS</del>	160-24848-18	Soil	10/03/17

LDC #: 39889A6  
 SDG #: 160-24848-1  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR/IV

Date: 12-6-17  
 Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: Q

**METHOD: (Analyte) Hexavalent Chromium (EPA SW846 Method 7196A)**

	Client ID	Lab ID	Matrix	Date
18	1 SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17
19	1 SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	1 SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	2 SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	2 SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	2 SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	2 SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	2 SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	2 SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	2 SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	2 SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	2 SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	1 SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
31	1 SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
32	2 SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
33	2 SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
34				
35				
36				
37	1 PBS1			
38	2 PBS2			

Notes: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Method: Inorganics (EPA Method 7196 A )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq 2X$ CRDL ( $\leq 2X$ CRDL for soil) was used for samples that were $\leq 5X$ the CRDL, including when only one of the duplicate sample values were $\leq 5X$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	



LDC #: 39889A6

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: MG  
 2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	✓			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 39889A6

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer: [Signature]

METHOD: Inorganics, EPA Method 7196A

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Was a matrix spike analyzed for each matrix in this SDG?
- N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.
- N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?
- N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1	30	soil	Insoluble (Cr VI)	41 (75-125)			* none	No Qual. ↓
2	32	soil	Insoluble (Cr VI)	53 (75-125)				↓

Comments: \* Qualify parent only, parent sample not validated

LDC #: 39889A6

### VALIDATION FINDINGS WORKSHEET Initial and Continuing Calibration Calculation Verification

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer:

METHOD: Inorganics, Method 7196A

The correlation coefficient (r) for the calibration of Cr VI was recalculated. Calibration date: 10-11-17

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found}}{\text{True}} \times 100$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Abs. True (units)	Recalculated		Acceptable (Y/N)	
					r or %R	Reported r or %R		
Initial calibration	Cr VI	Blank	0.00 (mg/L)	0.000	$r^2 = 0.99999$	not reported	Y	
		Standard 1	0.01 ( )	0.007				
		Standard 2	0.10 ( )	0.083				
		Standard 3	0.30 ( )	0.252				
		Standard 4	0.50 ( )	0.419				
		Standard 5	-	-				
		Standard 6	-	-				
Calibration verification	Cr VI	0907	250.8 (mg/L)	250 (mg/L)	100	100	-	
		CCVI	-	-	-	-	-	-
		-	-	-	-	-	-	-

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39809A6

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

Page: 1 of 1  
Reviewer: MG  
2nd Reviewer:    

**METHOD:** Inorganics, Method 7196A

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where,      Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where,      S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated		Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	Cr VI	36.75 (mg/kg)	38.1 (mg/kg)	96	97	Y
30	Matrix spike sample	Cr VI	(SSR-SR) 33.87 (mg/kg)	37.9 (mg/kg)	89	89	↓
30/31	Duplicate sample	Cr VI	34.74 (mg/kg)	36.64 (mg/kg)	5	5	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

METHOD: Inorganics, Method 7196A

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y  N  N/A Have results been reported and calculated correctly?
- Y  N  N/A Are results within the calibrated range of the instruments?
- Y  N  N/A Are all detection limits below the CRQL?

Compound (analyte) results for #1, Cr VI reported with a positive detect were recalculated and verified using the following equation:

Concentration =  $Y = mx + b$       Recalculation:

where  $m = 0.84003$        $(0.067 - 0.051) = 0.84003(x) - 0.00068$

$b = -0.00068$        $0.0199 \text{ mg/L} = x$

$dil = 1x$       then  $\frac{(0.0199 \text{ mg/L})(0.100 \text{ L})}{(0.0025168 \text{ kg})(0.959)} = 0.824 \text{ mg/kg}$

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
1	1	Cr VI	0.82	0.82	Y
2	2		0.15	0.15	
3	3		0.71	0.71	
4	4		0.31	0.31	
5	5		0.34	0.34	
6	6		0.20	0.20	
7	7		0.27	0.27	
8	8		0.26	0.26	
9	9		0.19	0.18	
10	10		0.19	0.19	
11	11		0.22	0.22	
12	12		0.27	0.27	
13	13		2.1	2.1	
14	14		0.31	0.31	
15	15		0.27	0.27	

Note: \_\_\_\_\_



## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 13, 2017

**Parameters:** Polychlorinated Dioxins/Dibenzofurans

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24848-2

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
SHAD041DP025SS01NS	160-24848-2	Soil	10/03/17
SHAD041DP025SS02NS	160-24848-3	Soil	10/03/17
SHAD041DP025SS03NS	160-24848-4	Soil	10/03/17
SHAD041DP025SS04NS	160-24848-5	Soil	10/03/17
SHAD041DP024SS01NS	160-24848-6	Soil	10/03/17
SHAD041DP024SS02NS	160-24848-7	Soil	10/03/17
SHAD041DP024SS03NS	160-24848-8	Soil	10/03/17
SHAD041DP024SS04NS	160-24848-9	Soil	10/03/17
SHAD041DP019SS01NS	160-24848-10	Soil	10/03/17
SHAD041DP019SS02NS	160-24848-11	Soil	10/03/17
SHAD041DP019SS03NS	160-24848-12	Soil	10/03/17
SHAD041DP019SS04NS	160-24848-13	Soil	10/03/17

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA National Functional Guidelines (NFG) for High Resolution Superfund Methods Data Review (April 2016). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Polychlorinated Dioxins/Dibenzofurans by Environmental Protection Agency (EPA) SW 846 Method 8290A

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. HRGC/HRMS Instrument Performance Check**

Instrument performance was checked at the required frequency.

Retention time windows were established for all homologues. The chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomer was less than or equal to 25%.

The static resolving power was at least 10,000 (10% valley definition).

## **III. Initial Calibration and Initial Calibration Verification**

A five point initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

The ion abundance ratios for all PCDDs/PCDFs were within method and validation criteria.

The minimum S/N ratio was greater than or equal to 2.5 for each unlabeled compound and greater than or equal to 10 for each labeled compound.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within method and validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

## V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Extraction Date	Compound	Concentration	Associated Samples
MB 320-188400/1-A	10/09/17	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF OCDD	0.141 pg/g 0.0441 pg/g 0.105 pg/g 0.0711 pg/g 0.498 pg/g	All samples in SDG 160-24848-2

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were either not detected or were significantly greater than the concentrations found in the associated laboratory blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
SHAD041DP025SS02NS	1,2,3,4,7,8-HxCDD	0.28 pg/g	0.28U pg/g
SHAD041DP025SS03NS	1,2,3,4,7,8-HxCDD	0.40 pg/g	0.40U pg/g
SHAD041DP025SS04NS	1,2,3,4,6,7,8-HpCDD	0.52 pg/g	0.52U pg/g
SHAD041DP024SS01NS	1,2,3,4,7,8-HxCDD	0.29 pg/g	0.29U pg/g
SHAD041DP024SS02NS	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP024SS03NS	1,2,3,4,7,8-HxCDD 1,2,3,4,6,7,8-HpCDF	0.20 pg/g 0.20 pg/g	0.20U pg/g 0.20U pg/g
SHAD041DP024SS04NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.23 pg/g 0.11 pg/g	0.23U pg/g 0.11U pg/g
SHAD041DP019SS01NS	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP019SS02NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.16 pg/g 0.19 pg/g	0.16U pg/g 0.19U pg/g
SHAD041DP019SS03NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD	0.17 pg/g 0.11 pg/g 0.47 pg/g	0.17U pg/g 0.11U pg/g 0.47U pg/g
SHAD041DP019SS04NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.18 pg/g 0.10 pg/g	0.18U pg/g 0.10U pg/g



## VI. Field Blanks

No field blanks were identified in this SDG.

## VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## VIII. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## IX. Field Duplicates

No field duplicates were identified in this SDG.

## X. Internal Standards

All internal standard recoveries (%R) were within QC limits.

## XI. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS	All compounds reported below the LOQ.	J (all detects)	A

## XII. Target Compound Identifications

All target compound identifications met validation criteria.

## XIII. System Performance

The system performance was acceptable.

#### **XIV. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in twelve samples.

Due to laboratory blank contamination, data were qualified as not detected in eleven samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**Sharpe Army Depot, SHAD-041, TO 16  
 Polychlorinated Dioxins/Dibenzofurans - Data Qualification Summary - SDG 160-24848-2**

Sample	Compound	Flag	A or P	Reason
SHAD041DP025SS01NS SHAD041DP025SS02NS SHAD041DP025SS03NS SHAD041DP025SS04NS SHAD041DP024SS01NS SHAD041DP024SS02NS SHAD041DP024SS03NS SHAD041DP024SS04NS SHAD041DP019SS01NS SHAD041DP019SS02NS SHAD041DP019SS03NS SHAD041DP019SS04NS	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

**Sharpe Army Depot, SHAD-041, TO 16  
 Polychlorinated Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG 160-24848-2**

Sample	Compound	Modified Final Concentration	A or P
SHAD041DP025SS02NS	1,2,3,4,7,8-HxCDD	0.28U pg/g	A
SHAD041DP025SS03NS	1,2,3,4,7,8-HxCDD	0.40U pg/g	A
SHAD041DP025SS04NS	1,2,3,4,6,7,8-HpCDD	0.52U pg/g	A
SHAD041DP024SS01NS	1,2,3,4,7,8-HxCDD	0.29U pg/g	A
SHAD041DP024SS02NS	1,2,3,4,7,8-HxCDD	0.26U pg/g	A
SHAD041DP024SS03NS	1,2,3,4,7,8-HxCDD 1,2,3,4,6,7,8-HpCDF	0.20U pg/g 0.20U pg/g	A
SHAD041DP024SS04NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.23U pg/g 0.11U pg/g	A
SHAD041DP019SS01NS	1,2,3,4,7,8-HxCDD	0.20U pg/g	A
SHAD041DP019SS02NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.16U pg/g 0.19U pg/g	A
SHAD041DP019SS03NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD	0.17U pg/g 0.11U pg/g 0.47U pg/g	A

Sample	Compound	Modified Final Concentration	A or P
SHAD041DP019SS04NS	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD	0.18U pg/g 0.10U pg/g	A

**Sharpe Army Depot, SHAD-041, TO 16  
Polychlorinated Dioxins/Dibenzofurans - Field Blank Data Qualification Summary  
- SDG 160-24848-2**

No Sample Data Qualified in this SDG

LDC #: 39889B21

**VALIDATION COMPLETENESS WORKSHEET**

SDG #: 160-24848-2

Level IV

Laboratory: Test America, Inc.

Date: 4/30/17

Page: 1 of 2

Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 20% . ICV ≤ 20/30%
IV.	Continuing calibration	A	CCV ≤ 20/30%
V.	Laboratory Blanks	M	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	A	
XII.	Target compound identification	A	
XIII.	System performance	A	
XIV.	Overall assessment of data	A	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP025SS01NS**	160-24848-2**	Soil	10/03/17
2	SHAD041DP025SS02NS**	160-24848-3**	Soil	10/03/17
3	SHAD041DP025SS03NS**	160-24848-4**	Soil	10/03/17
4	SHAD041DP025SS04NS**	160-24848-5**	Soil	10/03/17
5	SHAD041DP024SS01NS**	160-24848-6**	Soil	10/03/17
6	SHAD041DP024SS02NS**	160-24848-7**	Soil	10/03/17
7	SHAD041DP024SS03NS**	160-24848-8**	Soil	10/03/17
8	SHAD041DP024SS04NS**	160-24848-9**	Soil	10/03/17
9	SHAD041DP019SS01NS**	160-24848-10**	Soil	10/03/17
10	SHAD041DP019SS02NS**	160-24848-11**	Soil	10/03/17
11	SHAD041DP019SS03NS**	160-24848-12**	Soil	10/03/17
12	SHAD041DP019SS04NS**	160-24848-13**	Soil	10/03/17
<del>13</del>	<del>SHAD041DP020SS01NS</del>	<del>160-24848-14</del>	<del>Soil</del>	<del>10/03/17</del>
<del>14</del>	<del>SHAD041DP020SS02NS</del>	<del>160-24848-15</del>	<del>Soil</del>	<del>10/03/17</del>



LDC #: 39889B21  
 SDG #: 160-24848-2  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 Level IV

Date: 11/29/17  
 Page: 1 of 3  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

	Client ID	Lab ID	Matrix	Date
15	SHAD041DP020SS03NS	160-24848-16	Soil	10/03/17
16	SHAD041DP020SS04NS	160-24848-17	Soil	10/03/17
17	SHAD041DP020SS04DS	160-24848-18	Soil	10/03/17
18	SHAD041DP002SS01NS	160-24848-19	Soil	10/04/17
19	SHAD041DP002SS02NS	160-24848-20	Soil	10/04/17
20	SHAD041DP002SS03NS	160-24848-21	Soil	10/04/17
21	SHAD041DP002SS04NS	160-24848-22	Soil	10/04/17
22	SHAD041DP002SS05NS	160-24848-23	Soil	10/04/17
23	SHAD041DP002SS06NS	160-24848-24	Soil	10/04/17
24	SHAD041DP006SS01NS	160-24848-25	Soil	10/04/17
25	SHAD041DP006SS02NS	160-24848-26	Soil	10/04/17
26	SHAD041DP006SS03NS	160-24848-27	Soil	10/04/17
27	SHAD041DP006SS04NS	160-24848-28	Soil	10/04/17
28	SHAD041DP006SS05NS	160-24848-29	Soil	10/04/17
29	SHAD041DP006SS06NS	160-24848-30	Soil	10/04/17
30	SHAD041DP020SS04DSMS	160-24848-18MS	Soil	10/03/17
31	SHAD041DP020SS04DSMSD	160-24848-18MSD	Soil	10/03/17
32	SHAD041DP002SS01NSMS	160-24848-19MS	Soil	10/04/17
33	SHAD041DP002SS01NSMSD	160-24848-19MSD	Soil	10/04/17
34	SHAD041DP006SS04NSMS	160-24848-28MS	Soil	10/04/17
35	SHAD041DP006SS04NSMSD	160-24848-28MSD	Soil	10/04/17
36				
37				
38				
39				
40				

Notes:


**Method:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290A)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Was PFK exact mass 380.9760 verified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the retention time windows established for all homologues?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers $\leq 25\%$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the static resolving power at least 10,000 (10% valley definition)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the mass resolution adequately check with PFK?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIa. Initial calibration</b>				
Was the initial calibration performed at 5 concentration levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq 20\%$ for unlabeled compounds and for labeled compounds ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did all calibration standards meet the Ion Abundance Ratio criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the signal to noise ratio for each target compound $\geq 2.5$ and for each recovery and internal standard $\geq 10$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIb. Initial Calibration Verification</b>				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ for unlabeled and 30% for labeled compounds?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration performed at the beginning and end of each 12 hour period?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ for unlabeled and 30% for labeled compounds ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was the signal to noise ratio for each target compound and for each recovery and internal standard $\geq 10$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Laboratory Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank performed for each matrix and whenever a sample extraction was performed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Field blanks</b>				
Field blanks were identified in this SDG.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field blanks.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VII. Matrix spike/Matrix spike duplicates</b>				

Validation Area	Yes	No	NA	Findings/Comments
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input checked="" type="checkbox"/>			
<b>VIII. Laboratory control samples</b>				
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>			
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>			
Target compounds were detected in the field duplicates.	<input checked="" type="checkbox"/>			
<b>X. Internal standards</b>				
Were internal standard recoveries within the 40-135% criteria?	<input checked="" type="checkbox"/>			
Was the minimum S/N ratio of all internal standard peaks > 10?	<input checked="" type="checkbox"/>			
<b>XI. Compound quantitation</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	<input checked="" type="checkbox"/>			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>			
<b>XII. Target compound identification</b>				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	<input checked="" type="checkbox"/>			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	<input checked="" type="checkbox"/>			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	<input checked="" type="checkbox"/>			
Did compound spectra contain all characteristic ions listed in the table attached?	<input checked="" type="checkbox"/>			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?	<input checked="" type="checkbox"/>			
Was the signal to noise ratio for each target compound and labeled standard $\geq$ 2.5?	<input checked="" type="checkbox"/>			
Does the maximum intensity of each specified characteristic ion coincide within $\pm$ 2 seconds (includes labeled standards)?	<input checked="" type="checkbox"/>			
For PCDF identification, was any signal ( $S/N \geq 2.5$ , at $\pm$ seconds RT) detected in the corresponding PCDF channel?	<input checked="" type="checkbox"/>			
Was an acceptable lock mass recorded and monitored?	<input checked="" type="checkbox"/>			
<b>XIII. System performance</b>				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>			
<b>XIV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>			



# VALIDATION FINDINGS WORKSHEET

**METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)**

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

**VALIDATION FINDINGS WOR/UHEET**  
**Blanks**

**METHOD:** HRGC/HRMS Dioxins (EPA SW Method 8290A)

**Blank extraction date:** 10/9/17      **Blank analysis date:** 11/1/17

**Conc. units:** pg/g      **Associated samples:** All qual U

Compound	Blank ID	Sample Identification											
		5X	2	3	4	5	6	7	8	9	10	11	12
C	MB 320-188400/1-A	0.705	0.28	0.40		0.29	0.26	0.20	0.23	0.20	0.16	0.17	0.18
E	0.141	0.2205							0.11		0.19	0.11	0.10
F	0.0441	0.525			0.52							0.47	
O	0.105	0.3555						0.20					
G	0.0711	2.49											
	0.498												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:  
All contaminants within five times the method blank concentration were qualified as not detected, "U".



**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = \frac{(A_x)(C_{is})}{(A_{is})(C_x)}$$

average RRF = sum of the RRFs/number of standards  
 %RSD =  $100 * (S/X)$

$A_x$  = Area of compound,  
 $C_x$  = Concentration of compound,  
 $S$  = Standard deviation of the RRFs,  $X$  = Mean of the RRFs

$A_{is}$  = Area of associated internal standard  
 $C_{is}$  = Concentration of internal standard  
 $X$  = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported		Recalculated		Reported		Recalculated	
				Average RRF (initial)	RRF (10 std)	Average RRF (initial)	RRF (10 std)	RRF (10 std)	%RSD	RRF (10 std)	%RSD
1	ICAL	10/13/17	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.1341	1.0657	1.1341	1.0657	1.0657	6.0	1.0657	6.0
	10D5		2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	0.9993	0.9353	0.9993	0.9353	0.9353	4.3	0.9353	4.3
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.2343	1.1857	1.2343	1.1857	1.1857	4.0	1.1857	4.0
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)	0.9932	0.9483	0.9932	0.9483	0.9483	4.6	0.9483	4.6
			OCDF ( <sup>13</sup> C-OCDF)	1.3460	1.2945	1.3460	1.2945	1.2945	3.0	1.2945	3.0
2	ICAL	3/2/17	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.0784	1.0795	1.0784	1.0795	1.0795	5.4	1.0795	5.4
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)								
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)								
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)								
			OCDF ( <sup>13</sup> C-OCDF)								
3			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)								
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)								
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)								
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)								
			OCDF ( <sup>13</sup> C-OCDF)								

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Routine Calibration Results Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$       Where:      ave. RRF = initial calibration average RRF  
 RRF =  $(A_x)(C_{is}) / (A_{is})(C_x)$       RRF = continuing calibration RRF  
 $A_x$  = Area of compound,       $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,       $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported		Recalculated	
					CONC (CC)	%D	CONC (CC)	%D
1	31OC17C10D5.14	11/1/17	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.1341	1.029	9.2	1.029	9.2
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	0.9993	0.8984	10.1	0.8984	10.1
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.2343	1.170	5.2	1.170	5.2
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)	0.9932	0.9636	3.0	0.9636	3.0
			OCDF ( <sup>13</sup> C-OCDF)	1.3460	1.325	1.5	1.325	1.5
2	31OC17C10D5.27	11/1/17	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.1341	1.000	11.8	1.000	11.8
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	0.9993	0.8835	11.6	0.8835	11.6
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.2343	1.142	7.5	1.142	7.5
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)	0.9932	0.9495	4.4	0.9495	4.4
			OCDF ( <sup>13</sup> C-OCDF)	1.3460	1.277	5.1	1.277	5.1
3	03NO17E10D5.16	11/4/17	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.1341	1.015	10.5	1.015	10.5
			2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)	0.9993	0.8812	11.8	0.8812	11.8
			1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)	1.2343	1.114	9.8	1.114	9.8
			1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)	0.9932	0.9113	8.2	0.9113	8.2
			OCDF ( <sup>13</sup> C-OCDF)	1.3460	1.212	9.9	1.212	9.9

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Routine Calibration Results Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW846 Method 8290)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$       Where:      ave. RRF = initial calibration average RRF  
 RRF =  $(A_x)(C_{is}) / (A_{is})(C_x)$       RRF = continuing calibration RRF  
 $A_x$  = Area of compound,       $A_{is}$  = Area of associated internal standard  
 $C_x$  = Concentration of compound,       $C_{is}$  = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported		Recalculated	
					CONC (CC)	%D	CONC (CC)	%D
1	26OC17A9D2.002	10/26/17	2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)	1.0784	1.175	9.0	1.175	9.0
	2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)							
	1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)							
	1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)							
	OCDF ( <sup>13</sup> C-OCDF)							
2			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)					
	2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)							
	1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)							
	1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)							
	OCDF ( <sup>13</sup> C-OCDF)							
3			2,3,7,8-TCDF ( <sup>13</sup> C-2,3,7,8-TCDF)					
	2,3,7,8-TCDD ( <sup>13</sup> C-2,3,7,8-TCDD)							
	1,2,3,6,7,8-HxCDD ( <sup>13</sup> C-1,2,3,6,7,8-HxCDD)							
	1,2,3,4,6,7,8-HpCDD ( <sup>13</sup> C-1,2,4,6,7,8-HpCDD)							
	OCDF ( <sup>13</sup> C-OCDF)							

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SSR - SR) / SA$       Where: SSR = Spiked sample result, SR = Sample result, SA = Spike added  
 RPD =  $|MSR - MSDR| * 2 / (MSR + MSDR)$       MSR = Matrix spike percent recovery, MSDR = Matrix spike duplicate percent recovery  
 MS/MSD samples: 30/31

Compound	Spike Added (pg/g)		Sample Concentration (pg/g)		Spiked Sample Concentration (pg/g)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		Reported	Recalculated
	MS	MSD	MS	MSD	MS	MSD	Reported	Recalc.	Reported	Recalc.	RPD	RPD
2,3,7,8-TCDD	225	227	ND		23.7	27.2	106	105	120	120	14	14
1,2,3,7,8-PeCDD	112	114	✓		116	125	104	104	110	110	7	7
1,2,3,4,7,8-HxCDD	✓	✓	0.11		117	114	104	104	100	100	3	3
1,2,3,4,7,8,9-HpCDF	✓	✓	0.54		105	111	93	93	97	97	5	5
OCDF	225	227	0.42		206	215	92	91	94	94	4	4

Comments: Refer to Matrix Spike/Matrix Spike Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.





**VALIDATION FINDINGS WORKSHEET**  
Sample Calculation Verification

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Y N N/A Were all reported results recalculated and verified for all level IV samples?  
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_s)(RRF)(V_o)(\%S)}$$

- A<sub>x</sub> = Area of the characteristic ion (EICP) for the compound to be measured
- A<sub>s</sub> = Area of the characteristic ion (EICP) for the specific internal standard
- I<sub>s</sub> = Amount of internal standard added in nanograms (ng)
- V<sub>o</sub> = Volume or weight of sample extract in milliliters (ml) or grams (g).
- RRF = Relative Response Factor (average) from the initial calibration
- Df = Dilution Factor.
- %S = Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 1, H:

$$\text{Conc.} = \frac{(5465634)(2000)(1)}{(66842606)(1.078)(9.99)(0.959)}$$

= 15.8 pg/g

#	Sample ID	Compound	Reported Concentration (pg/g)	Calculated Concentration ( )	Qualification
	<u>1</u>	<u>H on DB-225</u>	<u>16</u>		

IONS MONITORED FOR HKG/HKMS ANALYSIS OF PCDDs/PCDFs

Descriptor	Accurate mass <sup>(a)</sup>	Ion ID	Elemental Composition	Analyte	Descriptor	Accurate Mass <sup>(a)</sup>	Ion ID	Elemental Composition	Analyte		
1	303.9016	M	C <sub>12</sub> H <sub>8</sub> <sup>35</sup> Cl <sub>4</sub> O	TCDF	4	407.7818	M+2	C <sub>12</sub> H <sub>35</sub> Cl <sub>6</sub> <sup>37</sup> ClO	HpCDF		
	305.8987	M+2	C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> C10	TCDF		409.7788	M+4	C <sub>12</sub> H <sub>35</sub> Cl <sub>5</sub> <sup>37</sup> Cl <sub>2</sub> O	HpCDF		
	315.9419	M	<sup>13</sup> C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>3</sub> O	TCDF (S)		417.8250	M	<sup>13</sup> C <sub>12</sub> H <sup>35</sup> Cl <sub>7</sub> O	HpCDF (S)		
	317.9389	M+2	<sup>13</sup> C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> ClO	TCDF (S)		419.8220	M+2	<sup>13</sup> C <sub>12</sub> H <sub>35</sub> Cl <sub>5</sub> <sup>37</sup> ClO	HpCDF		
	319.8965	M	C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>3</sub> O <sub>2</sub>	TCDD		423.7767	M+2	C <sub>12</sub> H <sub>35</sub> Cl <sub>6</sub> <sup>37</sup> ClO <sub>2</sub>	HpCDD		
	321.8936	M+2	C <sub>12</sub> H <sub>35</sub> Cl <sub>3</sub> <sup>37</sup> C10 <sub>2</sub>	TCDD		425.7737	M+4	C <sub>12</sub> H <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> ClO <sub>2</sub>	HpCDD		
	331.9368	M	<sup>13</sup> C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>4</sub> O <sub>2</sub>	TCDD (S)		435.8169	M+2	<sup>13</sup> C <sub>12</sub> H <sub>35</sub> Cl <sub>5</sub> <sup>37</sup> ClO <sub>2</sub>	HpCDD		
	333.9338	M+2	<sup>13</sup> C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> ClO <sub>2</sub>	TCDD (S)		437.8140	M+4	<sup>13</sup> C <sub>12</sub> H <sup>35</sup> Cl <sub>6</sub> <sup>37</sup> ClO <sub>2</sub>	HpCDD (S)		
	375.8364	M+2	C <sub>12</sub> H <sub>4</sub> <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> ClO	HxCDPE		479.7165	M+4	C <sub>12</sub> H <sup>35</sup> Cl <sub>7</sub> <sup>37</sup> Cl <sub>2</sub> O	HpCDD (S)		
	[354.9792]	LOCK	C <sub>9</sub> F <sub>13</sub>	PFK		[430.9728]	LOCK	C <sub>9</sub> F <sub>17</sub>	NCDDPE		
											PFK
	2	339.8597	M+2	C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> ClO		PeCDF	5	441.7428	M+2	C <sub>12</sub> <sup>35</sup> Cl <sub>7</sub> <sup>37</sup> ClO	OCDF
		341.8567	M+4	C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> Cl <sub>2</sub> O		PeCDF		443.7399	M+4	C <sub>12</sub> <sup>35</sup> Cl <sub>6</sub> <sup>37</sup> Cl <sub>2</sub> O	OCDF
		351.9000	M+2	<sup>13</sup> C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> C10		PeCDF (S)		457.7377	M+2	C <sub>12</sub> <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> ClO <sub>2</sub>	OCDD
353.8970		M+4	<sup>13</sup> C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> Cl <sub>2</sub> O	PeCDF (S)	459.7348	M+4		C <sub>12</sub> <sup>35</sup> Cl <sub>6</sub> <sup>37</sup> Cl <sub>2</sub> O <sub>2</sub>	OCDD		
355.8546		M+2	C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> ClO <sub>2</sub>	PeCDD	469.7780	M+2		<sup>13</sup> C <sub>12</sub> <sup>35</sup> Cl <sub>7</sub> <sup>37</sup> ClO <sub>2</sub>	OCDD (S)		
357.8516		M+4	C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> Cl <sub>2</sub> O <sub>2</sub>	PeCDD	471.7750	M+4		<sup>13</sup> C <sub>12</sub> <sup>35</sup> Cl <sub>6</sub> <sup>37</sup> Cl <sub>2</sub> O <sub>2</sub>	OCDD (S)		
367.8949		M+2	<sup>13</sup> C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> ClO <sub>2</sub>	PeCDD (S)	513.6775	M+4		C <sub>12</sub> <sup>35</sup> Cl <sub>8</sub> <sup>37</sup> Cl <sub>2</sub> O	DCDPE		
369.8919		M+4	<sup>13</sup> C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>3</sub> <sup>37</sup> Cl <sub>2</sub> O <sub>2</sub>	PeCDD (S)	[422.9278]	LOCK		C <sub>10</sub> F <sub>17</sub>	PFK		
409.7974		M+2	C <sub>12</sub> H <sub>3</sub> <sup>35</sup> Cl <sub>6</sub> <sup>37</sup> ClO	HxCDPE							
[354.9792]		LOCK	C <sub>9</sub> F <sub>13</sub>	PFK							
3		373.8208	M+2	C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> ClO	HxCDF						
		375.8178	M+4	C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> Cl <sub>2</sub> O	HxCDF						
		383.8639	M	<sup>13</sup> C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>5</sub> ClO	HxCDF (S)						
	385.8610	M+2	<sup>13</sup> C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> ClO	HxCDF (S)							
	389.8156	M+2	C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> ClO <sub>2</sub>	HxCDD							
	391.8127	M+4	C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> Cl <sub>2</sub> O <sub>2</sub>	HxCDD							
	401.8559	M+2	<sup>13</sup> C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>5</sub> <sup>37</sup> ClO <sub>2</sub>	HxCDD (S)							
	403.8529	M+4	<sup>13</sup> C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>4</sub> <sup>37</sup> Cl <sub>2</sub> O <sub>2</sub>	HxCDD (S)							
	445.7555	M+4	C <sub>12</sub> H <sub>2</sub> <sup>35</sup> Cl <sub>6</sub> <sup>37</sup> Cl <sub>2</sub> O	OCDDPE							
	[430.9728]	LOCK	C <sub>9</sub> F <sub>17</sub>	PFK							

(a) The following nuclidic masses were used:

H = 1.007825  
 C = 12.000000  
<sup>13</sup>C = 13.003355  
 F = 18.9984  
 O = 15.994915  
<sup>35</sup>Cl = 34.968853  
<sup>37</sup>Cl = 36.965903

S = internal/recovery standard

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** Sharpe Army Depot, SHAD-041, TO 16

**LDC Report Date:** December 13, 2017

**Parameters:** Radium 226

**Validation Level:** Stage 4

**Laboratory:** TestAmerica, Inc.

**Sample Delivery Group (SDG):** 160-24948-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
25-01-5	160-24948-1	Soil	10/03/17
25-02-2	160-24948-2	Soil	10/03/17
25-03-7	160-24948-3	Soil	10/03/17
25-04-9	160-24948-4	Soil	10/03/17
24-01-3	160-24948-5	Soil	10/03/17
24-02-4	160-24948-6	Soil	10/03/17
24-03-6	160-24948-7	Soil	10/03/17
24-04-9	160-24948-8	Soil	10/03/17
19-01-2	160-24948-9	Soil	10/03/17
19-02-6	160-24948-10	Soil	10/03/17
19-03-8	160-24948-11	Soil	10/03/17
19-04-9	160-24948-12	Soil	10/03/17
20-01-0	160-24948-13	Soil	10/03/17
20-02-4	160-24948-14	Soil	10/03/17

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Appendix B, Final Quality Assurance Project Plan, Remedial Investigation/Feasibility Study, Sites 33/29 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004) and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Radium 226 by Environmental Protection Agency (EPA) Method 901.1

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.



## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition.

All technical holding time requirements were met.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

Counting and detector efficiency were determined for each detector and each radionuclide.

## **III. Continuing Calibration**

Continuing calibration and background determination were performed at the required frequencies. Results were within laboratory control limits.

## **IV. Blanks**

Laboratory blanks were analyzed as required by the method. Blank results contained less than the minimum detectable activity (MDA).

## **V. Field Blanks**

No field blanks were identified in this SDG.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicates (MSD) analyses were not required by the method.

## **VII. Duplicate Sample Analysis**

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

## **VIII. Laboratory Control Samples**

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## **IX. Field Duplicates**

No field duplicates were identified in this SDG.

## X. Minimum Detectable Activity

All minimum detectable activities (MDA) met reporting limits (RL).

## XI. Sample Result Verification

All sample result verifications were acceptable.

All isotopes reported below the LOQ were qualified as follows:

Sample	Finding	Flag	A or P
25-01-5 25-02-2 25-03-7 25-04-9 24-01-3 24-02-4 24-03-6 24-04-9 19-01-2 19-02-6 19-03-8 19-04-9 20-01-0 20-02-4	All isotopes reported below the LOQ.	J (all detects)	A

## XII. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in fourteen samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**Sharpe Army Depot, SHAD-041, TO 16  
Radium 226 - Data Qualification Summary - SDG 160-24948-1**

Sample	Isotope	Flag	A or P	Reason
25-01-5 25-02-2 25-03-7 25-04-9 24-01-3 24-02-4 24-03-6 24-04-9 19-01-2 19-02-6 19-03-8 19-04-9 20-01-0 20-02-4	All isotopes reported below the LOQ.	J (all detects)	A	Sample result verification

**Sharpe Army Depot, SHAD-041, TO 16  
Radium 226 - Laboratory Blank Data Qualification Summary - SDG 160-24948-1**

No Sample Data Qualified in this SDG

**Sharpe Army Depot, SHAD-041, TO 16  
Radium 226 - Field Blank Data Qualification Summary - SDG 160-24948-1**

No Sample Data Qualified in this SDG

**METHOD:** Radium 226 (EPA Method 901.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	PB only
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	Not reviewed for ADR validation <i>not required</i>
VII.	Duplicates	A✓	Not reviewed for ADR validation <i>DUP</i>
VIII.	Laboratory control samples	A✓	Not reviewed for ADR validation <i>LCS</i>
IX.	Field duplicates	N	<i>D=15+16</i>
X.	<del>Carrier recovery</del>	<del>N</del>	<del>Not reviewed for ADR validation</del>
XI.	Minimum detectable activity (MDA)	A✓	Not reviewed for ADR validation
XII.	Sample result verification	A✓	Not reviewed for ADR validation
XIII.	Overall assessment of data	A✓	Not reviewed for ADR validation

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	25-01-5**	160-24948-1**	Soil	10/03/17
2	25-02-2**	160-24948-2**	Soil	10/03/17
3	25-03-7**	160-24948-3**	Soil	10/03/17
4	25-04-9**	160-24948-4**	Soil	10/03/17
5	<sup>4</sup> 27-01-3**	160-24948-5**	Soil	10/03/17
6	24-02-4**	160-24948-6**	Soil	10/03/17
7	24-03-6**	160-24948-7**	Soil	10/03/17
8	24-04-9**	160-24948-8**	Soil	10/03/17
9	19-01-2**	160-24948-9**	Soil	10/03/17
10	19-02-6**	160-24948-10**	Soil	10/03/17
11	19-03-8**	160-24948-11**	Soil	10/03/17
12	19-04-9**	160-24948-12**	Soil	10/03/17
13	20-01-0**	160-24948-13**	Soil	10/03/17
14	20-02-4**	160-24948-14**	Soil	10/03/17
15	20-03-8	160-24948-15	Soil	10/03/17
16	20-03-8-DUP	160-24948-16	Soil	10/03/17

LDC #: 39889K29a **VALIDATION COMPLETENESS WORKSHEET**  
SDG #: 160-24948-1 ADR/IV  
Laboratory: Test America, Inc.

Date: 12-7-17  
Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: Q

**METHOD:** Radium 226 (EPA Method 901.1)

	Client ID	Lab ID	Matrix	Date
17	20-04-9	160-24948-17	Soil	10/03/17
18	25-01-5DUP	160-24948-1DUP	Soil	10/03/17
19				
20				
21				
22				
23	PBS			

Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Method: Radiochemistry(EPA Method 901.1 )

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the required frequency and within laboratory control limits?	✓			
<b>III. Blanks</b>				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spikes and Duplicates</b>				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. (Soil) Water.		✓		
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Was a duplicate sample analyzed at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error ratios (DER) <1.42?	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
<b>VI. Sample Chemical/Carrier Recovery</b>				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
<b>VII. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
<b>VIII. Sample Result Verification</b>				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

LDC #: 39889K29a

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: MG  
2nd Reviewer: [Signature]

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**

**METHOD:** Radiochemistry (Method: 901.1)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recalculated using the following formula:

$$\%R = \frac{\text{Found} - \text{True}}{\text{True}} \times 100$$

Where, Found = activity of each analyte measured in the analysis of the sample.  
 True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample activity  
 D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated		Reported		Acceptable (Y/N)
					%R or RPD	%R or RPD	%R or RPD	%R or RPD	
LCS	Laboratory control sample	Co-60	13.88 (pci/g)	14.3 (pci/g)	97	97			Y
-	Matrix spike sample	-	-	-	-	-			-
18	Duplicate RPD	Ra-226	1.19 (pci/g) ± 0.249	1.32 (pci/g) ± 0.253	RER 0.26	RER 0.27			Y
-	Chemical recovery	-	-	-	-	-			-

Comments: \_\_\_\_\_

**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**

**METHOD:** Radiochemistry (Method: 901.1)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- N N/A Have results been reported and calculated correctly?
- N N/A Are results within the calibrated range of the instruments?

Analyte results for # 1, Ra-226 reported with a positive detect were recalculated and verified using the following equation:

Concentration = by daughter, Bi-214 Recalculation:

$$\frac{(\text{cpm} - \text{background})}{2.22 \times E \times SA \times \text{Vol}}$$

$$\frac{(13.56 \text{ dps})(27.03 \text{ pCi/dps})}{308.80 \text{ g}} = 1.187 \text{ pCi/g}$$

E = Counter Efficiency  
 SA = Self-absorbance factor  
 Vol = Volume of sample

#	Sample ID	Analyte	Reported Concentration (pCi/g)	Calculated Concentration (pCi/g)	Acceptable (Y/N)
1	1	Ra-226	1.19	1.19	Y
2	2	↓	0.905	0.905	
3	3		1.31	1.31	
4	4		1.60	1.60	
5	5		0.870	0.869	
6	6		1.16	1.16	
7	7		1.50	1.50	
8	8		1.23	1.23	
9	9		0.915	0.915	
10	10		1.15	1.15	
11	11		1.62	1.62	
12	12		1.76	1.76	
13	13		3.26	3.26	
14	14		0.855	0.855	↓

Note: \_\_\_\_\_



# LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AHTNA  
296 12<sup>th</sup> Street  
Marina, CA 93933  
ATTN: Mr. Rachel Kerr

December 15, 2017

SUBJECT: Sharpe Army Depot, SHAD-041, TO 16, Data Validation

Dear Ms. Kerr,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on November 28, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #39925:**

<b><u>SDG #</u></b>	<b><u>Fraction</u></b>
160-24925-2	Dioxins, Radium-226

The data validation was performed under Stage 2B guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Quality Assurance Project Plan Remedial Investigation and Feasibility Study for Sites 33/39, SHAD-041, Sharpe Army Depot, Lathrop, California, August 2017
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA, National Functional Guidelines for Superfund Organic Methods Data Review, August 2014
- Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual, July 2004
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist





**Data Validation Report**  
**Sharpe Army Depot, SHAD-041, TO-16**

**SDG: 160-24925-2**

Prepared for

**Ahtna Environmental, Inc.**  
296 12<sup>th</sup> Street  
Marina, CA 93933

Prepared by

**Laboratory Data Consultants, Inc**  
2701 Loker Ave West, Suite 220  
Carlsbad, CA 92010

December 15, 2017

## INTRODUCTION

This Data Validation Report (DVR) presents Stage 2B data validation results for samples collected during the October 2017 sampling period. Data validation was performed in accordance with the Final Quality Assurance Project Plan (QAPP), Remedial Investigation and Feasibility Study for Sites 33/39 (SHAD-041), Sharpe Army Depot, Lathrop, California (August 2017), U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and the United States Environmental Protection Agency (EPA) National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (August 2014), and the Multi Agency Radiological Laboratory Analytical Protocols (MARLAP) Manual (July 2004). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Dioxins by Environmental Protection Agency (EPA) SW 846 Method 8290A  
Radium-226 by EPA Method 903.0

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Stage 2B Automated Data Review outliers are presented in Enclosure I.

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibrations, internal standards, matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), carrier and tracer recoveries, laboratory blanks, equipment blanks, and field duplicates.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with exception of the calibrations, internal standards, and carrier and tracer recoveries, which were validated manually. Quality assurance (QA)/QC criteria specified in the QAPP, DoD QSM, NFG, and MARLAP were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers utilized during data validation:

- J+ (Estimated, High Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.
- J- (Estimated, Low Bias): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.
- J (Estimated, Bias Indeterminate): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected, Estimated, Bias Indeterminate): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation. Bias is indeterminate.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not applicable): Data did not warrant qualification since detected results only are affected and the compound was not detected in the associated samples.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt & Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. GC/MS Instrument Performance Check**

A tune was performed at 12 hour intervals as required by the method.

All ion abundance requirements were met.

## **III. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method and all criteria for the initial calibration of the method were met.

Average relative response factors (RRF) for all compounds were within method criteria.

All criteria for the initial calibration verifications of the method were met.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

All criteria for the continuing calibration verifications of the methods were met.

Average relative response factors (RRF) for all compounds were within method criteria.

## **V. Laboratory Blanks**

Laboratory blanks were performed as required by the method. No contaminant concentrations were detected in the laboratory blanks with the exception of one blank for several dioxins. The associated sample results were qualified as non-detected (U) due to laboratory blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosure I.

## **VI. Field Blank Samples**

Two equipment blanks were collected and analyzed for dioxins. The equipment blanks had detections for several dioxins. The associated sample results were qualified as non-detected (U) due to trip blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the equipment blank were not qualified. The equipment blank outlier reports are presented in Enclosure I.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for dioxins. The associated



sample results were qualified as detected estimated (J) as applicable. The details regarding the qualification of data are provided in Enclosure I.

### **VIII. Laboratory Control Samples**

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits with the exception of one LCS/LCSD pair for several dioxins. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosure I.

### **IX. Field Duplicate Samples**

One field duplicate pair was collected and analyzed for dioxins. All RPDs and differences were within QC limits. The field duplicate result comparisons are provided in Enclosure I.

### **X. Carrier and Tracer Recovery**

Carrier and tracer recoveries were within validation criteria for the applicable radiochemistry method.

### **XI. Internal Standards**

All internal standard areas and retention times were within QC limits.

### **XII. Compound Quantitation**

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the LOQ as detected by the laboratory were qualified as detected estimated (J). The details regarding the qualification of data are provided in Enclosure I.

### **XIII. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to MS/MSD %R and RPD, data were qualified as estimated in one sample.

Due to LCS/LCSD RPD, data were qualified as estimated in fifteen samples.

Due to results below the LOQ, data were qualified as estimated in fifteen samples.

Due to laboratory blank contamination, data were qualified as not detected in eighteen samples.

Due to equipment blank contamination, data were qualified as not detected in seventeen samples.

The quality control criteria reviewed, other than those discussed above, were met and are

considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Data flags are summarized and are presented as Attachment 2.

## **Attachment 1**

### **Sample Cross Reference**

## Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
05-Oct-2017	SHAD041DP008SS03NS	160-24925-1	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP008SS04NS	160-24925-2	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP008SS05NS	160-24925-3	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP008SS06NS	160-24925-4	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS01NS	160-24925-5	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS02NS	160-24925-6	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS02DS	160-24925-7	FD	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS03NS	160-24925-8	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS04NS	160-24925-9	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS05NS	160-24925-10	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP010SS06NS	160-24925-11	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS01NS	160-24925-12	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NS	160-24925-13	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMS	160-24925-13MS	MS	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS02NSMSD	160-24925-13MSD	MSD	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS03NS	160-24925-14	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS04NS	160-24925-15	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS05NS	160-24925-16	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041DP015SS06NS	160-24925-17	N	8290	8290A	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	8290	8290A	Stage 2B
05-Oct-2017	SHAD041EQ003WS01NS	160-24925-18	EB	PrecSep-21	EPA 903.1	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	8290	8290A	Stage 2B
06-Oct-2017	SHAD041EQ004WS01NS	160-24925-26	EB	PrecSep-21	EPA 903.1	Stage 2B

## **Attachment 2**

### **Overall Data Qualification Summary**



# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA	<b>Method:</b>	8290A	<b>Matrix:</b>	AQ
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Sample ID: SHAD041EQ003WS01NS      Collected: 10/5/2017 2:30:00 PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.60	J	0.30	EDL	51	MRL	pg/L	U	Mb
1,2,3,4,6,7,8-HpCDF	0.91	J	0.36	EDL	51	MRL	pg/L	J	RI
1,2,3,4,7,8-HxCDD	1.7	J	0.46	EDL	51	MRL	pg/L	U	Mb
OCDD	2.8	J	0.30	EDL	120	MRL	pg/L	U	Mb

Sample ID: SHAD041EQ004WS01NS      Collected: 10/6/2017 2:30:00 PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.69	J	0.30	EDL	48	MRL	pg/L	U	Mb
1,2,3,4,7,8-HxCDD	1.4	J	0.39	EDL	48	MRL	pg/L	U	Mb
1,2,3,7,8,9-HxCDF	0.26	J	0.23	EDL	48	MRL	pg/L	J	RI
OCDD	1.8	J	0.28	EDL	110	MRL	pg/L	U	Mb

<b>Method Category:</b>	SVOA	<b>Method:</b>	8290A	<b>Matrix:</b>	SO
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Sample ID: SHAD041DP008SS03NS      Collected: 10/5/2017 10:05:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.87	J Q	0.051	EDL	5.5	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,6,7,8-HpCDF	0.36	J Q	0.041	EDL	5.5	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,7,8,9-HpCDF	0.17	J Q	0.051	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,4,7,8-HxCDD	0.26	J	0.064	EDL	5.5	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.11	J Q	0.043	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDD	0.43	J Q	0.049	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.12	J Q	0.036	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	0.67	J Q	0.049	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.19	J Q	0.043	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDD	0.14	J Q	0.048	EDL	5.5	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDF	0.099	J Q	0.049	EDL	5.5	MRL	pg/g	J	RI, Lcs
2,3,4,6,7,8-HxCDF	0.096	J Q	0.040	EDL	5.5	MRL	pg/g	J	RI, Lcs
2,3,4,7,8-PeCDF	0.050	U Q	0.050	EDL	5.5	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.040	U Q	0.040	EDL	1.1	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.036	U Q	0.036	EDL	1.1	MRL	pg/g	UJ	Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

12/13/2017 12:14:49 PM

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# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA	<b>Method:</b>	8290A
		<b>Matrix:</b>	SO

Sample ID: SHAD041DP008SS03NS      Collected: 10/5/2017 10:05:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDD	6.0	J Q	0.062	EDL	11	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.58	J Q	0.048	EDL	11	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP008SS04NS      Collected: 10/5/2017 10:18:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.72	J Q	0.059	EDL	6.0	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.069	J Q	0.052	EDL	6.0	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.065	U Q	0.065	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.20	J M	0.064	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.037	U Q	0.037	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.16	J M Q	0.049	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.030	U Q	0.030	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDD	0.31	J Q	0.049	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.037	U Q	0.037	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	0.049	U Q	0.049	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.053	U Q	0.053	EDL	6.0	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.034	U Q	0.034	EDL	6.0	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.054	U Q	0.054	EDL	6.0	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.049	U Q	0.049	EDL	1.2	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.031	U Q	0.031	EDL	1.2	MRL	pg/g	UJ	Lcs
OCDD	6.2	J Q	0.085	EDL	12	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.21	J Q	0.054	EDL	12	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP008SS05NS      Collected: 10/5/2017 10:35:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.71	J Q	0.046	EDL	6.3	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.10	J Q	0.037	EDL	6.3	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.045	U Q	0.045	EDL	6.3	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.20	J M	0.058	EDL	6.3	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.040	U Q	0.040	EDL	6.3	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.10	J M Q	0.044	EDL	6.3	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.033	U Q	0.033	EDL	6.3	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDD	0.10	J Q	0.044	EDL	6.3	MRL	pg/g	J	RI, Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA	
<b>Method:</b>	8290A	<b>Matrix:</b> SO

Sample ID: SHAD041DP008SS05NS      Collected: 10/5/2017 10:35:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8,9-HxCDF	0.090	J Q	0.040	EDL	6.3	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDD	0.043	U Q	0.043	EDL	6.3	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.043	U Q	0.043	EDL	6.3	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.037	U Q	0.037	EDL	6.3	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.044	U Q	0.044	EDL	6.3	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.039	U Q	0.039	EDL	1.3	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.024	U Q	0.024	EDL	1.3	MRL	pg/g	UJ	Lcs
OCDD	3.5	J Q	0.046	EDL	13	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.16	J Q	0.047	EDL	13	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP008SS06NS      Collected: 10/5/2017 10:45:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.67	J	0.099	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.34	J	0.14	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.23	J	0.095	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,7,8,9-HxCDD	0.16	J	0.079	EDL	6.0	MRL	pg/g	U	Mb
1,2,3,7,8,9-HxCDF	0.26	J	0.11	EDL	6.0	MRL	pg/g	U	Mb
OCDD	1.9	J	0.12	EDL	12	MRL	pg/g	U	Mb, Eb
OCDF	1.3	J	0.14	EDL	12	MRL	pg/g	U	Mb

Sample ID: SHAD041DP010SS01NS      Collected: 10/5/2017 11:15:00 AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	59	Q	1.6	EDL	5.0	MRL	pg/g	J	Lcs
1,2,3,4,6,7,8-HpCDF	47	Q	0.67	EDL	5.0	MRL	pg/g	J	Lcs
1,2,3,4,7,8,9-HpCDF	0.82	U Q	0.82	EDL	5.0	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.96	J	0.29	EDL	5.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	1.8	J M Q	0.44	EDL	5.0	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDD	9.3	Q	0.22	EDL	5.0	MRL	pg/g	J	Lcs
1,2,3,6,7,8-HxCDF	1.6	J Q	0.36	EDL	5.0	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	5.0	M Q	0.22	EDL	5.0	MRL	pg/g	J	Lcs
1,2,3,7,8,9-HxCDF	0.44	U Q	0.44	EDL	5.0	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	1.1	J Q	0.26	EDL	5.0	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDF	0.31	U Q	0.31	EDL	5.0	MRL	pg/g	UJ	Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA						
<b>Method:</b>	8290A	<b>Matrix:</b>	SO				

10/5/2017 11:15:00									
<b>Sample ID:</b> SHAD041DP010SS01NS			<b>Collected:</b> AM		<b>Analysis Type:</b> RE-BASE/NEUTRAL			<b>Dilution:</b> 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,4,6,7,8-HxCDF	0.90	J Q	0.40	EDL	5.0	MRL	pg/g	J	RI, Lcs
2,3,4,7,8-PeCDF	0.56	J Q	0.32	EDL	5.0	MRL	pg/g	J	RI, Lcs
2,3,7,8-TCDD	0.23	J M Q	0.18	EDL	1.0	MRL	pg/g	J	RI, Lcs
OCDD	290	Q	0.78	EDL	10	MRL	pg/g	J	Lcs
OCDF	26	Q	0.070	EDL	10	MRL	pg/g	J	Lcs

10/5/2017 11:15:00									
<b>Sample ID:</b> SHAD041DP010SS01NS			<b>Collected:</b> AM		<b>Analysis Type:</b> RES-BASE/NEUTRAL			<b>Dilution:</b> 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.79	J M	0.10	EDL	1.0	MRL	pg/g	J	RI, Lcs

10/5/2017 11:30:00									
<b>Sample ID:</b> SHAD041DP010SS02DS			<b>Collected:</b> AM		<b>Analysis Type:</b> RES-BASE/NEUTRAL			<b>Dilution:</b> 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J Q	0.065	EDL	5.4	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,6,7,8-HpCDF	0.35	J Q	0.040	EDL	5.4	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,7,8,9-HpCDF	0.049	U Q	0.049	EDL	5.4	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.22	J	0.063	EDL	5.4	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.052	U Q	0.052	EDL	5.4	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.54	J Q	0.049	EDL	5.4	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.099	J Q	0.043	EDL	5.4	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	0.75	J Q	0.048	EDL	5.4	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.18	J Q	0.051	EDL	5.4	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDD	0.14	J Q	0.056	EDL	5.4	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDF	0.056	U Q	0.056	EDL	5.4	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.048	U Q	0.048	EDL	5.4	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.057	U Q	0.057	EDL	5.4	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.044	U Q	0.044	EDL	1.1	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.038	U Q	0.038	EDL	1.1	MRL	pg/g	UJ	Lcs
OCDD	7.6	J Q	0.053	EDL	11	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.35	J Q	0.032	EDL	11	MRL	pg/g	J	RI, Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	<b>SVOA</b>
<b>Method:</b>	<b>8290A</b>
<b>Matrix:</b>	<b>SO</b>

Sample ID: SHAD041DP010SS02NS		Collected: 10/5/2017 11:22:00 AM		Analysis Type: RE-BASE/NEUTRAL				Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.3	J Q	0.063	EDL	5.2	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,6,7,8-HpCDF	0.50	J Q	0.044	EDL	5.2	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,7,8,9-HpCDF	0.055	U Q	0.055	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.23	J	0.060	EDL	5.2	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.044	U Q	0.044	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.53	J Q	0.046	EDL	5.2	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.098	J M Q	0.036	EDL	5.2	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	0.78	J Q	0.046	EDL	5.2	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.18	J Q	0.043	EDL	5.2	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDD	0.13	J Q	0.055	EDL	5.2	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDF	0.052	U Q	0.052	EDL	5.2	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.040	U Q	0.040	EDL	5.2	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.053	U Q	0.053	EDL	5.2	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.046	U Q	0.046	EDL	1.0	MRL	pg/g	UJ	Lcs
OCDD	7.8	J Q	0.054	EDL	10	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.40	J Q	0.032	EDL	10	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP010SS02NS		Collected: 10/5/2017 11:22:00 AM		Analysis Type: RES-BASE/NEUTRAL				Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.092	U	0.092	EDL	1.0	MRL	pg/g	UJ	Lcs

Sample ID: SHAD041DP010SS03NS		Collected: 10/5/2017 11:35:00 AM		Analysis Type: RE-BASE/NEUTRAL				Dilution: 1	
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	4.8	J Q	0.19	EDL	5.8	MRL	pg/g	J	RI, Lcs
1,2,3,4,6,7,8-HpCDF	2.7	J Q	0.092	EDL	5.8	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,7,8,9-HpCDF	0.11	U Q	0.11	EDL	5.8	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.26	J	0.096	EDL	5.8	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.20	J M Q	0.11	EDL	5.8	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDD	1.2	J Q	0.074	EDL	5.8	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.17	J Q	0.088	EDL	5.8	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	1.2	J Q	0.073	EDL	5.8	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.15	J Q	0.11	EDL	5.8	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDD	0.22	J Q	0.096	EDL	5.8	MRL	pg/g	J	RI, Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041



# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA	<b>Method:</b>	8290A	<b>Matrix:</b>	SO
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Sample ID: SHAD041DP010SS03NS      Collected: 10/5/2017 11:35:00 AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PeCDF	0.086	U Q	0.086	EDL	5.8	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.098	U M Q	0.098	EDL	5.8	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.088	U Q	0.088	EDL	5.8	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.071	U Q	0.071	EDL	1.2	MRL	pg/g	UJ	Lcs
OCDD	18	Q	0.11	EDL	12	MRL	pg/g	J	Lcs
OCDF	1.7	J Q	0.071	EDL	12	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP010SS03NS      Collected: 10/5/2017 11:35:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.096	J M	0.091	EDL	1.2	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP010SS04NS      Collected: 10/5/2017 11:42:00 AM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.52	J Q	0.054	EDL	6.0	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.083	J Q	0.031	EDL	6.0	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.14	J Q	0.038	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,4,7,8-HxCDD	0.24	J M	0.056	EDL	6.0	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.047	U Q	0.047	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.085	J M Q	0.043	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.057	J M Q	0.039	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	0.14	J Q	0.043	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.21	J Q	0.046	EDL	6.0	MRL	pg/g	J	RI, Lcs
1,2,3,7,8-PeCDD	0.061	U Q	0.061	EDL	6.0	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.093	J Q	0.040	EDL	6.0	MRL	pg/g	J	RI, Lcs
2,3,4,6,7,8-HxCDF	0.064	J Q	0.043	EDL	6.0	MRL	pg/g	J	RI, Lcs
2,3,4,7,8-PeCDF	0.040	U Q	0.040	EDL	6.0	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.046	U Q	0.046	EDL	1.2	MRL	pg/g	UJ	Lcs
OCDD	3.1	J Q	0.049	EDL	12	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.24	J Q	0.065	EDL	12	MRL	pg/g	J	RI, Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA						
<b>Method:</b>	8290A	<b>Matrix:</b>	SO				

Sample ID: SHAD041DP010SS04NS      Collected: 10/5/2017 11:42:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.061	U	0.061	EDL	1.2	MRL	pg/g	UJ	Lcs

Sample ID: SHAD041DP010SS05NS      Collected: 10/5/2017 11:44:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.27	J Q	0.026	EDL	5.2	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.12	J Q	0.041	EDL	5.2	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.050	U Q	0.050	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.18	J	0.047	EDL	5.2	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.045	U Q	0.045	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.037	U Q	0.037	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDF	0.037	U Q	0.037	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDD	0.036	U Q	0.036	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDF	0.044	U Q	0.044	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	0.041	U Q	0.041	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.033	U Q	0.033	EDL	5.2	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.041	U Q	0.041	EDL	5.2	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.034	U Q	0.034	EDL	5.2	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.037	U Q	0.037	EDL	1.0	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.030	U Q	0.030	EDL	1.0	MRL	pg/g	UJ	Lcs
OCDD	1.5	J Q	0.040	EDL	10	MRL	pg/g	UJ	Lcs, Mb, Eb
OCDF	0.17	J Q	0.052	EDL	10	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP010SS06NS      Collected: 10/5/2017 11:47:00 AM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.86	J Q	0.054	EDL	6.5	MRL	pg/g	UJ	Lcs, Eb
1,2,3,4,6,7,8-HpCDF	0.091	J Q	0.039	EDL	6.5	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.049	U Q	0.049	EDL	6.5	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.18	J	0.062	EDL	6.5	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.039	U Q	0.039	EDL	6.5	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.065	J Q	0.047	EDL	6.5	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.064	J M Q	0.032	EDL	6.5	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	0.047	U Q	0.047	EDL	6.5	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDF	0.039	U Q	0.039	EDL	6.5	MRL	pg/g	UJ	Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

Sample ID: SHAD041DP010SS06NS		10/5/2017 11:47:00		Analysis Type: RES-BASE/NEUTRAL Dilution: 1					
		Collected: AM							
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PeCDD	0.051	U Q	0.051	EDL	6.5	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.041	U Q	0.041	EDL	6.5	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.037	J Q	0.036	EDL	6.5	MRL	pg/g	J	RI, Lcs
2,3,4,7,8-PeCDF	0.041	U Q	0.041	EDL	6.5	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.046	U Q	0.046	EDL	1.3	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.031	U Q	0.031	EDL	1.3	MRL	pg/g	UJ	Lcs
OCDD	6.3	J Q	0.074	EDL	13	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.053	U Q	0.053	EDL	13	MRL	pg/g	UJ	Lcs

Sample ID: SHAD041DP015SS01NS		10/5/2017 12:55:00		Analysis Type: RE-BASE/NEUTRAL Dilution: 1					
		Collected: PM							
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	310	Q	6.7	EDL	6.7	MRL	pg/g	J	Lcs
1,2,3,4,6,7,8-HpCDF	110	M Q	1.9	EDL	5.1	MRL	pg/g	J	Lcs
1,2,3,4,7,8,9-HpCDF	2.3	U Q	2.3	EDL	5.1	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	5.1		1.2	EDL	5.1	MRL	pg/g	U	Eb
1,2,3,4,7,8-HxCDF	7.8	M Q	1.6	EDL	5.1	MRL	pg/g	J	Lcs
1,2,3,6,7,8-HxCDD	43	Q	0.94	EDL	5.1	MRL	pg/g	J	Lcs
1,2,3,6,7,8-HxCDF	10	Q	1.3	EDL	5.1	MRL	pg/g	J	Lcs
1,2,3,7,8,9-HxCDD	25	M Q	0.93	EDL	5.1	MRL	pg/g	J	Lcs
1,2,3,7,8,9-HxCDF	1.6	U Q	1.6	EDL	5.1	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	6.3	Q	0.97	EDL	5.1	MRL	pg/g	J	Lcs
1,2,3,7,8-PeCDF	3.8	J M Q	1.1	EDL	5.1	MRL	pg/g	J	RI, Lcs
2,3,4,6,7,8-HxCDF	7.4	Q	1.5	EDL	5.1	MRL	pg/g	J	Lcs
2,3,4,7,8-PeCDF	6.0	Q	1.1	EDL	5.1	MRL	pg/g	J	Lcs
2,3,7,8-TCDD	1.4	Q	0.34	EDL	1.0	MRL	pg/g	J	Lcs
OCDD	1100	Q	2.7	EDL	10	MRL	pg/g	J	Lcs
OCDF	71	Q	0.18	EDL	10	MRL	pg/g	J	Lcs

Sample ID: SHAD041DP015SS01NS		10/5/2017 12:55:00		Analysis Type: RES-BASE/NEUTRAL Dilution: 1					
		Collected: PM							
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	9.8		0.52	EDL	1.0	MRL	pg/g	J	Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA	<b>Method:</b>	8290A
		<b>Matrix:</b>	SO

Sample ID: SHAD041DP015SS02NS      Collected: 10/5/2017 1:15:00 PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	9.8	J Q	0.25	EDL	5.2	MRL	pg/g	J	Ms, Ms, Lcs
1,2,3,4,6,7,8-HpCDF	3.1	J Q	0.10	EDL	5.2	MRL	pg/g	UJ	Ms, Lcs, Eb
1,2,3,4,7,8,9-HpCDF	0.13	U J Q	0.13	EDL	5.2	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.35	J	0.099	EDL	5.2	MRL	pg/g	UJ	Ms, Mb, Eb
1,2,3,4,7,8-HxCDF	0.48	J Q	0.11	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
1,2,3,6,7,8-HxCDD	1.8	J Q	0.077	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
1,2,3,6,7,8-HxCDF	0.35	J Q	0.087	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
1,2,3,7,8,9-HxCDD	1.5	J Q	0.076	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
1,2,3,7,8,9-HxCDF	0.13	J Q	0.11	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
1,2,3,7,8-PeCDD	0.34	J Q	0.12	EDL	5.2	MRL	pg/g	J	RI, Ms, Ms, Lcs
1,2,3,7,8-PeCDF	0.18	J Q	0.065	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
2,3,4,6,7,8-HxCDF	0.18	J Q	0.097	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
2,3,4,7,8-PeCDF	0.21	J Q	0.067	EDL	5.2	MRL	pg/g	J	RI, Ms, Lcs
2,3,7,8-TCDD	0.053	U J Q	0.053	EDL	1.0	MRL	pg/g	UJ	Lcs
OCDD	40	J Q	0.095	EDL	10	MRL	pg/g	J	Ms, Ms, Lcs
OCDF	2.3	J Q	0.049	EDL	10	MRL	pg/g	J	RI, Ms, Lcs

Sample ID: SHAD041DP015SS02NS      Collected: 10/5/2017 1:15:00 PM      Analysis Type: RES-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.38	J M	0.17	EDL	1.0	MRL	pg/g	J	RI, Ms, Ms, Lcs

Sample ID: SHAD041DP015SS03NS      Collected: 10/5/2017 1:20:00 PM      Analysis Type: RE-BASE/NEUTRAL      Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	18	Q	0.47	EDL	5.6	MRL	pg/g	J	Lcs
1,2,3,4,6,7,8-HpCDF	5.4	J Q	0.18	EDL	5.6	MRL	pg/g	J	RI, Lcs
1,2,3,4,7,8,9-HpCDF	0.22	U Q	0.22	EDL	5.6	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.51	J	0.15	EDL	5.6	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.70	J Q	0.13	EDL	5.6	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDD	3.6	J Q	0.11	EDL	5.6	MRL	pg/g	J	RI, Lcs
1,2,3,6,7,8-HxCDF	0.56	J Q	0.11	EDL	5.6	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDD	2.6	J Q	0.11	EDL	5.6	MRL	pg/g	J	RI, Lcs
1,2,3,7,8,9-HxCDF	0.13	U Q	0.13	EDL	5.6	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	0.55	J M Q	0.12	EDL	5.6	MRL	pg/g	J	RI, Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method Category:</b>	SVOA	
<b>Method:</b>	8290A	<b>Matrix:</b> SO

Sample ID: SHAD041DP015SS03NS		10/5/2017 1:20:00		Analysis Type: RE-BASE/NEUTRAL				Dilution: 1	
		Collected: PM							
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PeCDF	0.14	J Q	0.072	EDL	5.6	MRL	pg/g	J	RI, Lcs
2,3,4,6,7,8-HxCDF	0.37	J Q	0.12	EDL	5.6	MRL	pg/g	J	RI, Lcs
2,3,4,7,8-PeCDF	0.33	J Q	0.073	EDL	5.6	MRL	pg/g	J	RI, Lcs
2,3,7,8-TCDD	0.11	J M Q	0.052	EDL	1.1	MRL	pg/g	J	RI, Lcs
OCDD	72	Q	0.18	EDL	11	MRL	pg/g	J	Lcs
OCDF	5.0	J Q	0.053	EDL	11	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP015SS03NS		10/5/2017 1:20:00		Analysis Type: RES-BASE/NEUTRAL				Dilution: 1	
		Collected: PM							
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.48	J	0.13	EDL	1.1	MRL	pg/g	J	RI, Lcs

Sample ID: SHAD041DP015SS04NS		10/5/2017 1:25:00		Analysis Type: RES-BASE/NEUTRAL				Dilution: 1	
		Collected: PM							
Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.085	U Q	0.085	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,4,6,7,8-HpCDF	0.043	U Q	0.043	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8,9-HpCDF	0.053	U Q	0.053	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.21	J	0.069	EDL	5.3	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.066	U Q	0.066	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.053	U Q	0.053	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDF	0.054	U Q	0.054	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDD	0.053	U Q	0.053	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDF	0.065	U Q	0.065	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	0.095	U Q	0.095	EDL	5.3	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.049	U Q	0.049	EDL	5.3	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.060	U Q	0.060	EDL	5.3	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.050	U Q	0.050	EDL	5.3	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.062	U Q	0.062	EDL	1.1	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.049	U Q	0.049	EDL	1.1	MRL	pg/g	UJ	Lcs
OCDD	1.5	J Q	0.075	EDL	11	MRL	pg/g	UJ	Lcs, Mb, Eb
OCDF	0.16	U Q	0.16	EDL	11	MRL	pg/g	UJ	Lcs

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method Category:** SVOA  
**Method:** 8290A **Matrix:** SO

Sample ID: SHAD041DP015SS05NS Collected: 10/5/2017 1:34:00 PM Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	0.59	J Q	0.070	EDL	5.9	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.081	J Q	0.046	EDL	5.9	MRL	pg/g	UJ	Lcs, Mb, Eb
1,2,3,4,7,8,9-HpCDF	0.057	U Q	0.057	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,4,7,8-HxCDD	0.25	J	0.072	EDL	5.9	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDF	0.068	U Q	0.068	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDD	0.055	U Q	0.055	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,6,7,8-HxCDF	0.057	U Q	0.057	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDD	0.055	U Q	0.055	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,7,8,9-HxCDF	0.068	U Q	0.068	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDD	0.098	U Q	0.098	EDL	5.9	MRL	pg/g	UJ	Lcs
1,2,3,7,8-PeCDF	0.053	U Q	0.053	EDL	5.9	MRL	pg/g	UJ	Lcs
2,3,4,6,7,8-HxCDF	0.063	U Q	0.063	EDL	5.9	MRL	pg/g	UJ	Lcs
2,3,4,7,8-PeCDF	0.054	U Q	0.054	EDL	5.9	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDD	0.062	U Q	0.062	EDL	1.2	MRL	pg/g	UJ	Lcs
2,3,7,8-TCDF	0.046	U Q	0.046	EDL	1.2	MRL	pg/g	UJ	Lcs
OCDD	2.2	J Q	0.091	EDL	12	MRL	pg/g	UJ	Lcs, Eb
OCDF	0.17	U Q	0.17	EDL	12	MRL	pg/g	UJ	Lcs

Sample ID: SHAD041DP015SS06NS Collected: 10/5/2017 1:50:00 PM Analysis Type: RES-BASE/NEUTRAL Dilution: 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HpCDD	1.6	J	0.18	EDL	6.1	MRL	pg/g	U	Mb, Eb
1,2,3,4,6,7,8-HpCDF	0.33	J	0.15	EDL	6.1	MRL	pg/g	U	Mb, Eb
1,2,3,4,7,8-HxCDD	0.23	J M	0.13	EDL	6.1	MRL	pg/g	U	Mb, Eb
OCDD	12		0.17	EDL	12	MRL	pg/g	U	Eb
OCDF	1.4	J	0.14	EDL	12	MRL	pg/g	U	Mb

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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# Data Qualifier Summary

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

## Reason Code Legend

<i>Reason Code</i>	<i>Description</i>
Eb	Equipment Blank Contamination
Lcs	Laboratory Control Precision
Mb	Method Blank Contamination
Ms	Matrix Spike Precision
Ms	Matrix Spike Upper Estimation
RI	Reporting Limit Trace Value

\* denotes a non-reportable result

Project Name and Number: 05122.01 - SHAD-041

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**Enclosure I**

**Stage 2B ADR Outliers**

**(Including Manual Review Outliers)**

# Quality Control Outlier Reports

160-24925-2

# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** AQ

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-189688/1-A	11/13/2017 1:40:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD OCDD	0.655 pg/L 2.32 pg/L 0.600 pg/L 2.12 pg/L	SHAD041EQ003WS01NS SHAD041EQ004WS01NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041EQ003WS01NS(RES)	1,2,3,4,6,7,8-HpCDD	0.60 pg/L	0.60U pg/L
SHAD041EQ003WS01NS(RES)	1,2,3,4,7,8-HxCDD	1.7 pg/L	1.7U pg/L
SHAD041EQ003WS01NS(RES)	OCDD	2.8 pg/L	2.8U pg/L
SHAD041EQ004WS01NS(RES)	1,2,3,4,6,7,8-HpCDD	0.69 pg/L	0.69U pg/L
SHAD041EQ004WS01NS(RES)	1,2,3,4,7,8-HxCDD	1.4 pg/L	1.4U pg/L
SHAD041EQ004WS01NS(RES)	OCDD	1.8 pg/L	1.8U pg/L

**Method:** 8290A  
**Matrix:** SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 320-189559/1-A	11/16/2017 6:10:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD OCDD	0.146 pg/g 0.0687 pg/g 0.255 pg/g 0.395 pg/g	SHAD041DP008SS03NS SHAD041DP008SS04NS SHAD041DP008SS05NS SHAD041DP010SS01NS SHAD041DP010SS02DS SHAD041DP010SS02NS SHAD041DP010SS03NS SHAD041DP010SS04NS SHAD041DP010SS05NS SHAD041DP010SS06NS SHAD041DP015SS01NS SHAD041DP015SS02NS SHAD041DP015SS03NS SHAD041DP015SS04NS SHAD041DP015SS05NS
MB 320-190166/1-A	11/11/2017 10:55:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF 1,2,3,4,7,8-HxCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8,9-HxCDF 1,2,3,7,8-PeCDF 2,3,4,6,7,8-HxCDF 2,3,4,7,8-PeCDF OCDD OCDF	0.708 pg/g 0.497 pg/g 0.405 pg/g 0.518 pg/g 0.374 pg/g 0.465 pg/g 0.633 pg/g 0.412 pg/g 0.384 pg/g 0.491 pg/g 0.477 pg/g 1.94 pg/g 0.834 pg/g	SHAD041DP008SS06NS SHAD041DP015SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP008SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Method Blank Outlier Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method:</b>	8290A
<b>Matrix:</b>	SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP008SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.72 pg/g	0.72U pg/g
SHAD041DP008SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.069 pg/g	0.069U pg/g
SHAD041DP008SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP008SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.71 pg/g	0.71U pg/g
SHAD041DP008SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.10 pg/g	0.10U pg/g
SHAD041DP008SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.67 pg/g	0.67U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.34 pg/g	0.34U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,7,8,9-HxCDD	0.16 pg/g	0.16U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,7,8,9-HxCDF	0.26 pg/g	0.26U pg/g
SHAD041DP008SS06NS(RES)	OCDD	1.9 pg/g	1.9U pg/g
SHAD041DP008SS06NS(RES)	OCDF	1.3 pg/g	1.3U pg/g
SHAD041DP010SS01NS(RE)	1,2,3,4,7,8-HxCDD	0.96 pg/g	0.96U pg/g
SHAD041DP010SS02DS(RES)	1,2,3,4,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP010SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP010SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP010SS04NS(RE)	1,2,3,4,6,7,8-HpCDD	0.52 pg/g	0.52U pg/g
SHAD041DP010SS04NS(RE)	1,2,3,4,6,7,8-HpCDF	0.083 pg/g	0.083U pg/g
SHAD041DP010SS04NS(RE)	1,2,3,4,7,8-HxCDD	0.24 pg/g	0.24U pg/g
SHAD041DP010SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.27 pg/g	0.27U pg/g
SHAD041DP010SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.12 pg/g	0.12U pg/g
SHAD041DP010SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP010SS05NS(RES)	OCDD	1.5 pg/g	1.5U pg/g
SHAD041DP010SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.091 pg/g	0.091U pg/g
SHAD041DP010SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP015SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.35 pg/g	0.35U pg/g
SHAD041DP015SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.51 pg/g	0.51U pg/g
SHAD041DP015SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.21 pg/g	0.21U pg/g
SHAD041DP015SS04NS(RES)	OCDD	1.5 pg/g	1.5U pg/g
SHAD041DP015SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.59 pg/g	0.59U pg/g
SHAD041DP015SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.081 pg/g	0.081U pg/g
SHAD041DP015SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP015SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	1.6 pg/g	1.6U pg/g
SHAD041DP015SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.33 pg/g	0.33U pg/g
SHAD041DP015SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP015SS06NS(RES)	OCDF	1.4 pg/g	1.4U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
SHAD041EQ003WS01NS (RES)	10/5/2017 2:30:00 PM	1,2,3,4,6,7,8-HpCDD 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8-HxCDD OCDD	0.6 pg/L 0.91 pg/L 1.7 pg/L 2.8 pg/L	SHAD041DP008SS03NS SHAD041DP008SS04NS SHAD041DP008SS05NS SHAD041DP008SS06NS SHAD041DP010SS01NS SHAD041DP010SS02DS SHAD041DP010SS02NS SHAD041DP010SS03NS SHAD041DP010SS04NS SHAD041DP010SS05NS SHAD041DP010SS06NS SHAD041DP015SS01NS SHAD041DP015SS02NS SHAD041DP015SS03NS SHAD041DP015SS04NS SHAD041DP015SS05NS SHAD041DP015SS06NS

*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP008SS03NS(RES)	1,2,3,4,6,7,8-HpCDD	0.87 pg/g	0.87U pg/g
SHAD041DP008SS03NS(RES)	1,2,3,4,6,7,8-HpCDF	0.36 pg/g	0.36U pg/g
SHAD041DP008SS03NS(RES)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP008SS03NS(RES)	OCDD	6.0 pg/g	6.0U pg/g
SHAD041DP008SS04NS(RES)	1,2,3,4,6,7,8-HpCDD	0.72 pg/g	0.72U pg/g
SHAD041DP008SS04NS(RES)	1,2,3,4,6,7,8-HpCDF	0.069 pg/g	0.069U pg/g
SHAD041DP008SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP008SS04NS(RES)	OCDD	6.2 pg/g	6.2U pg/g
SHAD041DP008SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.71 pg/g	0.71U pg/g
SHAD041DP008SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.10 pg/g	0.10U pg/g
SHAD041DP008SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.20 pg/g	0.20U pg/g
SHAD041DP008SS05NS(RES)	OCDD	3.5 pg/g	3.5U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.67 pg/g	0.67U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.34 pg/g	0.34U pg/g
SHAD041DP008SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP008SS06NS(RES)	OCDD	1.9 pg/g	1.9U pg/g
SHAD041DP010SS01NS(RES)	1,2,3,4,7,8-HxCDD	0.96 pg/g	0.96U pg/g
SHAD041DP010SS02DS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP010SS02DS(RES)	1,2,3,4,6,7,8-HpCDF	0.35 pg/g	0.35U pg/g
SHAD041DP010SS02DS(RES)	1,2,3,4,7,8-HxCDD	0.22 pg/g	0.22U pg/g
SHAD041DP010SS02DS(RES)	OCDD	7.6 pg/g	7.6U pg/g
SHAD041DP010SS02NS(RES)	1,2,3,4,6,7,8-HpCDD	1.3 pg/g	1.3U pg/g
SHAD041DP010SS02NS(RES)	1,2,3,4,6,7,8-HpCDF	0.50 pg/g	0.50U pg/g
SHAD041DP010SS02NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP010SS02NS(RES)	OCDD	7.8 pg/g	7.8U pg/g
SHAD041DP010SS03NS(RES)	1,2,3,4,6,7,8-HpCDF	2.7 pg/g	2.7U pg/g

Project Name and Number: 05122.01 - SHAD-041

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# Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

<b>Method:</b>	8290A
<b>Matrix:</b>	SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
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*The following samples and their listed target analytes were qualified due to contamination reported in this blank*

Sample ID	Analyte	Reported Result	Modified Final Result
SHAD041DP010SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.26 pg/g	0.26U pg/g
SHAD041DP010SS04NS(RE)	1,2,3,4,6,7,8-HpCDD	0.52 pg/g	0.52U pg/g
SHAD041DP010SS04NS(RE)	1,2,3,4,6,7,8-HpCDF	0.083 pg/g	0.083U pg/g
SHAD041DP010SS04NS(RE)	1,2,3,4,7,8-HxCDD	0.24 pg/g	0.24U pg/g
SHAD041DP010SS04NS(RE)	OCDD	3.1 pg/g	3.1U pg/g
SHAD041DP010SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.27 pg/g	0.27U pg/g
SHAD041DP010SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.12 pg/g	0.12U pg/g
SHAD041DP010SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP010SS05NS(RES)	OCDD	1.5 pg/g	1.5U pg/g
SHAD041DP010SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	0.86 pg/g	0.86U pg/g
SHAD041DP010SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.091 pg/g	0.091U pg/g
SHAD041DP010SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.18 pg/g	0.18U pg/g
SHAD041DP010SS06NS(RES)	OCDD	6.3 pg/g	6.3U pg/g
SHAD041DP015SS01NS(RE)	1,2,3,4,7,8-HxCDD	5.1 pg/g	5.1U pg/g
SHAD041DP015SS02NS(RE)	1,2,3,4,6,7,8-HpCDF	3.1 pg/g	3.1U pg/g
SHAD041DP015SS02NS(RE)	1,2,3,4,7,8-HxCDD	0.35 pg/g	0.35U pg/g
SHAD041DP015SS03NS(RE)	1,2,3,4,7,8-HxCDD	0.51 pg/g	0.51U pg/g
SHAD041DP015SS04NS(RES)	1,2,3,4,7,8-HxCDD	0.21 pg/g	0.21U pg/g
SHAD041DP015SS04NS(RES)	OCDD	1.5 pg/g	1.5U pg/g
SHAD041DP015SS05NS(RES)	1,2,3,4,6,7,8-HpCDD	0.59 pg/g	0.59U pg/g
SHAD041DP015SS05NS(RES)	1,2,3,4,6,7,8-HpCDF	0.081 pg/g	0.081U pg/g
SHAD041DP015SS05NS(RES)	1,2,3,4,7,8-HxCDD	0.25 pg/g	0.25U pg/g
SHAD041DP015SS05NS(RES)	OCDD	2.2 pg/g	2.2U pg/g
SHAD041DP015SS06NS(RES)	1,2,3,4,6,7,8-HpCDD	1.6 pg/g	1.6U pg/g
SHAD041DP015SS06NS(RES)	1,2,3,4,6,7,8-HpCDF	0.33 pg/g	0.33U pg/g
SHAD041DP015SS06NS(RES)	1,2,3,4,7,8-HxCDD	0.23 pg/g	0.23U pg/g
SHAD041DP015SS06NS(RES)	OCDD	12 pg/g	12U pg/g

# Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SHAD041DP015SS02NSMS SHAD041DP015SS02NSMSD (SHAD041DP015SS02NS)	1,2,3,4,6,7,8-HpCDD	136	-	76.00-125.00	34 (20.00)	1,2,3,4,6,7,8-HpCDD	J (all detects)
	1,2,3,4,6,7,8-HpCDF	-	-	73.00-135.00	21 (20.00)	1,2,3,4,6,7,8-HpCDF	
	1,2,3,4,7,8,9-HpCDF	-	-	72.00-131.00	23 (20.00)	1,2,3,4,7,8,9-HpCDF	
	1,2,3,4,7,8-HxCDD	-	-	72.00-131.00	31 (20.00)	1,2,3,4,7,8-HxCDD	
	1,2,3,4,7,8-HxCDF	-	-	77.00-130.00	27 (20.00)	1,2,3,4,7,8-HxCDF	
	1,2,3,6,7,8-HxCDD	-	-	74.00-134.00	30 (20.00)	1,2,3,6,7,8-HxCDD	
	1,2,3,6,7,8-HxCDF	-	-	73.00-134.00	24 (20.00)	1,2,3,6,7,8-HxCDF	
	1,2,3,7,8,9-HxCDD	-	-	71.00-138.00	32 (20.00)	1,2,3,7,8,9-HxCDD	
	1,2,3,7,8,9-HxCDF	-	-	74.00-135.00	26 (20.00)	1,2,3,7,8,9-HxCDF	
	1,2,3,7,8-PeCDD	133	-	74.00-125.00	31 (20.00)	1,2,3,7,8-PeCDD	
	1,2,3,7,8-PeCDF	-	-	77.00-131.00	27 (20.00)	1,2,3,7,8-PeCDF	
	2,3,4,6,7,8-HxCDF	-	-	74.00-133.00	25 (20.00)	2,3,4,6,7,8-HxCDF	
	2,3,4,7,8-PeCDF	-	-	75.00-128.00	30 (20.00)	2,3,4,7,8-PeCDF	
	2,3,7,8-TCDD	-	-	70.00-128.00	30 (20.00)	2,3,7,8-TCDD	
	2,3,7,8-TCDF	143	-	75.00-135.00	29 (20.00)	2,3,7,8-TCDF	
	OCDD	241	-	73.00-135.00	79 (20.00)	OCDD	
	OCDF	-	-	66.00-144.00	22 (20.00)	OCDF	



# Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
LCSD 320-189559/3-A	1,2,3,4,6,7,8-HpCDD	-	-	76.00-125.00	26 (20.00)	1,2,3,4,6,7,8-HpCDD	J (all detects) UJ (all non-detects)
(SHAD041DP008SS03NS	1,2,3,4,6,7,8-HpCDF	-	-	73.00-135.00	26 (20.00)	1,2,3,4,6,7,8-HpCDF	
SHAD041DP008SS04NS	1,2,3,4,7,8,9-HpCDF	-	-	72.00-131.00	26 (20.00)	1,2,3,4,7,8,9-HpCDF	
SHAD041DP008SS05NS	1,2,3,4,7,8-HxCDF	-	-	77.00-130.00	26 (20.00)	1,2,3,4,7,8-HxCDF	
SHAD041DP010SS01NS	1,2,3,6,7,8-HxCDD	-	-	74.00-134.00	27 (20.00)	1,2,3,6,7,8-HxCDD	
SHAD041DP010SS02DS	1,2,3,6,7,8-HxCDF	-	-	73.00-134.00	27 (20.00)	1,2,3,6,7,8-HxCDF	
SHAD041DP010SS02NS	1,2,3,7,8,9-HxCDD	-	-	71.00-138.00	24 (20.00)	1,2,3,7,8,9-HxCDD	
SHAD041DP010SS03NS	1,2,3,7,8,9-HxCDF	-	-	74.00-135.00	28 (20.00)	1,2,3,7,8,9-HxCDF	
SHAD041DP010SS04NS	1,2,3,7,8-PeCDD	-	-	74.00-125.00	26 (20.00)	1,2,3,7,8-PeCDD	
SHAD041DP010SS05NS	1,2,3,7,8-PeCDF	-	-	77.00-131.00	23 (20.00)	1,2,3,7,8-PeCDF	
SHAD041DP010SS06NS	2,3,4,6,7,8-HxCDF	-	-	74.00-133.00	28 (20.00)	2,3,4,6,7,8-HxCDF	
SHAD041DP015SS01NS	2,3,4,7,8-PeCDF	-	-	75.00-128.00	24 (20.00)	2,3,4,7,8-PeCDF	
SHAD041DP015SS02NS	2,3,7,8-TCDD	-	-	70.00-128.00	23 (20.00)	2,3,7,8-TCDD	
SHAD041DP015SS03NS	2,3,7,8-TCDF	-	-	75.00-135.00	26 (20.00)	2,3,7,8-TCDF	
SHAD041DP015SS04NS	OCDD	-	-	73.00-135.00	24 (20.00)	OCDD	
SHAD041DP015SS05NS)	OCDF	-	-	66.00-144.00	25 (20.00)	OCDF	



## Reporting Limit Outliers

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041EQ003WS01NS	1,2,3,4,6,7,8-HpCDD	J	0.60	51	MRL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.91	51	MRL	pg/L	
	1,2,3,4,7,8-HxCDD	J	1.7	51	MRL	pg/L	
	OCDD	J	2.8	120	MRL	pg/L	
SHAD041EQ004WS01NS	1,2,3,4,6,7,8-HpCDD	J	0.69	48	MRL	pg/L	J (all detects)
	1,2,3,4,7,8-HxCDD	J	1.4	48	MRL	pg/L	
	1,2,3,7,8,9-HxCDF	J	0.26	48	MRL	pg/L	
	OCDD	J	1.8	110	MRL	pg/L	

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP008SS03NS	1,2,3,4,6,7,8-HpCDD	J Q	0.87	5.5	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.36	5.5	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J Q	0.17	5.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.26	5.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J Q	0.11	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	0.43	5.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J Q	0.12	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	0.67	5.5	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J Q	0.19	5.5	MRL	pg/g	
	1,2,3,7,8-PeCDD	J Q	0.14	5.5	MRL	pg/g	
	1,2,3,7,8-PeCDF	J Q	0.099	5.5	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J Q	0.096	5.5	MRL	pg/g	
	OCDD	J Q	6.0	11	MRL	pg/g	
	OCDF	J Q	0.58	11	MRL	pg/g	
SHAD041DP008SS04NS	1,2,3,4,6,7,8-HpCDD	J Q	0.72	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.069	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.20	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M Q	0.16	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	0.31	6.0	MRL	pg/g	
	OCDD	J Q	6.2	12	MRL	pg/g	
SHAD041DP008SS05NS	OCDF	J Q	0.21	12	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDD	J Q	0.71	6.3	MRL	pg/g	
	1,2,3,4,6,7,8-HpCDF	J Q	0.10	6.3	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.20	6.3	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M Q	0.10	6.3	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	0.10	6.3	MRL	pg/g	
SHAD041DP008SS06NS	1,2,3,7,8,9-HxCDF	J Q	0.090	6.3	MRL	pg/g	J (all detects)
	OCDD	J Q	3.5	13	MRL	pg/g	
	OCDF	J Q	0.16	13	MRL	pg/g	
	1,2,3,4,6,7,8-HpCDD	J	0.67	6.0	MRL	pg/g	
SHAD041DP008SS06NS	1,2,3,4,6,7,8-HpCDF	J	0.34	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.23	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J	0.16	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J	0.26	6.0	MRL	pg/g	
	OCDD	J	1.9	12	MRL	pg/g	
	OCDF	J	1.3	12	MRL	pg/g	

# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A

**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP010SS01NS	1,2,3,4,7,8-HxCDD	J	0.96	5.0	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDF	J M Q	1.8	5.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J Q	1.6	5.0	MRL	pg/g	
	1,2,3,7,8-PeCDD	J Q	1.1	5.0	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J Q	0.90	5.0	MRL	pg/g	
	2,3,4,7,8-PeCDF	J Q	0.56	5.0	MRL	pg/g	
	2,3,7,8-TCDD	J M Q	0.23	1.0	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.79	1.0	MRL	pg/g	
SHAD041DP010SS02DS	1,2,3,4,6,7,8-HpCDD	J Q	1.3	5.4	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.35	5.4	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.22	5.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	0.54	5.4	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J Q	0.099	5.4	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	0.75	5.4	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J Q	0.18	5.4	MRL	pg/g	
	1,2,3,7,8-PeCDD	J Q	0.14	5.4	MRL	pg/g	
	OCDD	J Q	7.6	11	MRL	pg/g	
OCDF	J Q	0.35	11	MRL	pg/g		
SHAD041DP010SS02NS	1,2,3,4,6,7,8-HpCDD	J Q	1.3	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.50	5.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.23	5.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	0.53	5.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M Q	0.098	5.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	0.78	5.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J Q	0.18	5.2	MRL	pg/g	
	1,2,3,7,8-PeCDD	J Q	0.13	5.2	MRL	pg/g	
	OCDD	J Q	7.8	10	MRL	pg/g	
OCDF	J Q	0.40	10	MRL	pg/g		
SHAD041DP010SS03NS	1,2,3,4,6,7,8-HpCDD	J Q	4.8	5.8	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	2.7	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.26	5.8	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J M Q	0.20	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	1.2	5.8	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J Q	0.17	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	1.2	5.8	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J Q	0.15	5.8	MRL	pg/g	
	1,2,3,7,8-PeCDD	J Q	0.22	5.8	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.096	1.2	MRL	pg/g	
OCDF	J Q	1.7	12	MRL	pg/g		
SHAD041DP010SS04NS	1,2,3,4,6,7,8-HpCDD	J Q	0.52	6.0	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.083	6.0	MRL	pg/g	
	1,2,3,4,7,8,9-HpCDF	J Q	0.14	6.0	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.24	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J M Q	0.085	6.0	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M Q	0.057	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	0.14	6.0	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J Q	0.21	6.0	MRL	pg/g	
	1,2,3,7,8-PeCDF	J Q	0.093	6.0	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J Q	0.064	6.0	MRL	pg/g	
	OCDD	J Q	3.1	12	MRL	pg/g	
OCDF	J Q	0.24	12	MRL	pg/g		

# Reporting Limit Outliers

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SHAD041DP010SS05NS	1,2,3,4,6,7,8-HpCDD	J Q	0.27	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.12	5.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.18	5.2	MRL	pg/g	
	OCDD	J Q	1.5	10	MRL	pg/g	
	OCDF	J Q	0.17	10	MRL	pg/g	
SHAD041DP010SS06NS	1,2,3,4,6,7,8-HpCDD	J Q	0.86	6.5	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.091	6.5	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.18	6.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	0.065	6.5	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J M Q	0.064	6.5	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J Q	0.037	6.5	MRL	pg/g	
	OCDD	J Q	6.3	13	MRL	pg/g	
SHAD041DP015SS01NS	1,2,3,7,8-PeCDF	J M Q	3.8	5.1	MRL	pg/g	J (all detects)
SHAD041DP015SS02NS	1,2,3,4,6,7,8-HpCDF	J Q	3.1	5.2	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.35	5.2	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J Q	0.48	5.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	1.8	5.2	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J Q	0.35	5.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	1.5	5.2	MRL	pg/g	
	1,2,3,7,8,9-HxCDF	J Q	0.13	5.2	MRL	pg/g	
	1,2,3,7,8-PeCDD	J Q	0.34	5.2	MRL	pg/g	
	1,2,3,7,8-PeCDF	J Q	0.18	5.2	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J Q	0.18	5.2	MRL	pg/g	
	2,3,4,7,8-PeCDF	J Q	0.21	5.2	MRL	pg/g	
	2,3,7,8-TCDF	J M	0.38	1.0	MRL	pg/g	
	OCDF	J Q	2.3	10	MRL	pg/g	
SHAD041DP015SS03NS	1,2,3,4,6,7,8-HpCDF	J Q	5.4	5.6	MRL	pg/g	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.51	5.6	MRL	pg/g	
	1,2,3,4,7,8-HxCDF	J Q	0.70	5.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDD	J Q	3.6	5.6	MRL	pg/g	
	1,2,3,6,7,8-HxCDF	J Q	0.56	5.6	MRL	pg/g	
	1,2,3,7,8,9-HxCDD	J Q	2.6	5.6	MRL	pg/g	
	1,2,3,7,8-PeCDD	J M Q	0.55	5.6	MRL	pg/g	
	1,2,3,7,8-PeCDF	J Q	0.14	5.6	MRL	pg/g	
	2,3,4,6,7,8-HxCDF	J Q	0.37	5.6	MRL	pg/g	
	2,3,4,7,8-PeCDF	J Q	0.33	5.6	MRL	pg/g	
	2,3,7,8-TCDD	J M Q	0.11	1.1	MRL	pg/g	
	2,3,7,8-TCDF	J	0.48	1.1	MRL	pg/g	
	OCDF	J Q	5.0	11	MRL	pg/g	
SHAD041DP015SS04NS	1,2,3,4,7,8-HxCDD	J	0.21	5.3	MRL	pg/g	J (all detects)
	OCDD	J Q	1.5	11	MRL	pg/g	
SHAD041DP015SS05NS	1,2,3,4,6,7,8-HpCDD	J Q	0.59	5.9	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J Q	0.081	5.9	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J	0.25	5.9	MRL	pg/g	
	OCDD	J Q	2.2	12	MRL	pg/g	
SHAD041DP015SS06NS	1,2,3,4,6,7,8-HpCDD	J	1.6	6.1	MRL	pg/g	J (all detects)
	1,2,3,4,6,7,8-HpCDF	J	0.33	6.1	MRL	pg/g	
	1,2,3,4,7,8-HxCDD	J M	0.23	6.1	MRL	pg/g	
	OCDF	J	1.4	12	MRL	pg/g	

# Field Duplicate RPD Report

Lab Reporting Batch ID: 160-24925-2

Laboratory: TA STL

EDD Filename: 160-24925-2

eQAPP Name: AHTNA\_Sharpe\_SHAD041\_121317

**Method:** 8290A  
**Matrix:** SO

Analyte	Concentration (pg/g)		Sample RPD	eQAPP RPD	Flag
	SHAD041DP010SS02N S	SHAD041DP010SS02D S			
1,2,3,4,6,7,8-HpCDD	1.3	1.3	0	30.00	No Qualifiers Applied
1,2,3,4,6,7,8-HpCDF	0.50	0.35	35	30.00	
1,2,3,4,7,8-HxCDD	0.23	0.22	4	30.00	
1,2,3,6,7,8-HxCDD	0.53	0.54	2	30.00	
1,2,3,6,7,8-HxCDF	0.098	0.099	1	30.00	
1,2,3,7,8,9-HxCDD	0.78	0.75	4	30.00	
1,2,3,7,8,9-HxCDF	0.18	0.18	0	30.00	
1,2,3,7,8-PeCDD	0.13	0.14	7	30.00	
OCDD	7.8	7.6	3	30.00	
OCDF	0.40	0.35	13	30.00	



LDC #: 39925A21  
 SDG #: 160-24925-2  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 11/30/17  
 Page: 1 of 2  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	PSDS 20/0. ICV = 20/30/0
IV.	Continuing calibration	A	CCV = 20/30/0
V.	Laboratory Blanks	N/A	Not reviewed for ADR validation.
VI.	Field blanks	N	ZB = 18, 19
VII.	Matrix spike/Matrix spike duplicates	N	Not reviewed for ADR validation.
VIII.	Laboratory control samples	✓	Not reviewed for ADR validation.
IX.	Field duplicates	N	Not reviewed for ADR validation. D = 6+7
X.	Internal standards	A	
XI.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation.
XII.	Target compound identification	↓	Not reviewed for ADR validation.
XIII.	System performance	↓	Not reviewed for ADR validation.
XIV.	Overall assessment of data	↓	Not reviewed for ADR validation.

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

\*\* Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	SHAD041DP008SS03NS	160-24925-1	Soil	10/05/17
2	SHAD041DP008SS04NS	160-24925-2	Soil	10/05/17
3	SHAD041DP008SS05NS	160-24925-3	Soil	10/05/17
4	SHAD041DP008SS06NS	160-24925-4	Soil	10/05/17
5	SHAD041DP010SS01NS	160-24925-5	Soil	10/05/17
6	SHAD041DP010SS02NS	160-24925-6	Soil	10/05/17
7	SHAD041DP010SS02DS	160-24925-7	Soil	10/05/17
8	SHAD041DP010SS03NS	160-24925-8	Soil	10/05/17
9	SHAD041DP010SS04NS*	160-24925-9*	Soil	10/05/17
10	SHAD041DP010SS05NS	160-24925-10	Soil	10/05/17
11	SHAD041DP010SS06NS	160-24925-11	Soil	10/05/17
12	SHAD041DP015SS01NS	160-24925-12	Soil	10/05/17
13	SHAD041DP015SS02NS	160-24925-13	Soil	10/05/17
14	SHAD041DP015SS03NS	160-24925-14	Soil	10/05/17



LDC #: 39925A21

# VALIDATION COMPLETENESS WORKSHEET

SDG #: 160-24925-2

ADR

Laboratory: Test America, Inc.

Date: 11/20/17

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Reviewer: [Signature]

2nd Reviewer: [Signature]

**METHOD:** HRGC/HRMS Polychlorinated Dioxins/Dibenzofurans (EPA SW846 Method 8290A)

	Client ID	Lab ID	Matrix	Date
15	SHAD041DP015SS04NS	160-24925-15	Soil	10/05/17
16	SHAD041DP015SS05NS	160-24925-16	Soil	10/05/17
17	SHAD041DP015SS06NS	160-24925-17	Soil	10/05/17
18	SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
19	SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
20	SHAD041DP015SS02NSMS	160-24925-13MS	Soil	10/05/17
21	SHAD041DP015SS02NSMSD	160-24925-13MSD	Soil	10/05/17
22				
23				
24				
25				
26				

Notes:


# VALIDATION FINDINGS WORKSHEET

**METHOD:** HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:

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LDC#: 39925A21

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1  
Reviewer: [Signature]  
2nd Reviewer: [Signature]

**METHOD:** GCMS Dioxins (EPA SW 846 Method 8290A)

Compound	Concentration (pg/g)		(<30) RPD	Difference	Limits	Qual
	6	7				
B	0.13	0.14		0.01	≤5.4	
C	0.23	0.22		0.01	≤5.4	
D	0.53	0.54		0.01	≤5.4	
E	0.78	0.75		0.03	≤5.4	
L	0.098	0.099		0.001	≤5.4	
N	0.18	0.18		0	≤5.4	
F	1.3	1.3		0	≤5.4	
O	0.50	0.35		0.15	≤5.4	
G	7.8	7.6		0.2	≤11	
Q	0.40	0.35		0.05	≤11	

**VALIDATION FINDINGS WORKSHEET**  
**Field Blanks**

**METHOD:** HRGC/HRMS Dioxins (EPA SW 846 Method 8290A)

**Blank units:** pg/L **Associated sample units:** pg/g

**Sampling date:** 10/5/17

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All Soils

Compound	Blank ID	Sample Identification											
		5X	1	2	3	4	5	6	7	8	9	10	11
C	1.7	8.5	0.26	0.20	0.20	0.23	0.96	0.23	0.22	0.26	0.24	0.18	0.18
F	0.60	3	0.87	0.72	0.71	0.67		1.3	1.3		0.52	0.27	0.86
G	2.8	14	6.0	6.2	3.5	1.9		7.8	7.6		3.1	1.5	6.3
O	0.91	4.55	0.36	0.069	0.10	0.34		0.50	0.35	2.7	0.083	0.12	0.091

Compound	Blank ID	Sample Identification											
		5X	12	13	14	15	16	17					
C	1.7	8.5	5.1	0.35	0.51	0.21	0.25	0.23					
F	0.60	3				0.59	1.6						
G	2.8	14				1.5	2.2	12					
O	0.91	4.55		3.1		0.081	0.33						

**Blank units:** pg/L **Associated sample units:** pg/g

**Sampling date:** 10/6/17

**Field blank type:** (circle one) Field Blank / Rinsate / Other: EB Associated Samples: None

Compound	Blank ID	Sample Identification											
		5X	7	3.45	9	1.3							
C	1.4												
F	0.69												
G	1.8												
N	0.26												

LDC #: 39925A29a  
 SDG #: 160-24925-2  
 Laboratory: Test America, Inc.

**VALIDATION COMPLETENESS WORKSHEET**  
 ADR

Date: 10/11/17  
 Page: 1 of 1  
 Reviewer: [Signature]  
 2nd Reviewer: [Signature]

**METHOD:** Radium 226 (EPA Method 903.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	
V.	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicates	N	
VIII.	Laboratory control samples	N	LCS / P
IX.	Field duplicates	N	
X.	Carrier recovery	A	
XI.	Minimum detectable activity (MDA)	N	
XII.	Sample result verification	N	
XIII.	Overall assessment of data	N	

Note: A = Acceptable      ND = No compounds detected      D = Duplicate      SB=Source blank  
 N = Not provided/applicable      R = Rinsate      TB = Trip blank      OTHER:  
 SW = See worksheet      FB = Field blank      EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	SHAD041EQ003WS01NS	160-24925-18	Water	10/05/17
2	SHAD041EQ004WS01NS	160-24925-26	Water	10/06/17
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

Notes: \_\_\_\_\_  
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