CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808655

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82307 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0231*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0204*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		103	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Surrogate: Decachlorobiphenyl	*0.0258*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0229*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0236*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Matrix Spike **Source: 1808655-10**										

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808655

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82307 - 3540C										
Aroclor 1016	0.7	0.06	mg/kg dry	0.5579	ND	123	40-140			
Aroclor 1016 [2C]	0.6	0.06	mg/kg dry	0.5579	ND	116	40-140			
Aroclor 1260	1.0	0.06	mg/kg dry	0.5579	ND	175	40-140			M+
Aroclor 1260 [2C]	1.0	0.06	mg/kg dry	0.5579	ND	177	40-140			M+
Surrogate: Decachlorobiphenyl	*0.0240*		mg/kg dry	*0.02790*		*86*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0265*		mg/kg dry	*0.02790*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0327*		mg/kg dry	*0.02790*		*117*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0277*		mg/kg dry	*0.02790*		*99*	*30-150*			
Matrix Spike Dup Source: 1808655-10										
Aroclor 1016	0.8	0.06	mg/kg dry	0.5551	ND	140	40-140	12	30	
Aroclor 1016 [2C]	0.7	0.06	mg/kg dry	0.5551	ND	130	40-140	10	30	
Aroclor 1260	1.0	0.06	mg/kg dry	0.5551	ND	184	40-140	5	30	M+
Aroclor 1260 [2C]	1.0	0.06	mg/kg dry	0.5551	ND	182	40-140	3	30	M+
Surrogate: Decachlorobiphenyl	*0.0261*		mg/kg dry	*0.02775*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0323*		mg/kg dry	*0.02775*		*116*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0301*		mg/kg dry	*0.02775*		*109*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0286*		mg/kg dry	*0.02775*		*103*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1808655

Notes and Definitions

U	Analyte included in the analysis, but not detected
M+	Matrix Spike recovery is above upper control limit (M+).
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808655

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1808655
Date Received: 8/23/2018
Project Due Date: 8/27/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 4.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	259086	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	259085	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	259084	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	259083	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	259082	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	259081	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	259080	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	259079	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	259078	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	259077	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	259099	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	259101	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	259076	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	259075	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	259074	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	259073	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	259072	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No
Are all necessary stickers attached? Yes / No

Completed

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1808655

Date Received: 8/23/2018

By: Date & Time: 8/23/18 1644

Reviewed By: Date & Time: 8/23/18 1710

Delivered By: 8/23/18 1710

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1808655

Turn Time Rush 48-hr

Regulatory State RI

Reporting Limits see note 1

Is this project for any of the following?: ○CT RCP ○MA MCP ○RGP

Electonic Deliverables ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI

Project # 3163655

Project Name:

Contact Person: Aaron Ting

Address: 112 Water St, 5th Floor

City: Boston

State: MA

Zip Code: 02109

PO #: —

Telephone Number: 978-577-7138

FAX Number: —

Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	PCBs (Soxhlet)
1	8/23/18	0959	C	S	SW-499-082318 (0-4')	X
2		1000			SW-500-082318 (0-4')	X
3		1001			SW-501-082318 (0-4')	X
4		1002			SW-502-082318 (0-4')	X
5		1003			SW-503-082318 (0-4')	X
6		1004			SW-504-082318 (0-4')	X
7		1005			SW-505-082318 (0-4')	X
8		1006			SW-506-082318 (0-4')	X
9		1007			SW-507-082318 (0-4')	X
10		1011			SW-508-082318 (0-4')	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — AG

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 9

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other* — 1

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact:

Cooler Temperature: 4.0 °C ICE RC

Sampled by: A. Ting

Comments: Please specify "Other" preservative and containers types in this space

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/23/18 1512	R. Carlson 8/23/18 1512	R. Carlson 8/23/18 1535	8/23/18 1540
Relinquished by: (Signature, Date & Time)	**Received By: (Signature, Date & Time)**	**Relinquished By: (Signature, Date & Time)**	**Received By: (Signature, Date & Time)**

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1808655

Turn Time Rush 48-hr

Regulatory State RI

Reporting Limits see note 1

Is this project for any of the following?: ○CT RCP ○MA MCP ○RGP

Electonic Deliverables ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name	Project #	Project Name
AEI	3163055	

Contact Person	Address
Aaron Ting	112 Water St, 5th Floor

City	State	Zip Code	PO #
Boston	MA	02109	—

Telephone Number	FAX Number	Email Address
978-577-7138	—	ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
11	8/23/18	1011	C	S	SW-508-082318-1 (0-4')	1
12 10		1011			SW-508-082318 (0-4') MS/MSD	2
13 12		1012			SW-671-082318 (0-4')	1
14 13		1013			SW-672-082318 (0-4')	1
15 14		1014			SW-673-082318 (0-4')	2
16 15		1015			SW-674-082318 (0-4')	1

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*

	AG	9	1	1

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact:

Cooler Temperature: 4.0 °C ICE RC

Sampled by: A. Ting

Comments: Please specify "Other" preservative and containers types in this space

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/23/18 1512	R. Carlino 8/23/18 1512	R. Carlino 8/23/18 1535	8/23/18 1540
Relinquished by: (Signature, Date & Time)	**Received By: (Signature, Date & Time)**	**Relinquished By: (Signature, Date & Time)**	**Received By: (Signature, Date & Time)**

CERTIFICATE OF ANALYSIS

Richard Kowalski
AEI Consultants, Inc.
148 Hathaway Road
Dartmouth, MA 02747

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1808723

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 4:50 pm, Aug 29, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

SAMPLE RECEIPT

The following samples were received on August 27, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1808723-01	B-100-082718 2ft	Soil	8082A
1808723-02	B-100-082718-1 2ft	Soil	8082A
1808723-03	B-105-082718 2ft	Soil	8082A
1808723-04	B-110-082718 2ft	Soil	8082A
1808723-05	SW-100-082718 0-2ft	Soil	8082A
1808723-06	SW-105-082718 0-2ft	Soil	8082A
1808723-07	W-14 0-1	Soil	8082A
1808723-08	W-14 1-2	Soil	8082A
1808723-09	W-17 1-2	Soil	8082A
1808723-10	W-17 0-1	Soil	8082A
1808723-11	W-33B 0-1	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1808723-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1808723-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1808723-10 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

CH82705-MS1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (182% @ 40-140%)

CH82705-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (268% @ 40-140%), Aroclor 1016 [2C] (232% @ 40-140%)

CH82705-MSD1 **Matrix Spike recovery is above upper control limit (M+).**
Aroclor 1260 (168% @ 40-140%)

CH82705-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (269% @ 40-140%), Aroclor 1016 [2C] (235% @ 40-140%)

CH82705-MSD1 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (171% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-100-082718 2ft
Date Sampled: 08/27/18 11:40
Percent Solids: 87
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:03

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 10:57		CH82705
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 10:57		CH82705
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 10:57		CH82705
Aroclor 1242	**1.6** (0.6)		8082A		10	08/28/18 15:26		CH82705
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 10:57		CH82705
Aroclor 1254 [2C]	**5.2** (0.6)		8082A		10	08/28/18 15:26		CH82705
Aroclor 1260 [2C]	**0.9** (0.06)		8082A		1	08/28/18 10:57		CH82705
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 10:57		CH82705
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 10:57		CH82705

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*69 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*95 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-100-082718-1 2ft
Date Sampled: 08/27/18 11:40
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:03

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 12:36		CH82705
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 12:36		CH82705
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 12:36		CH82705
Aroclor 1242	**1.9** (0.6)		8082A		10	08/28/18 16:23		CH82705
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 12:36		CH82705
Aroclor 1254 [2C]	**6.2** (0.6)		8082A		10	08/28/18 16:23		CH82705
Aroclor 1260	**1.0** (0.06)		8082A		1	08/28/18 12:36		CH82705
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 12:36		CH82705
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 12:36		CH82705

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-105-082718 2ft
Date Sampled: 08/27/18 12:09
Percent Solids: 86
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:03

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 12:53		CH82705
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 12:53		CH82705
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 12:53		CH82705
Aroclor 1242	**1.8** (0.6)		8082A		10	08/28/18 16:42		CH82705
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 12:53		CH82705
Aroclor 1254 [2C]	**5.2** (0.6)		8082A		10	08/28/18 16:42		CH82705
Aroclor 1260 [2C]	**1.0** (0.06)		8082A		1	08/28/18 12:53		CH82705
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 12:53		CH82705
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 12:53		CH82705

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*124 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*108 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-110-082718 2ft
Date Sampled: 08/27/18 12:14
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1242	**0.8** (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1254	**7.4** (0.6)		8082A		10	08/28/18 21:05		CH82706
Aroclor 1260	**1.0** (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 10:58		CH82706
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 10:58		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*89 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-100-082718 0-2ft
Date Sampled: 08/27/18 13:47
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 11:15		CH82706
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 11:15		CH82706
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 11:15		CH82706
Aroclor 1242	**1.1** (0.06)		8082A		1	08/28/18 11:15		CH82706
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 11:15		CH82706
Aroclor 1254 [2C]	**20.0** (1.1)		8082A		20	08/28/18 21:24		CH82706
Aroclor 1260 [2C]	**3.6** (1.1)		8082A		20	08/28/18 21:24		CH82706
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 11:15		CH82706
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 11:15		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*104 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*114 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*84 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-105-082718 0-2ft
Date Sampled: 08/27/18 14:05
Percent Solids: 89
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1221	ND (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1232	ND (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1242	**3.5** (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1248	ND (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1254	**10.5** (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1260	**1.7** (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1262	ND (1.2)		8082A		20	08/29/18 9:29		CH82706
Aroclor 1268	ND (1.2)		8082A		20	08/29/18 9:29		CH82706

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-14 0-1
Date Sampled: 08/17/18 15:06
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 12:39		CH82706
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 12:39		CH82706
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 12:39		CH82706
Aroclor 1242	**1.6** (0.6)		8082A		10	08/29/18 9:46		CH82706
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 12:39		CH82706
Aroclor 1254	**8.7** (0.6)		8082A		10	08/29/18 9:46		CH82706
Aroclor 1260	**1.1** (0.06)		8082A		1	08/28/18 12:39		CH82706
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 12:39		CH82706
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 12:39		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*90 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-14 1-2
Date Sampled: 08/17/18 15:07
Percent Solids: 92
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1221	ND (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1232	ND (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1242	**1.7** (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1248	ND (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1254	**17.8** (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1260	**2.9** (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1262	ND (1.1)		8082A		20	08/29/18 10:05		CH82706
Aroclor 1268	ND (1.1)		8082A		20	08/29/18 10:05		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*%*	*SD*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*%*	*SD*	*30-150*
Surrogate: Tetrachloro-m-xylene	*%*	*SD*	*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*%*	*SD*	*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-17 1-2
Date Sampled: 08/17/18 15:02
Percent Solids: 83
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1221	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1232	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1242	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1248	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1254	**1.0** (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1260	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1262	ND (0.06)		8082A		1	08/28/18 14:03		CH82706
Aroclor 1268	ND (0.06)		8082A		1	08/28/18 14:03		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*111 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*84 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-17 0-1
Date Sampled: 08/17/18 15:01
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1221	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1232	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1242	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1248	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1254	**42.9** (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1260	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1262	ND (2.9)		8082A		50	08/29/18 10:24		CH82706
Aroclor 1268	ND (2.9)		8082A		50	08/29/18 10:24		CH82706

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: W-33B 0-1
Date Sampled: 08/17/18 11:22
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808723
ESS Laboratory Sample ID: 1808723-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1221	ND (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1232	ND (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1242	ND (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1248	ND (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1254	**0.4** (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1260	**0.07** (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1262	ND (0.05)		8082A		1	08/28/18 14:40		CH82706
Aroclor 1268	ND (0.05)		8082A		1	08/28/18 14:40		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*67 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*63 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*89 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82705 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0175*		mg/kg wet	*0.02500*		*70*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0196*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0170*		mg/kg wet	*0.02500*		*68*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		85	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Surrogate: Decachlorobiphenyl	*0.0194*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		80	40-140	8	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		80	40-140	6	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		77	40-140	9	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		81	40-140	9	30	
Surrogate: Decachlorobiphenyl	*0.0177*		mg/kg wet	*0.02500*		*71*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0186*		mg/kg wet	*0.02500*		*74*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Matrix Spike **Source: 1808723-01**										

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82705 - 3540C										
Aroclor 1016	1.5	0.06	mg/kg dry	0.5687	ND	268	40-140			MC
Aroclor 1016 [2C]	1.3	0.06	mg/kg dry	0.5687	ND	232	40-140			MC
Aroclor 1260	1.9	0.06	mg/kg dry	0.5687	0.9	182	40-140			M+
Aroclor 1260 [2C]	1.7	0.06	mg/kg dry	0.5687	0.9	140	40-140			
Surrogate: Decachlorobiphenyl	*0.0328*		mg/kg dry	*0.02843*		*115*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0227*		mg/kg dry	*0.02843*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0275*		mg/kg dry	*0.02843*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0282*		mg/kg dry	*0.02843*		*99*	*30-150*			
Matrix Spike Dup Source: 1808723-01										
Aroclor 1016	1.6	0.06	mg/kg dry	0.5920	ND	269	40-140	5	30	MC
Aroclor 1016 [2C]	1.4	0.06	mg/kg dry	0.5920	ND	235	40-140	5	30	MC
Aroclor 1260	1.9	0.06	mg/kg dry	0.5920	0.9	168	40-140	2	30	M+
Aroclor 1260 [2C]	1.4	0.06	mg/kg dry	0.5920	0.9	85	40-140	19	30	
Surrogate: Decachlorobiphenyl	*0.0506*		mg/kg dry	*0.02960*		*171*	*30-150*			*SM*
Surrogate: Decachlorobiphenyl [2C]	*0.0237*		mg/kg dry	*0.02960*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0279*		mg/kg dry	*0.02960*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0283*		mg/kg dry	*0.02960*		*96*	*30-150*			
Batch CH82706 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0162*		mg/kg wet	*0.02500*		*65*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS										

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82706 - 3540C										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Surrogate: Decachlorobiphenyl	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0191*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	0.7	30	
Surrogate: Decachlorobiphenyl	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

Notes and Definitions

U	Analyte included in the analysis, but not detected
SM	Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
SD	Surrogate recovery(ies) diluted below the MRL (SD).
MC	Matrix Spike recovery is outside of control limits due to coelution.
M+	Matrix Spike recovery is above upper control limit (M+).
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808723

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1808723
Date Received: 8/27/2018
Project Due Date: 8/29/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	259962	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	259963	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	259974	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	259973	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	259972	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	259971	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	259970	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	259969	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	259968	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	259967	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	259966	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	259965	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	259964	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Are barcode labels on correct containers? Yes / No
Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 8/27/18 1613
Reviewed By: Date & Time: 8/27/18 16:16
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1808723

Date Received: 8/27/2018

By: 8/27/18 1624

p2-13

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #	1808723
Turn Time / Rush	48-hr
Regulatory State	RI
Is this project for any of the following?	○CT RCP ○MA MCP ○RGP
Reporting Limits	see note 1
Electonic Deliverables	☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name	Project #	Project Name
AEI	3le3le055	

Contact Person	Address
Aaron Ting	112 Water St, 5th Floor

City	State	Zip Code	PO #
Boston	MA	02109	—

Telephone Number	FAX Number	Email Address
978-577-7138	—	ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)													
1	8/27/18	11:40	G	S	B-100-082718 (2')	X													
2	8/27/18	11:40	|	|	B-100-082718-1 (2')	X													
1	8/27/18	11:40	|	|	B-100-082718 (2') MS/MSD	X													
3	8/27/18	12:09	|	|	B-105-082718 (2')	X													
4	8/27/18	12:14	|	|	B-110-082718 (2')	X													
5	8/27/18	13:47	C	|	SW-100-082718 (0-2')	X													
6	8/27/18	14:05	|	|	SW-105-082718 (0-2')	X													

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — AG

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 9

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other* — 1

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: yes
Seals Intact: N/A
Cooler Temperature: 5-3 °C

Sampled by: A. Ting

Comments: Please specify "Other" preservative and containers types in this space

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/27/18 1510	8/27/18 1511	8/27/18 1523	8/27/18 1543
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.essleboratory.com

CHAIN OF CUSTODY

ESS Lab #	1808723
Turn Time / Rush	48-hr
Regulatory State	RI
Reporting Limits	see note 1
Is this project for any of the following?:	○ CT RCP ○ MA MCP ○ RGP
Electonic Deliverables	☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name	Project #	Project Name
AEI	3163055	

Contact Person	Address
Aaron Ting	112 Water St, 5th Floor

City	State	Zip Code	PO #
Boston	MA	02109	—

Telephone Number	FAX Number	Email Address
978-577-7138	—	ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
7	8/17/18	15:06	G	S	W-14 0-1	X
8	8/17/18	15:07	G	S	W-14 1-2	X
9	8/17/18	15:02	G	S	W-17 1-2	X
10	8/17/18	15:01	G	S	W-17 0-1	X
11	8/17/18	11:22	G	S	W-33B 0-1	X

Container Type:	AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial	AG
Container Volume:	1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*	9
Preservation Code:	1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*	1
Number of Containers per Sample:		1

Laboratory Use Only

Cooler Present: Yes
Seals Intact: N/A
Cooler Temperature: 5-3 °clee

Sampled by: A. Ting

Comments: Please specify "Other" preservative and containers types in this space

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/27/18 1510	8/27/18 1511	8/27/18 1523	8/27/18 1543
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Richard Kowalski
AEI Consultants, Inc.
148 Hathaway Road
Dartmouth, MA 02747

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1808724

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:21 pm, Aug 29, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808724

SAMPLE RECEIPT

The following samples were received on August 27, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1808724-01	B-872-082718-C	Solid	8082A
1808724-02	B-876-082718-C	Solid	8082A
1808724-03	B-888-082718-C	Solid	8082A
1808724-04	B-889-082718-C	Solid	8082A
1808724-05	B-890-082718-C	Solid	8082A
1808724-06	B-891-082718-C	Solid	8082A
1808724-07	B-892-082718-C	Solid	8082A
1808724-08	B-893-082718-C	Solid	8082A
1808724-09	B-894-082718-C	Solid	8082A
1808724-10	B-895-082718-C	Solid	8082A

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808724

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1808724-06 **Surrogate recovery(ies) below lower control limit (S-).**
Tetrachloro-m-xylene (27% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808724

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-872-082718-C
Date Sampled: 08/27/18 09:12
Percent Solids: 98
Initial Volume: 5.06
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-01
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1254	**1.2** (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 14:59		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 14:59		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*54 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*46 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*44 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*60 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-876-082718-C
Date Sampled: 08/27/18 09:30
Percent Solids: 97
Initial Volume: 5.09
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-02
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1254	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 15:18		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 15:18		CH82706

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*46 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*44 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*56 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-888-082718-C
Date Sampled: 08/27/18 10:00
Percent Solids: 97
Initial Volume: 5.05
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-03
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1254 [2C]	**0.5** (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 15:37		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 15:37		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*66 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*75 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-889-082718-C
Date Sampled: 08/27/18 10:12
Percent Solids: 97
Initial Volume: 5.11
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1254	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 16:00		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 16:00		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*61 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*72 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-890-082718-C
Date Sampled: 08/27/18 10:21
Percent Solids: 98
Initial Volume: 5.09
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-05
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1254	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 16:19		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 16:19		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*49 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*47 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*40 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*53 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-891-082718-C
Date Sampled: 08/27/18 10:31
Percent Solids: 97
Initial Volume: 5.04
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-06
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1254 [2C]	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 16:38		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 16:38		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*49 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*27 %*	*S-*	*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*50 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-892-082718-C
Date Sampled: 08/27/18 10:41
Percent Solids: 96
Initial Volume: 5.07
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-07
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1254	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 16:57		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 16:57		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*32 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*31 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*31 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*30 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-893-082718-C
Date Sampled: 08/27/18 10:50
Percent Solids: 97
Initial Volume: 5.13
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-08
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1254	**1.1** (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 17:16		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 17:16		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*81 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*87 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-894-082718-C
Date Sampled: 08/27/18 11:36
Percent Solids: 96
Initial Volume: 5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-09
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1254 [2C]	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 17:35		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 17:35		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*79 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-895-082718-C
Date Sampled: 08/27/18 11:43
Percent Solids: 97
Initial Volume: 5.04
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808724
ESS Laboratory Sample ID: 1808724-10
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 8/27/18 17:34

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1221	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1232	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1242	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1248	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1254 [2C]	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1260	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1262	ND (0.2)		8082A		1	08/28/18 19:48		CH82706
Aroclor 1268	ND (0.2)		8082A		1	08/28/18 19:48		CH82706

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*50 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*49 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*40 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*44 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808724

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82706 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0162*		mg/kg wet	*0.02500*		*65*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Surrogate: Decachlorobiphenyl	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0191*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		90	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	0.7	30	
Surrogate: Decachlorobiphenyl	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808724

Notes and Definitions

U	Analyte included in the analysis, but not detected
S-	Surrogate recovery(ies) below lower control limit (S-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808724

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1808724
Date Received: 8/27/2018
Project Due Date: 8/29/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	259987	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	259986	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	259985	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	259984	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	259983	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	259982	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	259981	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	259980	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	259979	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	259978	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Are barcode labels on correct containers? Yes / No
Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 8/27/18 1614
Reviewed By: Date & Time: 8/27/18 16:15
Delivered By: 8/27/18 1620

ESS Laboratory
Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1808724

Turn Time Rush 48-hr

Regulatory State RI

Is this project for any of the following?: ○CT RCP ○MA MCP ○RGP

Reporting Limits see note 1

Electonic Deliverables ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI

Contact Person: Aaron Ting

Project #: 3123055

Project Name:

Address: 112 Water St, 5th Floor

City: Boston

State: MA

Zip Code: 02109

PO #: —

Telephone Number: 978-577-7138

FAX Number: —

Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	PCBs (Soxhlet)
1	8/27/18	09:12	G	Concrete	B-872-082718-C	X
2	8/27/18	09:30	↓	↓	B-876-082718-C	X
3	8/27/18	10:00			B-888-082718-C	X
4	8/27/18	10:12			B-889-082718-C	X
5	8/27/18	10:21			B-890-082718-C	X
6	8/27/18	10:31			B-891-082718-C	X
7	8/27/18	10:41			B-892-082718-C	X
8	8/27/18	10:50			B-893-082718-C	X
9	8/27/18	11:36			B-894-082718-C	X
10	8/27/18	11:43	↓	↓	B-895-082718-C	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — AG

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 9

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other* — 1

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: yes

Seals Intact: N/A

Cooler Temperature: 5.3 °C

Sampled by: A. Ting

Comments: Please specify "Other" preservative and containers types in this space

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/27/18 1510	8/27/18 1511	8/27/18 1523	8/27/18 1543
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Richard Kowalski
AEI Consultants, Inc.
148 Hathaway Road
Dartmouth, MA 02747

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1808745

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 4:57 pm, Aug 30, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808745

SAMPLE RECEIPT

The following samples were received on August 28, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1808745-01	B-180-082818 2ft	Soil	8082A
1808745-02	B-185-082818 2ft	Soil	8082A
1808745-03	B-190-082818 2ft	Soil	8082A
1808745-04	SW-155-082818 0-2ft	Soil	8082A
1808745-05	B-480-082818 2ft	Soil	8082A
1808745-06	SW-668-082818 0-2ft	Soil	8082A
1808745-07	SW-677-082818 0-2ft	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808745

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1808745-01 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1808745-06 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808745

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-180-082818 2ft
Date Sampled: 08/28/18 08:34
Percent Solids: 90
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:09

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1221	ND (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1232	ND (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1242	**1.4** (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1248	ND (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1254	**20.9** (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1260 [2C]	**3.6** (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1262	ND (1.1)		8082A		20	08/29/18 14:37		CH82811
Aroclor 1268	ND (1.1)		8082A		20	08/29/18 14:37		CH82811

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-185-082818 2ft
Date Sampled: 08/28/18 08:43
Percent Solids: 91
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:09

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/29/18 13:00		CH82811
Aroclor 1221	ND (0.06)		8082A		1	08/29/18 13:00		CH82811
Aroclor 1232	ND (0.06)		8082A		1	08/29/18 13:00		CH82811
Aroclor 1242	**0.6** (0.06)		8082A		1	08/29/18 13:00		CH82811
Aroclor 1248	ND (0.06)		8082A		1	08/29/18 13:00		CH82811
Aroclor 1254	**16.9** (1.1)		8082A		20	08/29/18 14:57		CH82811
Aroclor 1260 [2C]	**3.4** (1.1)		8082A		20	08/29/18 14:57		CH82811
Aroclor 1262	ND (0.06)		8082A		1	08/29/18 13:00		CH82811
Aroclor 1268	ND (0.06)		8082A		1	08/29/18 13:00		CH82811

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*115 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*99 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*90 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-190-082818 2ft
Date Sampled: 08/28/18 08:59
Percent Solids: 93
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:09

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/29/18 13:19		CH82811
Aroclor 1221	ND (0.06)		8082A		1	08/29/18 13:19		CH82811
Aroclor 1232	ND (0.06)		8082A		1	08/29/18 13:19		CH82811
Aroclor 1242	**0.7** (0.06)		8082A		1	08/29/18 13:19		CH82811
Aroclor 1248	ND (0.06)		8082A		1	08/29/18 13:19		CH82811
Aroclor 1254	**15.5** (1.1)		8082A		20	08/29/18 15:16		CH82811
Aroclor 1260 [2C]	**3.5** (1.1)		8082A		20	08/29/18 15:16		CH82811
Aroclor 1262	ND (0.06)		8082A		1	08/29/18 13:19		CH82811
Aroclor 1268	ND (0.06)		8082A		1	08/29/18 13:19		CH82811

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*133 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*102 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-155-082818 0-2ft
Date Sampled: 08/28/18 09:12
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:09

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1221	ND (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1232	ND (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1242 [2C]	**0.5** (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1248	ND (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1254	**1.8** (0.3)		8082A		5	08/29/18 15:35		CH82811
Aroclor 1260	ND (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1262	ND (0.05)		8082A		1	08/29/18 13:39		CH82811
Aroclor 1268	ND (0.05)		8082A		1	08/29/18 13:39		CH82811

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*103 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*96 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-480-082818 2ft
Date Sampled: 08/28/18 13:14
Percent Solids: 90
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:09

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/29/18 13:56		CH82811
Aroclor 1221	ND (0.06)		8082A		1	08/29/18 13:56		CH82811
Aroclor 1232	ND (0.06)		8082A		1	08/29/18 13:56		CH82811
Aroclor 1242	**0.5** (0.06)		8082A		1	08/29/18 13:56		CH82811
Aroclor 1248	ND (0.06)		8082A		1	08/29/18 13:56		CH82811
Aroclor 1254	**10.3** (0.6)		8082A		10	08/29/18 15:55		CH82811
Aroclor 1260 [2C]	**1.9** (0.6)		8082A		10	08/29/18 15:55		CH82811
Aroclor 1262	ND (0.06)		8082A		1	08/29/18 13:56		CH82811
Aroclor 1268	ND (0.06)		8082A		1	08/29/18 13:56		CH82811

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*98 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-668-082818 0-2ft
Date Sampled: 08/28/18 13:26
Percent Solids: 91
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:18

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1221	ND (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1232	ND (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1242 [2C]	**1.5** (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1248	ND (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1254 [2C]	**17.7** (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1260 [2C]	**2.7** (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1262	ND (1.1)		8082A		20	08/29/18 12:33		CH82812
Aroclor 1268	ND (1.1)		8082A		20	08/29/18 12:33		CH82812

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-677-082818 0-2ft
Date Sampled: 08/28/18 09:18
Percent Solids: 94
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808745
ESS Laboratory Sample ID: 1808745-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/28/18 16:18

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1221	ND (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1232	ND (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1242 [2C]	**0.1** (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1248	ND (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1254 [2C]	**0.7** (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1260	**0.2** (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1262	ND (0.05)		8082A		1	08/29/18 12:52		CH82812
Aroclor 1268	ND (0.05)		8082A		1	08/29/18 12:52		CH82812

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*98 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*107 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*104 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808745

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82811 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0236*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Surrogate: Decachlorobiphenyl	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0246*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		109	40-140	6	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140	5	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		106	40-140	6	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140	6	30	
Surrogate: Decachlorobiphenyl	*0.0260*		mg/kg wet	*0.02500*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0244*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0262*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Batch CH82812 - 3540C										

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808745

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82812 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0244*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		90	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Surrogate: Decachlorobiphenyl	*0.0214*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		94	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1808745

Notes and Definitions

U	Analyte included in the analysis, but not detected
SD	Surrogate recovery(ies) diluted below the MRL (SD).
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808745

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1808745
Date Received: 8/28/2018
Project Due Date: 8/30/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 4.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	260324	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	260323	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	260322	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	260321	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	260320	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	260319	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	260318	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

Are barcode labels on correct containers? Yes / No
Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 8/28/18 1542
Reviewed By: Date & Time: 8/28/18 1548
Delivered By: 8/28/18 1548

1/1

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time: Rush 48-hr
Regulatory State: RI
Is this project for any of the following?: ○CT RCP ○MA MCP ○RGP

ESS Lab #: 1808745
Reporting Limits: see note 1
Electonic Deliverables: ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name	Project #	Project Name
AEI	3162655	

Contact Person	Address
Aaron Ting	112 Water St, 5th Floor

City	State	Zip Code	PO #
Boston	MA	02109	—

Telephone Number	FAX Number	Email Address
978-577-7138	—	ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	8/28/18	0834	G	S	B-180-082818 (2')	X
2	↓	0843	↓	↓	B-185-082818 (2')	X
3		0859			B-190-082818 (2')	X
4		0912	C		SW-155-082818 (0-2')	X
5		1314	G		B-480-082818 (2')	X
6		1326	C		SW-662-082818 (0-2')	X
7	↓	0918	C	↓	SW-677-082818 (0-2')	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial: AG
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*: 9
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*: 1
Number of Containers per Sample: 1

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 4.8 ±.0°C

Sampled by: A. Ting
Comments: Please specify "Other" preservative and containers types in this space
note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/28/18 1512	8/28/18 15:12	8/28/18 15:22	8/28/18 1529
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Richard Kowalski
AEI Consultants, Inc.
148 Hathaway Road
Dartmouth, MA 02747

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1808807

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 12:54 pm, Sep 05, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808807

SAMPLE RECEIPT

The following samples were received on August 29, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Revision 1 September 5, 2018: This report has been revised to include sample ID change for 1808807-09 from "B-690-082918" to "B-600-082918".

Lab Number	Sample Name	Matrix	Analysis
1808807-01	B-560-082918 3ft	Soil	8082A
1808807-02	B-565-082918 3ft	Soil	8082A
1808807-03	B-570-082918 3ft	Soil	8082A
1808807-04	B-575-082918 3ft	Soil	8082A
1808807-05	B-580-082918 3ft	Soil	8082A
1808807-06	B-585-082918 3ft	Soil	8082A
1808807-07	B-590-082918 3ft	Soil	8082A
1808807-08	B-595-082918 3ft	Soil	8082A
1808807-09	B-600-082918 3ft	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808807

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808807

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-560-082918 3ft
Date Sampled: 08/29/18 09:08
Percent Solids: 92
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1242 [2C]	**0.7** (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1254 [2C]	**5.4** (0.6)		8082A		10	08/30/18 14:05		CH82906
Aroclor 1260	**0.7** (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 11:11		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 11:11		CH82906

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*66 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-565-082918 3ft
Date Sampled: 08/29/18 09:35
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1242 [2C]	**0.2** (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1254	**5.3** (0.6)		8082A		10	08/30/18 14:22		CH82906
Aroclor 1260 [2C]	**0.7** (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 11:30		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 11:30		CH82906

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*81 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-570-082918 3ft
Date Sampled: 08/29/18 10:00
Percent Solids: 89
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 11:49		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 11:49		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 11:49		CH82906
Aroclor 1242	**0.5** (0.06)		8082A		1	08/30/18 11:49		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 11:49		CH82906
Aroclor 1254	**12.1** (1.1)		8082A		20	08/30/18 14:41		CH82906
Aroclor 1260	**2.3** (1.1)		8082A		20	08/30/18 14:41		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 11:49		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 11:49		CH82906

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*97 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-575-082918 3ft
Date Sampled: 08/29/18 10:22
Percent Solids: 88
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 12:09		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 12:09		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 12:09		CH82906
Aroclor 1242	**1.0** (0.06)		8082A		1	08/30/18 12:09		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 12:09		CH82906
Aroclor 1254 [2C]	**9.4** (0.6)		8082A		10	08/30/18 15:00		CH82906
Aroclor 1260 [2C]	**1.6** (0.6)		8082A		10	08/30/18 15:00		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 12:09		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 12:09		CH82906

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*61 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-580-082918 3ft
Date Sampled: 08/29/18 13:09
Percent Solids: 94
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1242	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1254 [2C]	**0.5** (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1260	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 12:28		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 12:28		CH82906

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*107 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*99 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*96 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-585-082918 3ft
Date Sampled: 08/29/18 13:11
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1242 [2C]	**0.2** (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1254 [2C]	**1.7** (0.3)		8082A		5	08/30/18 15:19		CH82906
Aroclor 1260	**0.2** (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 12:47		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 12:47		CH82906

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*69 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-590-082918 3ft
Date Sampled: 08/29/18 13:18
Percent Solids: 91
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1221	ND (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1232	ND (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1242	**0.09** (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1248	ND (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1254 [2C]	**1.0** (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1260	**0.2** (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1262	ND (0.05)		8082A		1	08/30/18 13:06		CH82906
Aroclor 1268	ND (0.05)		8082A		1	08/30/18 13:06		CH82906

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*67 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*84 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-595-082918 3ft
Date Sampled: 08/29/18 13:24
Percent Solids: 88
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1221	ND (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1232	ND (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1242	**0.2** (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1248	ND (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1254 [2C]	**2.1** (0.3)		8082A		5	08/30/18 15:38		CH82906
Aroclor 1260 [2C]	**0.4** (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1262	ND (0.06)		8082A		1	08/30/18 13:25		CH82906
Aroclor 1268	ND (0.06)		8082A		1	08/30/18 13:25		CH82906

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*75 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*105 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-600-082918 3ft
Date Sampled: 08/29/18 13:28
Percent Solids: 94
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808807
ESS Laboratory Sample ID: 1808807-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/29/18 16:23

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1221	ND (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1232	ND (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1242	**0.2** (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1248	ND (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1254 [2C]	**4.6** (0.5)		8082A		10	08/30/18 15:58		CH82906
Aroclor 1260	ND (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1262	ND (0.05)		8082A		1	08/30/18 13:44		CH82906
Aroclor 1268	ND (0.05)		8082A		1	08/30/18 13:44		CH82906

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*83 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808807

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH82906 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0168*		mg/kg wet	*0.02500*		*67*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0186*		mg/kg wet	*0.02500*		*74*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0196*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		90	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Surrogate: Decachlorobiphenyl	*0.0179*		mg/kg wet	*0.02500*		*72*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		85	40-140	5	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		85	40-140	4	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		79	40-140	6	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		81	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0171*		mg/kg wet	*0.02500*		*68*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0189*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0206*		mg/kg wet	*0.02500*		*82*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808807

Notes and Definitions

U	Analyte included in the analysis, but not detected
D	Diluted.
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808807

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: ESS Courier

ESS Project ID: 1808807
Date Received: 8/29/2018
Project Due Date: 8/31/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.5 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By:
    b. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	260852	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	260851	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	260850	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	260849	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	260848	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	260847	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	260846	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	260845	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	260844	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No
Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 8/29/18 1600
Reviewed By: Date & Time: 8/29/18 16:03
Delivered By: 8/29/18 1604

ESS Laboratory

Division of Thielsch Engineering, Inc.
185 Frances Avenue, Cranston RI 02910
Tel. (401) 461-7181 Fax (401) 461-4486
www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1808807

Turn Time Rush 48 hr

Regulatory State RI

Reporting Limits see note 1

Is this project for any of the following?: ○CT RCP ○MA MCP ○RGP

Electonic Deliverables ☒Limit Checker ☒Standard Excel ☐Other (Please Specify →)

Company Name: AEI

Project #: 3163055

Project Name:

Contact Person: Aaron Ting

Address: 112 Water St, 5th Floor

City: Boston

State: MA

Zip Code: 02109

PO #: —

Telephone Number: 978-577-7138

FAX Number: —

Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	8/29	0908	G	S	B-560-082918 (3')	X
2		0935			B-565-082918 (3')	X
3		1000			B-570-082918 (3')	X
4		1022			B-575-082918 (3')	X
5		1309			B-580-082918 (3')	X
6		1311			B-585-082918 (3')	X
7		1318			B-590-082918 (3')	X
8		1324			B-595-082918 (3')	X
9		1328			B-600-082918 (3')	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*

Number of Containers per Sample: AG 9 / 1 / 1

Laboratory Use Only

Cooler Present: yes

Seals Intact: N/A

Cooler Temperature: 5.5 °C

Sampled by: ~~A. Ting~~ R. Medyglio & R. Kowalski

Comments: Please specify "Other" preservative and containers types in this space

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
8/29/18 15:21	8/29/18 1521	8/29/18 1532	8/29/18 1540
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Richard Kowalski
AEI Consultants, Inc.
148 Hathaway Road
Dartmouth, MA 02747

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1808849

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:02 pm, Sep 04, 2018

Analytical Summary
The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808849

SAMPLE RECEIPT

The following samples were received on August 30, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1808849-01	SW-373-083018 0-3ft	Soil	8082A
1808849-02	SW-378-083018 0-3ft	Soil	8082A
1808849-03	SW-378-083018-1 0-3ft	Soil	8082A
1808849-04	SW-383-083018 0-3ft	Soil	8082A
1808849-05	SW-388-083018 0-3ft	Soil	8082A
1808849-06	B-630-083018 3ft	Soil	8082A
1808849-07	SW-433-083018 0-3ft	Soil	8082A
1808849-08	SW-438-083018 0-3ft	Soil	8082A

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808849

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1808849-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

CH83003-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (218% @ 40-140%), Aroclor 1016 [2C] (221% @ 40-140%), Aroclor 1260 (286% @ 40-140%), Aroclor 1260 [2C] (301% @ 40-140%)

CH83003-MS1 **Reported above the quantitation limit; Estimated value (E).**
Aroclor 1016 , Aroclor 1016 [2C] , Aroclor 1260 , Aroclor 1260 [2C]

CH83003-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (214% @ 40-140%), Aroclor 1016 [2C] (223% @ 40-140%), Aroclor 1260 (272% @ 40-140%), Aroclor 1260 [2C] (298% @ 40-140%)

CH83003-MSD1 **Reported above the quantitation limit; Estimated value (E).**
Aroclor 1016 , Aroclor 1016 [2C] , Aroclor 1260 , Aroclor 1260 [2C]

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808849

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 04-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-373-083018 0-3ft
Date Sampled: 08/30/18 09:12
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1242	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1254	**1.3** (0.3)		8082A		5	08/31/18 14:57		CH83003
Aroclor 1260	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 11:47		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 11:47		CH83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-378-083018 0-3ft
Date Sampled: 08/30/18 09:23
Percent Solids: 97
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1242 [2C]	**0.8** (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1254 [2C]	**6.6** (0.5)		8082A		10	08/31/18 15:16		CH83003
Aroclor 1260	ND (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 12:06		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 12:06		CH83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*63 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*90 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-378-083018-1 0-3ft
Date Sampled: 08/30/18 09:23
Percent Solids: 98
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1242 [2C]	**0.8** (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1254 [2C]	**7.3** (0.5)		8082A		10	08/31/18 16:13		CH83003
Aroclor 1260	ND (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 13:02		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 13:02		CH83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*84 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*99 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*106 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-383-083018 0-3ft
Date Sampled: 08/30/18 09:36
Percent Solids: 97
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 13:21		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 13:21		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 13:21		CH83003
Aroclor 1242 [2C]	**0.4** (0.05)		8082A		1	08/31/18 13:21		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 13:21		CH83003
Aroclor 1254 [2C]	**19.1** (1.0)		8082A		20	08/31/18 16:32		CH83003
Aroclor 1260 [2C]	**3.7** (1.0)		8082A		20	08/31/18 16:32		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 13:21		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 13:21		CH83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*115 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*111 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*106 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-388-083018 0-3ft
Date Sampled: 08/30/18 11:22
Percent Solids: 97
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1242 [2C]	**0.9** (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1254 [2C]	**6.1** (0.5)		8082A		10	08/31/18 18:45		CH83003
Aroclor 1260	ND (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 13:40		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 13:40		CH83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*155 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*107 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-630-083018 3ft
Date Sampled: 08/30/18 13:36
Percent Solids: 96
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 13:59		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 13:59		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 13:59		CH83003
Aroclor 1242 [2C]	**0.6** (0.05)		8082A		1	08/31/18 13:59		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 13:59		CH83003
Aroclor 1254 [2C]	**7.6** (0.5)		8082A		10	08/31/18 19:04		CH83003
Aroclor 1260	**1.4** (0.5)		8082A		10	08/31/18 19:04		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 13:59		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 13:59		CH83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*104 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*112 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-433-083018 0-3ft
Date Sampled: 08/30/18 13:43
Percent Solids: 97
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1221	ND (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1232	ND (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1242 [2C]	**0.09** (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1248	ND (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1254	**0.9** (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1260	ND (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1262	ND (0.05)		8082A		1	08/31/18 14:18		CH83003
Aroclor 1268	ND (0.05)		8082A		1	08/31/18 14:18		CH83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*129 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-438-083018 0-3ft
Date Sampled: 08/30/18 13:49
Percent Solids: 97
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1808849
ESS Laboratory Sample ID: 1808849-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/30/18 17:26

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1221	ND (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1232	ND (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1242 [2C]	**2.3** (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1248	ND (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1254 [2C]	**15.2** (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1260 [2C]	**2.3** (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1262	ND (1.0)		8082A		20	08/31/18 19:23		CH83003
Aroclor 1268	ND (1.0)		8082A		20	08/31/18 19:23		CH83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808849

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH83003 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0171*		mg/kg wet	*0.02500*		*68*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Surrogate: Decachlorobiphenyl	*0.0199*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		96	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Matrix Spike **Source: 1808849-02**										

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston

ESS Laboratory Work Order: 1808849

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH83003 - 3540C										
Aroclor 1016	1.1	0.05	mg/kg dry	0.5091	ND	218	40-140			E, MC
Aroclor 1016 [2C]	1.1	0.05	mg/kg dry	0.5091	ND	221	40-140			E, MC
Aroclor 1260	1.5	0.05	mg/kg dry	0.5091	ND	286	40-140			E, MC
Aroclor 1260 [2C]	1.5	0.05	mg/kg dry	0.5091	ND	301	40-140			E, MC
Surrogate: Decachlorobiphenyl	*0.0207*		mg/kg dry	*0.02546*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0259*		mg/kg dry	*0.02546*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0251*		mg/kg dry	*0.02546*		*99*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0274*		mg/kg dry	*0.02546*		*107*	*30-150*			
Matrix Spike Dup Source: 1808849-02										
Aroclor 1016	1.1	0.05	mg/kg dry	0.5091	ND	214	40-140	2	30	E, MC
Aroclor 1016 [2C]	1.1	0.05	mg/kg dry	0.5091	ND	223	40-140	1	30	E, MC
Aroclor 1260	1.4	0.05	mg/kg dry	0.5091	ND	272	40-140	5	30	E, MC
Aroclor 1260 [2C]	1.5	0.05	mg/kg dry	0.5091	ND	298	40-140	0.7	30	E, MC
Surrogate: Decachlorobiphenyl	*0.0188*		mg/kg dry	*0.02546*		*74*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0240*		mg/kg dry	*0.02546*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0218*		mg/kg dry	*0.02546*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0226*		mg/kg dry	*0.02546*		*89*	*30-150*			