CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-515-101818-A 0-1FT
Date Sampled: 10/18/18 13:39
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810533
ESS Laboratory Sample ID: 1810533-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:08

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1221	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1232	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1242	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1248	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1254 [2C]	**26.0** (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1260	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1262	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804
Aroclor 1268	ND (2.9)		8082A		50	10/22/18 15:45	C8J0478	CJ81804

	%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: 1810533

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81804 - 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	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0177*		mg/kg wet	*0.02500*		*71*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0199*		mg/kg wet	*0.02500*		*79*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		82	40-140			
Surrogate: Decachlorobiphenyl	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0198*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		81	40-140	3	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140	4	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140	2	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		79	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0229*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0184*		mg/kg wet	*0.02500*		*74*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0196*		mg/kg wet	*0.02500*		*78*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810533

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).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
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: 1810533

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: 1810533
Date Received: 10/18/2018
Project Due Date: 10/22/2018
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: 3.8 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	279637	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	279636	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	279635	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	279634	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	279633	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	279632	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	279631	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	279630	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	279629	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	279628	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	279627	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	279626	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	279625	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	279624	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	279623	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	279622	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	279621	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	279620	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
19	279619	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

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810533

Date Received: 10/18/2018

Completed By: _____ Date & Time: 10/18/18 1552

Reviewed By: _____ Date & Time: 10/18/18 1606

Delivered By: _____ 10/18/18 1606

2

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 # 1810533

Turn Time Rush 48hr

Reporting Limits see note 1

Regulatory State RI

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

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

Company Name: AEI

Project #: 363655

Project Name: BAJF (ruston

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

Analysis: PCBs (Soxhlet)

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	PCBs (Soxhlet)
1	10-18-18	0818	G	S	B-399-101818-A (7')	X
2		0819			B-389-101818-A (7')	X
3		0820			B-379-101818-A (7')	X
4		0821			B-368N-101818-A (7')	X
5		0836			B-408-101818-A (7')	X
6		0837			B-398-101818-A (7')	X
7		0838			B-388-101818-A (7')	X
8		0839			B-378-101818-A (7')	X
9		0840			B-368-101818-A (7')	X
10		1124			B-346-101818-A (7')	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: Ice 3.8 °C

Sampled by: ATing

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)
Aaron Ting 10-18-18 1509	10/18/18 15:09	10/18/18 15:20	10/18/18 1521
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 # 1810533

Turn Time: Rush 48hr
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 →) PDF

Company Name	Project #	Project Name
AEI	363655	BASF (ranton

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	10-18-18	1128	G	S	B-347-101818-A (7')	X
12		1129			B-339-101818-A (7')	X
13		1133			B-331-101818-A (7')	X
14		1136			B-332-101818-A (7')	X
15		1149			B-333-101818-A (7')	X
16		1154			B-334-101818 (7')	X
17		1156			B-340-101818A (7')	X
18		0805			B-400-101818-A (7')	X
19		1339	C		SW-515-101818-A (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
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:

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 3.8 °C

Sampled by: ATing

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)
Evan 10-18-18 1509	10/18/18 15:09	10/18/18 15:20	10/18/18 1521
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: 1810534

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 3:37 pm, Oct 22, 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: 1810534

SAMPLE RECEIPT

The following samples were received on October 18, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810534-01	B-411-101818-A 7FT	Soil	8082A
1810534-02	B-401-101818-A 7FT	Soil	8082A
1810534-03	B-391-101818-A 7FT	Soil	8082A
1810534-04	B-381-101818-A 7FT	Soil	8082A
1810534-05	B-370-101818-A 7FT	Soil	8082A
1810534-06	B-410-101818-A 7FT	Soil	8082A
1810534-07	B-390-101818-A 7FT	Soil	8082A
1810534-08	B-380-101818-A 7FT	Soil	8082A
1810534-09	B-369-101818-A 7FT	Soil	8082A
1810534-10	B-409-101818-A 7FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810534

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810534-03 **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%)

1810534-05 **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%)

1810534-06 **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%)

1810534-07 **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%)

1810534-08 **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%)

1810534-09 **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%)

1810534-10 **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%)

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: 1810534

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-411-101818-A 7FT
Date Sampled: 10/18/18 07:59
Percent Solids: 82
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805
Aroclor 1221	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805
Aroclor 1232	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805
Aroclor 1242	**3.7** (0.6)		8082A		10	10/19/18 15:56	C8J0439	CJ81805
Aroclor 1248	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805
Aroclor 1254 [2C]	**6.9** (0.6)		8082A		10	10/19/18 15:56	C8J0439	CJ81805
Aroclor 1260	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805
Aroclor 1262	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805
Aroclor 1268	ND (0.06)		8082A		1	10/19/18 12:26	C8J0439	CJ81805

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*70 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*73 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*59 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-401-101818-A 7FT
Date Sampled: 10/18/18 08:00
Percent Solids: 79
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1221	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1232	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1242	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1248	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1254 [2C]	**6.9** (0.7)		8082A		10	10/19/18 16:15	C8J0439	CJ81805
Aroclor 1260	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1262	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805
Aroclor 1268	ND (0.07)		8082A		1	10/19/18 12:45	C8J0439	CJ81805

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*97 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*64 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-391-101818-A 7FT
Date Sampled: 10/18/18 08:01
Percent Solids: 83
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1221	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1232	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1242	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1248	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1254 [2C]	**15.2** (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1260	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1262	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805
Aroclor 1268	ND (1.3)		8082A		20	10/19/18 18:29	C8J0439	CJ81805

	%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-381-101818-A 7FT
Date Sampled: 10/18/18 08:02
Percent Solids: 82
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1221	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1232	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1242	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1248	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1254 [2C]	**6.8** (0.6)		8082A		10	10/19/18 18:48	C8J0439	CJ81805
Aroclor 1260	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1262	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805
Aroclor 1268	ND (0.06)		8082A		1	10/19/18 13:24	C8J0439	CJ81805

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*59 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*123 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*78 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-370-101818-A 7FT
Date Sampled: 10/18/18 08:03
Percent Solids: 84
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1221	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1232	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1242	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1248	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1254 [2C]	**9.9** (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1260	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1262	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805
Aroclor 1268	ND (1.2)		8082A		20	10/19/18 19:07	C8J0439	CJ81805

	%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-410-101818-A 7FT
Date Sampled: 10/18/18 08:04
Percent Solids: 79
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1221	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1232	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1242	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1248	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1254 [2C]	**37.0** (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1260	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1262	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805
Aroclor 1268	ND (3.3)		8082A		50	10/19/18 19:26	C8J0439	CJ81805

	%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-390-101818-A 7FT
Date Sampled: 10/18/18 08:06
Percent Solids: 87
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1221	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1232	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1242	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1248	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1254	**6.2** (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1260	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1262	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805
Aroclor 1268	ND (1.1)		8082A		20	10/19/18 19:45	C8J0439	CJ81805

	%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-380-101818-A 7FT
Date Sampled: 10/18/18 08:06
Percent Solids: 83
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1221	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1232	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1242	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1248	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1254 [2C]	**13.4** (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1260	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1262	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805
Aroclor 1268	ND (1.2)		8082A		20	10/19/18 20:05	C8J0439	CJ81805

	%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-369-101818-A 7FT
Date Sampled: 10/18/18 08:16
Percent Solids: 79
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1221	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1232	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1242	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1248	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1254 [2C]	**11.5** (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1260	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1262	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805
Aroclor 1268	ND (1.3)		8082A		20	10/19/18 20:24	C8J0439	CJ81805

	%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-409-101818-A 7FT
Date Sampled: 10/18/18 08:17
Percent Solids: 75
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810534
ESS Laboratory Sample ID: 1810534-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/18/18 17:17

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1221	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1232	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1242	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1248	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1254 [2C]	**17.9** (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1260	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1262	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805
Aroclor 1268	ND (1.3)		8082A		20	10/19/18 20:43	C8J0439	CJ81805

	%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: 1810534

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81805 - 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	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		90	40-140			
Surrogate: Decachlorobiphenyl	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		97	40-140	0.8	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	0.4	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		89	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0221*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810534

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: 1810534

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: 1810534
Date Received: 10/18/2018
Project Due Date: 10/22/2018
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: 3.8 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	279656	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	279655	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	279654	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	279653	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	279652	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	279651	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	279650	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	279649	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	279648	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	279647	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: 10/18/18 1551
Reviewed By: Date & Time: 10/18/18 1607
Delivered By: 10/18/18 1607

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 # 1810534

Turn Time: Rush 48hr
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 →) PDF

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
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	10-18-18	0759	G	S	B-411-101818-A (7') ✓	X
2		0800			B-401-101818-A (7') ✓	X
3		0801			B-391-101818-A (7') ✓	X
4		0802			B-381-101818-A (7') ✓	X
5		0803			B-370-101818-A (7') ✓	X
6		0804			B-410-101818-A (7') ✓	X
7		0806			B-390-101818-A (7') ✓	X
8		0806			B-380-101818-A (7') ✓	X
9		0816			B-369-101818-A (7') ✓	X
10		0817			B-409-101818-A (7') ✓	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: Ice 38 °C

Sampled by: ATing
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)
Evan 10-18-18 1509	10/18/18 15:09	10/18/18 15:20	10/18/18 1538
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: 1810580

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 5:03 pm, Oct 23, 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: 1810580

SAMPLE RECEIPT

The following samples were received on October 19, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810580-01	B-271-101918 2FT	Soil	8082A
1810580-02	B-272-101918 2FT	Soil	8082A
1810580-03	B-273-101918 2FT	Soil	8082A
1810580-04	B-274-101918 2FT	Soil	8082A
1810580-05	B-275-101918 2FT	Soil	8082A
1810580-06	B-276-101918 2FT	Soil	8082A
1810580-07	B-925-101918 2FT	Soil	8082A
1810580-08	B-277-101918 2FT	Soil	8082A
1810580-09	B-278-101918 2FT	Soil	8082A
1810580-10	B-290-101918 2FT	Soil	8082A
1810580-11	B-291-101918 2FT	Soil	8082A
1810580-12	B-344-101918-A 7FT	Soil	8082A
1810580-13	B-366-101918-A 7FT	Soil	8082A
1810580-14	B-367-101918-A 7FT	Soil	8082A
1810580-15	B-375-101918-A 7FT	Soil	8082A
1810580-16	B-382-101918-A 2FT	Soil	8082A
1810580-17	B-371-101918-A 2FT	Soil	8082A
1810580-18	B-360-101918-A 2FT	Soil	8082A
1810580-19	B-404-101918-A 2FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810580

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810580-15 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (1310% @ 30-150%), Decachlorobiphenyl [2C] (1220% @ 30-150%)

1810580-16 **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%)

1810580-17 **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%)

1810580-18 **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%)

1810580-19 **Lower value is used due to matrix interferences (LC).**
Aroclor 1254

1810580-19 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1254

C8J0478-CCV2 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl [2C] (29% @ 20%)

CJ81903-MS1 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Aroclor 1260 (176% @ 40-140%), Aroclor 1260 [2C] (209% @ 40-140%)

CJ81903-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1260 (41% @ 30%), Aroclor 1260 [2C] (46% @ 30%)

CJ81903-MSD1 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Aroclor 1260 (268% @ 40-140%), Aroclor 1260 [2C] (337% @ 40-140%)

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: 1810580

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-271-101918 2FT
Date Sampled: 10/19/18 13:23
Percent Solids: 98
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1254	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 11:53	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*100 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*68 %*		*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: B-272-101918 2FT
Date Sampled: 10/19/18 13:24
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1254 [2C]	**2.8** (0.3)		8082A		5	10/22/18 21:32	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 12:13	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*100 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*68 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*97 %*		*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-273-101918 2FT
Date Sampled: 10/19/18 13:25
Percent Solids: 92
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1254 [2C]	**3.6** (0.5)		8082A		10	10/22/18 21:52	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 12:32	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*89 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*86 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-274-101918 2FT
Date Sampled: 10/19/18 13:26
Percent Solids: 96
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1254 [2C]	**1.8** (0.3)		8082A		5	10/22/18 22:11	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 12:51	C8J0478	CJ81903

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*94 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*60 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-275-101918 2FT
Date Sampled: 10/19/18 13:27
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1254	**0.3** (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 13:10	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*104 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*61 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-276-101918 2FT
Date Sampled: 10/19/18 13:29
Percent Solids: 96
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1254	**0.1** (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 13:30	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*89 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*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-925-101918 2FT
Date Sampled: 10/19/18 13:28
Percent Solids: 98
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1254 [2C]	**1.4** (0.3)		8082A		5	10/22/18 22:30	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 13:49	C8J0478	CJ81903

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*47 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*37 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*58 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*47 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-277-101918 2FT
Date Sampled: 10/19/18 13:30
Percent Solids: 95
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1242	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1254 [2C]	**1.8** (0.3)		8082A		5	10/22/18 22:49	C8J0478	CJ81903
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 14:08	C8J0478	CJ81903

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*97 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*86 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-278-101918 2FT
Date Sampled: 10/19/18 13:31
Percent Solids: 96
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1254 [2C]	**3.1** (0.3)		8082A		5	10/23/18 10:03	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 16:04	C8J0478	CJ81903

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*104 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*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-290-101918 2FT
Date Sampled: 10/19/18 13:46
Percent Solids: 93
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1254 [2C]	**6.5** (0.5)		8082A		10	10/23/18 10:23	C8J0478	CJ81903
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 16:23	C8J0478	CJ81903

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*109 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*103 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*102 %*		*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: B-291-101918 2FT
Date Sampled: 10/19/18 13:47
Percent Solids: 92
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1242	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1254 [2C]	**0.8** (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 16:43	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*129 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*94 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-344-101918-A 7FT
Date Sampled: 10/19/18 12:55
Percent Solids: 88
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1242 [2C]	**0.3** (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1254 [2C]	**0.3** (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 17:02	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*90 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*73 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*77 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-366-101918-A 7FT
Date Sampled: 10/19/18 13:01
Percent Solids: 87
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1242 [2C]	**0.8** (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1254	**0.5** (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 19:17	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*89 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-367-101918-A 7FT
Date Sampled: 10/19/18 13:02
Percent Solids: 86
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1242 [2C]	**0.2** (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1254	**0.2** (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 19:37	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*95 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*83 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-375-101918-A 7FT
Date Sampled: 10/19/18 13:06
Percent Solids: 68
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1221	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1232	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1242	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1248	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1254	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1260	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1262	ND (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314
Aroclor 1268 [2C]	**0.4** (0.07)		8082A		1	10/23/18 12:38	C8J0507	CJ82314

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*1310 %*	*SM*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*1220 %*	*SM*	*30-150*
Surrogate: Tetrachloro-m-xylene	*73 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*88 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-382-101918-A 2FT
Date Sampled: 10/19/18 13:15
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1221	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1232	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1242	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1248	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1254 [2C]	**15.5** (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1260	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1262	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903
Aroclor 1268	ND (1.2)		8082A		20	10/23/18 10:42	C8J0507	CJ81903

	%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-371-101918-A 2FT
Date Sampled: 10/19/18 13:16
Percent Solids: 98
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1221	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1232	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1242	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1248	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1254 [2C]	**11.2** (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1260	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1262	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903
Aroclor 1268	ND (1.1)		8082A		20	10/23/18 11:01	C8J0507	CJ81903

	%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-360-101918-A 2FT
Date Sampled: 10/19/18 13:17
Percent Solids: 84
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1221	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1232	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1242	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1248	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1254 [2C]	**8.3** (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1260	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1262	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903
Aroclor 1268	ND (1.2)		8082A		20	10/23/18 11:21	C8J0507	CJ81903

	%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-404-101918-A 2FT
Date Sampled: 10/19/18 13:35
Percent Solids: 93
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810580
ESS Laboratory Sample ID: 1810580-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:13

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1242 [2C]	**0.2** (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1254	**LC, P 0.2** (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 21:13	C8J0478	CJ81903

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*108 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*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: 1810580

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81903 - 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	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0146*		mg/kg wet	*0.02500*		*58*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0181*		mg/kg wet	*0.02500*		*72*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0175*		mg/kg wet	*0.02500*		*70*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		85	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		81	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		82	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		73	40-140			
Surrogate: Decachlorobiphenyl	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0159*		mg/kg wet	*0.02500*		*64*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0196*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		83	40-140	2	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		79	40-140	2	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		81	40-140	1	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		72	40-140	0.9	30	
Surrogate: Decachlorobiphenyl	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0157*		mg/kg wet	*0.02500*		*63*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0185*		mg/kg wet	*0.02500*		*74*	*30-150*			
Matrix Spike **Source: 1810580-07**										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810580

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81903 - 3540C										
Aroclor 1016	0.6	0.05	mg/kg dry	0.5360	ND	121	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg dry	0.5360	ND	105	40-140			
Aroclor 1260	0.9	0.05	mg/kg dry	0.5360	ND	176	40-140			SM
Aroclor 1260 [2C]	1.1	0.05	mg/kg dry	0.5360	ND	209	40-140			SM
Surrogate: Decachlorobiphenyl	*0.0249*		mg/kg dry	*0.02680*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0201*		mg/kg dry	*0.02680*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0235*		mg/kg dry	*0.02680*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0253*		mg/kg dry	*0.02680*		*94*	*30-150*			
Matrix Spike Dup Source: 1810580-07										
Aroclor 1016	0.7	0.05	mg/kg dry	0.5332	ND	137	40-140	12	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg dry	0.5332	ND	111	40-140	5	30	
Aroclor 1260	1.4	0.05	mg/kg dry	0.5332	ND	268	40-140	41	30	D+, SM
Aroclor 1260 [2C]	1.8	0.05	mg/kg dry	0.5332	ND	337	40-140	46	30	D+, SM
Surrogate: Decachlorobiphenyl	*0.0250*		mg/kg dry	*0.02666*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0206*		mg/kg dry	*0.02666*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0240*		mg/kg dry	*0.02666*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0250*		mg/kg dry	*0.02666*		*94*	*30-150*			
Batch CJ82314 - 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	*0.0252*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
LCS										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810580

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82314 - 3540C										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		92	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		90	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0254*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0204*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810580

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).
P	Percent difference between primary and confirmation results exceeds 40% (P).
LC	Lower value is used due to matrix interferences (LC).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
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: 1810580

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: 1810580
Date Received: 10/19/2018
Project Due Date: 10/26/2018
Days for Project: 5 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: 1.1 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	280306	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	280305	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	280304	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	280303	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	280302	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	280301	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	280286	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	280287	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	280300	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	280299	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	280298	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	280297	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	280296	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	280295	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	280294	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	280293	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	280292	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	280291	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	280290	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	280289	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
19	280288	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810580
Date Received: 10/19/2018

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

Completed By: _____ Date & Time: 10/19/18 1631
Reviewed By: _____ Date & Time: 10/19/18 16:34
Delivered By: _____ 10/19/18 16:34

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

ESS Lab #: K810580
Reporting Limits: see note 1
Electonic Deliverables: ☐ Limit Checker ☐ Standard Excel ☒ Other (Please Specify →) PDF

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
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	10-19-18	1323	G	S	B-271-101918(2')	X
2		1324			B-272-101918(2')	X
3		1325			B-273-101918(2')	X
4		1326			B-274-101918(2')	X
5		1327			B-275-101918(2')	X
6		1329			B-276-101918(2')	X
7		1328			B-925-101918(2')	X
7		1328			B-925-101918(2') MS/MSD	X
8		1330			B-277-101918(2')	X
9		1331			B-278-101918(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: Tee 1.1°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)
10/19/18 1505	10/19/18 1503	10/19/18 1520	10/19/18 1524
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CHAIN OF CUSTODY

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

ESS Lab #: 18105980
Reporting Limits: See note 1
Electonic Deliverables: ☐Limit Checker ☐Standard Excel ☒Other (Please Specify →) PDF

Company Name: AEI
Contact Person: Aaron Ting
City: Boston
State: MA
Telephone Number: (978) 577-7138
FAX Number: —
Project #: 363655
Project Name: BASF Cranston
Address: 112 Water St, 5th floor
Zip Code: 02109
PO #:
Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
10	10-19-18	1346	G	S	B-290-101918(2')	X
11	↓	1347	↓	↓	B-291-101918(2')	X
	~~10-19-18~~	~~1336~~	G	S	~~B-300-101918-1(2')~~ EAH	

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: Air 9 | 1 | 1

Laboratory Use Only
Cooler Present: —
Seals Intact: —
Cooler Temperature: Ice 1.1 °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)
10/19/18 1505	10/19/18 15:06	10/19/18 15:20	10/19/18 1523
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CHAIN OF CUSTODY

ESS Lab #	K610580
Turn Time	Rush 48hr
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 →) PDF
Company Name	AEI
Contact Person	Aaron Ting
Project #	363655
Project Name	BAJF Cranston
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)
12	10/19/18	12:55	G	S	B-344-101918-A (7')	X
13	↓	13:01	↓	↓	B-366-101918-A (7')	X
14		13:02			B-367-101918-A (7')	X
15		13:06			B-375-101918-A (7')	X
16		13:15			B-382-101918-A (2')	X
17		13:16			B-371-101918-A (2')	X
18		13:17			B-360-101918-A (2')	X
19	↓	13:35	↓	↓	B-404-101918-A (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

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
Preservation Code	9
Number of Containers per Sample:	1

Laboratory Use Only

Cooler Present: ✓

Seals Intact: —

Cooler Temperature: Ice 1.1 °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)
10/19/18 1505	10/19/18 15:06	10/19/18 15:20	10/19/18 1523
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: 1810581

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 3:28 pm, Oct 23, 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: 1810581

SAMPLE RECEIPT

The following samples were received on October 19, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810581-01	B-926-101918 2FT	Soil	8082A
1810581-02	B-279-101918 2FT	Soil	8082A
1810581-03	B-927-101918 2FT	Soil	8082A
1810581-04	B-280-101918 2FT	Soil	8082A
1810581-05	B-280-101918-1 2FT	Soil	8082A
1810581-06	B-281-101918 2FT	Soil	8082A
1810581-07	B-300-101918 2FT	Soil	8082A
1810581-08	B-300-101918-1 2FT	Soil	8082A
1810581-09	B-282-101918 2FT	Soil	8082A
1810581-10	B-286-101918 2FT	Soil	8082A
1810581-11	B-283-101918 2FT	Soil	8082A
1810581-12	B-287-101918 2FT	Soil	8082A
1810581-13	B-284-101918 2FT	Soil	8082A
1810581-14	B-288-101918 2FT	Soil	8082A
1810581-15	B-285-101918 2FT	Soil	8082A
1810581-16	B-289-101918 2FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810581

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810581-03 **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%)

1810581-07 **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%)

1810581-08 **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%)

CJ81904-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1260 (-29% @ 40-140%), Aroclor 1260 [2C] (-49% @ 40-140%)

CJ81904-MS2 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (148% @ 40-140%), Aroclor 1260 (260% @ 40-140%), Aroclor 1260 [2C] (357% @ 40-140%)

CJ81904-MS3 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (152% @ 40-140%), Aroclor 1260 (261% @ 40-140%), Aroclor 1260 [2C] (261% @ 40-140%)

CJ81904-MS4 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (264% @ 40-140%), Aroclor 1016 [2C] (253% @ 40-140%), Aroclor 1260 (454% @ 40-140%), Aroclor 1260 [2C] (695% @ 40-140%)

CJ81904-MS4 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Tetrachloro-m-xylene [2C] (394% @ 30-150%)

CJ81904-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1260 (200% @ 40-140%), Aroclor 1260 [2C] (201% @ 40-140%)

CJ81904-MSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1260 (58% @ 30%), Aroclor 1260 [2C] (56% @ 30%)

CJ81904-MSD2 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (221% @ 40-140%), Aroclor 1260 (327% @ 40-140%), Aroclor 1260 [2C] (387% @ 40-140%)

CJ81904-MSD2 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1016 (43% @ 30%)

CJ81904-MSD3 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1260 (207% @ 40-140%), Aroclor 1260 [2C] (245% @ 40-140%)

CJ81904-MSD4 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (201% @ 40-140%), Aroclor 1016 [2C] (178% @ 40-140%), Aroclor 1260 (721% @ 40-140%), Aroclor 1260 [2C] (622% @ 40-140%)

CJ81904-MSD4 **Relative percent difference for duplicate is outside of criteria (D+).**
Aroclor 1016 [2C] (31% @ 30%), Aroclor 1260 (49% @ 30%)

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810581

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

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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: 1810581

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-926-101918 2FT
Date Sampled: 10/19/18 13:31
Percent Solids: 98
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904
Aroclor 1254 [2C]	**1.9** (0.3)		8082A		5	10/22/18 21:09	C8J0479	CJ81904
Aroclor 1260 [2C]	**1.9** (0.3)		8082A		5	10/22/18 21:09	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 13:39	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*90 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*92 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-279-101918 2FT
Date Sampled: 10/19/18 13:32
Percent Solids: 96
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1254 [2C]	**2.2** (0.3)		8082A		5	10/22/18 21:28	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 13:58	C8J0479	CJ81904

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*106 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*93 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-927-101918 2FT
Date Sampled: 10/19/18 13:33
Percent Solids: 92
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1221	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1232	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1242	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1248	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1254 [2C]	**9.5** (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1260	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1262	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904
Aroclor 1268	ND (1.1)		8082A		20	10/22/18 21:47	C8J0479	CJ81904

	%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-280-101918 2FT
Date Sampled: 10/19/18 13:35
Percent Solids: 96
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1254 [2C]	**2.6** (0.3)		8082A		5	10/22/18 22:06	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 15:08	C8J0479	CJ81904

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*114 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*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-280-101918-1 2FT
Date Sampled: 10/19/18 13:35
Percent Solids: 95
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1254 [2C]	**2.6** (0.3)		8082A		5	10/22/18 22:25	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 15:25	C8J0479	CJ81904

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*93 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-281-101918 2FT
Date Sampled: 10/19/18 13:37
Percent Solids: 97
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1254 [2C]	**1.9** (0.3)		8082A		5	10/22/18 22:44	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 15:45	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*93 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*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-300-101918 2FT
Date Sampled: 10/19/18 13:36
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1221	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1232	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1242	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1248	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1254 [2C]	**16.1** (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1260	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1262	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904
Aroclor 1268	ND (1.2)		8082A		20	10/23/18 9:12	C8J0506	CJ81904

	%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-300-101918-1 2FT
Date Sampled: 10/19/18 13:36
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1221	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1232	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1242	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1248	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1254 [2C]	**16.6** (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1260	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1262	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904
Aroclor 1268	ND (1.2)		8082A		20	10/23/18 9:29	C8J0506	CJ81904

	%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-282-101918 2FT
Date Sampled: 10/19/18 13:38
Percent Solids: 96
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904
Aroclor 1254 [2C]	**5.2** (0.5)		8082A		10	10/23/18 9:48	C8J0479	CJ81904
Aroclor 1260 [2C]	**4.4** (0.5)		8082A		10	10/23/18 9:48	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 16:42	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*96 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*89 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-286-101918 2FT
Date Sampled: 10/19/18 13:39
Percent Solids: 94
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1221	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1232	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1242	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1248	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1254 [2C]	**2.1** (0.3)		8082A		5	10/23/18 10:07	C8J0479	CJ81904
Aroclor 1260	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1262	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904
Aroclor 1268	ND (0.06)		8082A		1	10/22/18 17:01	C8J0479	CJ81904

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*102 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-283-101918 2FT
Date Sampled: 10/19/18 13:40
Percent Solids: 95
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1254 [2C]	**2.6** (0.3)		8082A		5	10/23/18 10:26	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 17:20	C8J0479	CJ81904

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*100 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*92 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-287-101918 2FT
Date Sampled: 10/19/18 13:41
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904
Aroclor 1254 [2C]	**3.3** (0.3)		8082A		5	10/23/18 10:46	C8J0479	CJ81904
Aroclor 1260	**1.2** (0.3)		8082A		5	10/23/18 10:46	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 19:33	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*91 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*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-284-101918 2FT
Date Sampled: 10/19/18 13:42
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1254 [2C]	**2.4** (0.3)		8082A		5	10/23/18 11:05	C8J0479	CJ81904
Aroclor 1260	**0.9** (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 19:53	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*105 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*106 %*		*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-288-101918 2FT
Date Sampled: 10/19/18 13:43
Percent Solids: 96
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1254 [2C]	**1.1** (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1260 [2C]	**1.1** (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 20:12	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*91 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*94 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-285-101918 2FT
Date Sampled: 10/19/18 13:44
Percent Solids: 97
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1254 [2C]	**3.1** (0.3)		8082A		5	10/23/18 11:24	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 20:31	C8J0479	CJ81904

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*73 %*		*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-289-101918 2FT
Date Sampled: 10/19/18 13:45
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810581
ESS Laboratory Sample ID: 1810581-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/19/18 17:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1221	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1232	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1242	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1248	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1254 [2C]	**0.08** (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1260	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1262	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904
Aroclor 1268	ND (0.05)		8082A		1	10/22/18 20:50	C8J0479	CJ81904

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*94 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810581

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81904 - 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	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0191*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0196*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		81	40-140			
Surrogate: Decachlorobiphenyl	*0.0215*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0199*		mg/kg wet	*0.02500*		*80*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		98	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	5	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140	4	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140	6	30	
Surrogate: Decachlorobiphenyl	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
Matrix Spike **Source: 1810581-01**										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810581

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81904 - 3540C										
Aroclor 1016	0.6	0.05	mg/kg dry	0.5193	ND	113	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg dry	0.5193	ND	114	40-140			
Aroclor 1260	1.4	0.05	mg/kg dry	0.5193	1.6	NR	40-140			MC
Aroclor 1260 [2C]	1.6	0.05	mg/kg dry	0.5193	1.9	NR	40-140			MC
Surrogate: Decachlorobiphenyl	*0.0240*		mg/kg dry	*0.02597*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0224*		mg/kg dry	*0.02597*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0256*		mg/kg dry	*0.02597*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0246*		mg/kg dry	*0.02597*		*95*	*30-150*			
Matrix Spike Source: 1810581-03										
Aroclor 1016	0.8	0.05	mg/kg dry	0.5399	ND	148	40-140			MC
Aroclor 1016 [2C]	0.8	0.05	mg/kg dry	0.5399	ND	140	40-140			
Aroclor 1260	1.4	0.05	mg/kg dry	0.5399	ND	260	40-140			MC
Aroclor 1260 [2C]	1.9	0.05	mg/kg dry	0.5399	ND	357	40-140			MC
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg dry	*0.02700*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0258*		mg/kg dry	*0.02700*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0237*		mg/kg dry	*0.02700*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0308*		mg/kg dry	*0.02700*		*114*	*30-150*			
Matrix Spike Source: 1810581-04										
Aroclor 1016	0.8	0.05	mg/kg dry	0.5302	ND	152	40-140			MC
Aroclor 1016 [2C]	0.6	0.05	mg/kg dry	0.5302	ND	108	40-140			
Aroclor 1260	1.4	0.05	mg/kg dry	0.5302	ND	261	40-140			MC
Aroclor 1260 [2C]	1.4	0.05	mg/kg dry	0.5302	ND	261	40-140			MC
Surrogate: Decachlorobiphenyl	*0.0229*		mg/kg dry	*0.02651*		*86*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0250*		mg/kg dry	*0.02651*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0232*		mg/kg dry	*0.02651*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0253*		mg/kg dry	*0.02651*		*96*	*30-150*			
Matrix Spike Source: 1810581-07										
Aroclor 1016	1.5	0.06	mg/kg dry	0.5786	ND	264	40-140			MC
Aroclor 1016 [2C]	1.5	0.06	mg/kg dry	0.5786	ND	253	40-140			MC
Aroclor 1260	2.6	0.06	mg/kg dry	0.5786	ND	454	40-140			MC
Aroclor 1260 [2C]	4.0	0.06	mg/kg dry	0.5786	ND	695	40-140			MC
Surrogate: Decachlorobiphenyl	*0.0240*		mg/kg dry	*0.02893*		*83*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0297*		mg/kg dry	*0.02893*		*103*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0197*		mg/kg dry	*0.02893*		*68*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.114*		mg/kg dry	*0.02893*		*394*	*30-150*			*SM*
Matrix Spike Dup Source: 1810581-01										
Aroclor 1016	0.7	0.05	mg/kg dry	0.5167	ND	129	40-140	13	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg dry	0.5167	ND	123	40-140	7	30	
Aroclor 1260	2.6	0.05	mg/kg dry	0.5167	1.6	200	40-140	58	30	D+, MC
Aroclor 1260 [2C]	2.9	0.05	mg/kg dry	0.5167	1.9	201	40-140	56	30	D+, MC
Surrogate: Decachlorobiphenyl	*0.0234*		mg/kg dry	*0.02583*		*91*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810581

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ81904 - 3540C										
Surrogate: Decachlorobiphenyl [2C]	*0.0243*		mg/kg dry	*0.02583*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0316*		mg/kg dry	*0.02583*		*122*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0244*		mg/kg dry	*0.02583*		*94*	*30-150*			
Matrix Spike Dup Source: 1810581-03										
Aroclor 1016	1.2	0.06	mg/kg dry	0.5565	ND	221	40-140	43	30	D+, MC
Aroclor 1016 [2C]	0.8	0.06	mg/kg dry	0.5565	ND	139	40-140	2	30	
Aroclor 1260	1.8	0.06	mg/kg dry	0.5565	ND	327	40-140	26	30	MC
Aroclor 1260 [2C]	2.2	0.06	mg/kg dry	0.5565	ND	387	40-140	11	30	MC
Surrogate: Decachlorobiphenyl	*0.0267*		mg/kg dry	*0.02783*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0280*		mg/kg dry	*0.02783*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0257*		mg/kg dry	*0.02783*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0333*		mg/kg dry	*0.02783*		*120*	*30-150*			
Matrix Spike Dup Source: 1810581-04										
Aroclor 1016	0.6	0.05	mg/kg dry	0.5468	ND	110	40-140	29	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg dry	0.5468	ND	102	40-140	3	30	
Aroclor 1260	1.1	0.05	mg/kg dry	0.5468	ND	207	40-140	20	30	MC
Aroclor 1260 [2C]	1.3	0.05	mg/kg dry	0.5468	ND	245	40-140	3	30	MC
Surrogate: Decachlorobiphenyl	*0.0238*		mg/kg dry	*0.02734*		*87*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg dry	*0.02734*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0242*		mg/kg dry	*0.02734*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0249*		mg/kg dry	*0.02734*		*91*	*30-150*			
Matrix Spike Dup Source: 1810581-07										
Aroclor 1016	1.2	0.06	mg/kg dry	0.5995	ND	201	40-140	24	30	MC
Aroclor 1016 [2C]	1.1	0.06	mg/kg dry	0.5995	ND	178	40-140	31	30	D+, MC
Aroclor 1260	4.3	0.06	mg/kg dry	0.5995	ND	721	40-140	49	30	D+, MC
Aroclor 1260 [2C]	3.7	0.06	mg/kg dry	0.5995	ND	622	40-140	7	30	MC
Surrogate: Decachlorobiphenyl	*0.0341*		mg/kg dry	*0.02997*		*114*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0273*		mg/kg dry	*0.02997*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0256*		mg/kg dry	*0.02997*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0405*		mg/kg dry	*0.02997*		*135*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810581

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.
D+	Relative percent difference for duplicate is outside of criteria (D+).
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: 1810581

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: 1810581
Date Received: 10/19/2018
Project Due Date: 10/26/2018
Days for Project: 5 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: 1.1 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	280327	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	280334	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	280335	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	280326	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	280325	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	280332	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	280333	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	280324	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	280330	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	280331	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	280323	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	280322	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	280321	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	280328	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	280329	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	280320	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	280319	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	280318	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	280317	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	280316	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	280315	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	280314	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	280313	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	280312	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810581
Date Received: 10/19/2018

2nd Review

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

Completed By: _____ Date & Time: 10/19/18 1631

Reviewed By: _____ Date & Time: 10/19/18 16:34

Delivered By: _____ 10/19/18 16:34

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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 # 1810581

Turn Time Rush 48hr
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 →) PDF

Company Name: AEI
Contact Person: Aaron Ting
Project #: 363655
Project Name: BASF Cranston
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	10-19-18	1331	G	S	B-926-101918(2')	X
1		1331			B-926-101918(2') MS/MSD	X
2		1332			B-279-101918(2')	X
3		1333			B-927-101918(2')	X
3		1333			B-927-101918(2') MS/MSD	X
4		1335			B-280-101918(2')	X
5		1335			B-280-101918-1(2')	X
4		1335			B-280-101918(2') MS/MSD	X
6		1337			B-281-101918(2')	X
7		1336			B-300-101918(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*
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:											9 / 1 / 1

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Ice 1.1 °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)
10/19/18 1805	10/19/18 1505	10/19/18 1520	10/19/18 1523
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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ESS Laboratory
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185 Frances Avenue, Cranston RI 02910
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www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab #	1810581
Turn Time / Rush	48hr
Reporting Limits	See note 1
Regulatory State	RI
Electonic Deliverables	☐ Limit Checker ☒ Standard Excel ☒ Other (Please Specify →) PDF

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

Company Name: AEI	Project #: 363655	Project Name: BASF Cranston	
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)
8	10-19-18	1336	G	S	B-300-101918-1(2')	X
7		1336			B-300-101918(2') MS/MSD	X
9		1338			B-282-101918(2')	X
10		1339			B-286-101918(2')	X
11		1340			B-283-101918(2')	X
12		1341			B-287-101918(2')	X
13		1342			B-284-101918(2')	X
14		1343			B-288-101918(2')	X
15		1344			B-285-101918(2')	X
16		1345			B-289-101918(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: Ice 1.1°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)
10/19/18 1505	10/19/18 15:05	10/19/18 15:20	10/19/18 1520
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: 1810626

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 3:03 pm, Oct 25, 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: 1810626

SAMPLE RECEIPT

The following samples were received on October 22, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810626-01	B-309-102218 2FT	Soil	8082A
1810626-02	B-292-102218 2FT	Soil	8082A
1810626-03	B-310-102218 2FT	Soil	8082A
1810626-04	B-293-102218 2FT	Soil	8082A
1810626-05	B-311-102218 2FT	Soil	8082A
1810626-06	B-294-102218 2FT	Soil	8082A
1810626-07	B-312-102218 2FT	Soil	8082A
1810626-08	B-295-102218 2FT	Soil	8082A
1810626-09	B-313-102218 2FT	Soil	8082A
1810626-10	B-314-102218 2FT	Soil	8082A
1810626-11	B-296-102218 2FT	Soil	8082A
1810626-12	B-315-102218 2FT	Soil	8082A
1810626-13	B-297-102218 2FT	Soil	8082A
1810626-14	B-316-102218 2FT	Soil	8082A
1810626-15	B-930-102218 2FT	Soil	8082A
1810626-16	B-298-102218 2FT	Soil	8082A
1810626-17	B-317-102218 2FT	Soil	8082A
1810626-18	B-299-102218 2FT	Soil	8082A
1810626-19	B-318-102218 2FT	Soil	8082A
1810626-20	B-301-102218 2FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810626

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: 1810626

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-309-102218 2FT
Date Sampled: 10/22/18 07:32
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810626
ESS Laboratory Sample ID: 1810626-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/22/18 18:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1221	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1232	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1242	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1248	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1254 [2C]	**15.5** (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1260	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1262	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205
Aroclor 1268	ND (1.1)		8082A		20	10/24/18 11:42	C8J0566	CJ82205

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-292-102218 2FT
Date Sampled: 10/22/18 07:33
Percent Solids: 93
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810626
ESS Laboratory Sample ID: 1810626-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/22/18 18:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1221	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1232	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1242	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1248	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1254 [2C]	**1.9** (0.3)		8082A		5	10/24/18 12:01	C8J0506	CJ82205
Aroclor 1260	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1262	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205
Aroclor 1268	ND (0.05)		8082A		1	10/24/18 0:42	C8J0506	CJ82205

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*89 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*124 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-310-102218 2FT
Date Sampled: 10/22/18 07:34
Percent Solids: 93
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810626
ESS Laboratory Sample ID: 1810626-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/22/18 18:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1221	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1232	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1242	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1248	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1254 [2C]	**5.1** (0.6)		8082A		10	10/24/18 12:20	C8J0506	CJ82205
Aroclor 1260	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1262	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205
Aroclor 1268	ND (0.06)		8082A		1	10/24/18 3:15	C8J0506	CJ82205

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*103 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*132 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*100 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-293-102218 2FT
Date Sampled: 10/22/18 07:35
Percent Solids: 92
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810626
ESS Laboratory Sample ID: 1810626-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/22/18 18:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1221	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1232	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1242	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1248	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1254	**2.6** (0.3)		8082A		5	10/24/18 12:58	C8J0506	CJ82205
Aroclor 1260	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1262	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205
Aroclor 1268	ND (0.05)		8082A		1	10/24/18 3:34	C8J0506	CJ82205

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*70 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*127 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*94 %*		*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-311-102218 2FT
Date Sampled: 10/22/18 07:36
Percent Solids: 95
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810626
ESS Laboratory Sample ID: 1810626-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/22/18 18:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205
Aroclor 1221	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205
Aroclor 1232	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205
Aroclor 1242	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205
Aroclor 1248	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205
Aroclor 1254	**2.6** (0.3)		8082A		5	10/24/18 12:58	C8J0506	CJ82205
Aroclor 1260 [2C]	**1.7** (0.3)		8082A		5	10/24/18 12:58	C8J0506	CJ82205
Aroclor 1262	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205
Aroclor 1268	ND (0.05)		8082A		1	10/24/18 3:53	C8J0506	CJ82205

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*133 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*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-294-102218 2FT
Date Sampled: 10/22/18 07:37
Percent Solids: 93
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810626
ESS Laboratory Sample ID: 1810626-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/22/18 18:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1221	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1232	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1242	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1248	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1254	**0.9** (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1260 [2C]	**0.7** (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1262	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205
Aroclor 1268	ND (0.05)		8082A		1	10/24/18 4:12	C8J0506	CJ82205

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*104 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*102 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*