CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-243-111218-A 0-2FT
Date Sampled: 11/12/18 14:08
Percent Solids: 90
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811303
ESS Laboratory Sample ID: 1811303-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/12/18 16:48

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1221	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1232	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1242	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1248	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1254 [2C]	**6.0** (0.6)		8082A		10	11/13/18 14:25	C8K0233	CK81211
Aroclor 1260	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1262	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211
Aroclor 1268	ND (0.06)		8082A		1	11/13/18 13:26	C8K0233	CK81211

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*69 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*68 %*		*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: 1811303

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK81211 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0214*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Surrogate: Decachlorobiphenyl	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		98	40-140	3	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		90	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0231*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811303

Notes and Definitions

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

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811303

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: 1811303
Date Received: 11/12/2018
Project Due Date: 11/14/2018
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: 1.2 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	288827	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	288826	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	288825	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	288824	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: 11/12/18 1533
Reviewed By: Date & Time: 11.12.18 15:57
Delivered By: 11/12/18 1606

1

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

CHAIN OF CUSTODY

ESS Lab # 1811303

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: 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

Analysis: PCBs (Soxhlet)

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	PCBs (Soxhlet)
1	11-12-18	11:55	C	S	W-28-111218 (0-2')	X
2	↓	11:56	↓	↓	W-27-111218 (0-2')	X
3		13:53			SW-244-111218-A (0-2')	X
4		14:08			SW-243-111218-A (0-2')	X

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

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

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

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact: NA

Cooler Temperature: °C ice temp: 1.2

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)
11/12/18 14:40	11/12/18 14:43	11/12/18 15:02	11/12/18 1512
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: 1811314

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 2:24 pm, Nov 15, 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: 1811314

SAMPLE RECEIPT

The following samples were received on November 13, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811314-01	SW-579-111318-C 4-7FT	Soil	8082A
1811314-02	B-837-111318 4FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811314

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: 1811314

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

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

Prep Methods

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

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-579-111318-C 4-7FT
Date Sampled: 11/13/18 08:05
Percent Solids: 79
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811314
ESS Laboratory Sample ID: 1811314-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/13/18 15:01

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1221	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1232	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1242	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1248	**1.2** (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1254	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1260 [2C]	**0.8** (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1262	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212
Aroclor 1268	ND (0.06)		8082A		1	11/15/18 0:13	C8K0257	CK81212

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*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-837-111318 4FT
Date Sampled: 11/13/18 08:07
Percent Solids: 77
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811314
ESS Laboratory Sample ID: 1811314-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/13/18 15:01

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1221	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1232	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1242	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1248	**0.8** (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1254	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1260 [2C]	**0.5** (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1262	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212
Aroclor 1268	ND (0.06)		8082A		1	11/15/18 0:32	C8K0257	CK81212

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811314

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK81212 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	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		86	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Surrogate: Decachlorobiphenyl	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140	4	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		78	40-140	4	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		86	40-140	0.05	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	0.7	30	
Surrogate: Decachlorobiphenyl	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1811314

Notes and Definitions

U	Analyte included in the analysis, but not detected
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: 1811314

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: Client

ESS Project ID: 1811314
Date Received: 11/13/2018
Project Due Date: 11/15/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 4.1 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	289143	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	289142	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: 11-13-18 12:48
Reviewed By: Date & Time: 11/13/18 1310
Delivered By: 11/13/18 1310

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

CHAIN OF CUSTODY

ESS Lab # 1811314

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)
1	11-13-18	0805	C	S	SW-579-111318-C (4-7')	X
2	↓	0807	G	↓	B-837-111318 (4')	X

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

Laboratory Use Only

Cooler Present: Y

Seals Intact: NX

Cooler Temperature: 4.1 °C 11/13/18 13:13 12:33

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)
11-13-18 1233	11/13/18 12:20		
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: 1811370

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 6:03 pm, Nov 16, 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: 1811370

SAMPLE RECEIPT

The following samples were received on November 14, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811370-01	B-73-111418 3FT	Soil	8082A
1811370-02	B-74-111418 3FT	Soil	8082A
1811370-03	B-75-111418 3FT	Soil	8082A
1811370-04	B-76-111418 3FT	Soil	8082A
1811370-05	SW-63-111418 0-3FT	Soil	8082A
1811370-06	SW-61-111418 0-3FT	Soil	8082A
1811370-07	SW-722-111418-A 0-2FT	Soil	8082A
1811370-08	B-412-111418-A 4.5FT	Solid	8082A
1811370-09	B-349-111418-A 4.5FT	Soil	8082A
1811370-10	B-359-111418-A 4.5FT	Soil	8082A
1811370-11	B-403-111418-A 5FT	Soil	8082A
1811370-12	B-360-111418-B 5FT	Solid	8082A
1811370-13	B-371-111418-B 5FT	Soil	8082A
1811370-14	B-382-111418-B 5FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811370

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811370-01 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1811370-02 **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%)

1811370-03 **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%)

1811370-04 **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%)

1811370-05 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl [2C] (239% @ 30-150%)

1811370-06 **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%)

1811370-07 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl [2C] (248% @ 30-150%)

1811370-09 **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%)

1811370-13 **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%)

1811370-14 **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.

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1811370

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

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-73-111418 3FT
Date Sampled: 11/14/18 09:20
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1221	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1232	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1242	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1248	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1254 [2C]	**11.0** (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1260	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1262	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409
Aroclor 1268	ND (0.6)		8082A		20	11/15/18 17:32	C8K0311	CK81409

	%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-74-111418 3FT
Date Sampled: 11/14/18 09:21
Percent Solids: 89
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1221	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1232	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1242	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1248	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1254 [2C]	**18.8** (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1260	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1262	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409
Aroclor 1268	ND (1.4)		8082A		50	11/15/18 19:47	C8K0311	CK81409

	%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-75-111418 3FT
Date Sampled: 11/14/18 09:23
Percent Solids: 88
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1221	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1232	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1242	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1248	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1254 [2C]	**27.3** (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1260	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1262	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409
Aroclor 1268	ND (1.4)		8082A		50	11/15/18 20:06	C8K0311	CK81409

	%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-76-111418 3FT
Date Sampled: 11/14/18 09:24
Percent Solids: 88
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1221	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1232	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1242	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1248	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1254 [2C]	**30.6** (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1260	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1262	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409
Aroclor 1268	ND (1.4)		8082A		50	11/15/18 20:26	C8K0311	CK81409

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-63-111418 0-3FT
Date Sampled: 11/14/18 09:27
Percent Solids: 86
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1221	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1232	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1242	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1248	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1254 [2C]	**6.2** (0.3)		8082A		10	11/15/18 20:45	C8K0311	CK81409
Aroclor 1260	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1262	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409
Aroclor 1268	ND (0.03)		8082A		1	11/15/18 14:01	C8K0311	CK81409

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*91 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*239 %*	*SM*	*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*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: SW-61-111418 0-3FT
Date Sampled: 11/14/18 09:29
Percent Solids: 91
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1221	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1232	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1242	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1248	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1254 [2C]	**32.4** (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1260	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1262	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409
Aroclor 1268	ND (1.4)		8082A		50	11/15/18 21:04	C8K0311	CK81409

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-722-111418-A 0-2FT
Date Sampled: 11/14/18 11:30
Percent Solids: 94
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1221	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1232	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1242	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1248	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1254 [2C]	**3.7** (0.3)		8082A		10	11/15/18 21:23	C8K0311	CK81409
Aroclor 1260	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1262	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409
Aroclor 1268	ND (0.03)		8082A		1	11/15/18 14:39	C8K0311	CK81409

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*120 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*248 %*	*SM*	*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*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-412-111418-A 4.5FT
Date Sampled: 11/14/18 13:11
Percent Solids: 93
Initial Volume: 5.02
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-08
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1221	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1232	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1242	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1248	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1254 [2C]	**1.8** (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1260	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1262	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409
Aroclor 1268	ND (0.1)		8082A		1	11/15/18 14:58	C8K0311	CK81409

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*55 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*105 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*53 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*69 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-349-111418-A 4.5FT
Date Sampled: 11/14/18 13:20
Percent Solids: 78
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1221	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1232	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1242	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1248	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1254 [2C]	**28.2** (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1260	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1262	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409
Aroclor 1268	ND (1.7)		8082A		50	11/15/18 21:42	C8K0311	CK81409

	%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-359-111418-A 4.5FT
Date Sampled: 11/14/18 13:21
Percent Solids: 89
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1221	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1232	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1242	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1248	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1254 [2C]	**4.8** (0.3)		8082A		10	11/15/18 22:02	C8K0311	CK81409
Aroclor 1260	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1262	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409
Aroclor 1268	ND (0.03)		8082A		1	11/15/18 15:37	C8K0311	CK81409

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*70 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*117 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*62 %*		*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-403-111418-A 5FT
Date Sampled: 11/14/18 13:32
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1221	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1232	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1242	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1248	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1254 [2C]	**0.3** (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1260	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1262	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409
Aroclor 1268	ND (0.03)		8082A		1	11/15/18 15:56	C8K0311	CK81409

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*108 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*139 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*82 %*		*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-360-111418-B 5FT
Date Sampled: 11/14/18 13:34
Percent Solids: 93
Initial Volume: 5.22
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-12
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1221	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1232	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1242	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1248	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1254 [2C]	**0.2** (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1260	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1262	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409
Aroclor 1268	ND (0.1)		8082A		1	11/15/18 16:15	C8K0311	CK81409

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*61 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*54 %*		*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-371-111418-B 5FT
Date Sampled: 11/14/18 13:35
Percent Solids: 86
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1221	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1232	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1242	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1248	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1254 [2C]	**118** (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1260	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1262	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409
Aroclor 1268	ND (12.2)		8082A		200	11/16/18 10:02	C8K0312	CK81409

	%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-382-111418-B 5FT
Date Sampled: 11/14/18 13:38
Percent Solids: 81
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811370
ESS Laboratory Sample ID: 1811370-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/14/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1221	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1232	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1242	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1248	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1254 [2C]	**8.4** (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1260	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1262	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409
Aroclor 1268	ND (1.2)		8082A		20	11/16/18 10:20	C8K0312	CK81409

	%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: 1811370

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK81409 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0182*		mg/kg wet	*0.02500*		*73*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
LCS										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140			
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		90	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		92	40-140			
Surrogate: Decachlorobiphenyl	*0.0224*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		92	40-140	1	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		91	40-140	0.8	30	
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		88	40-140	2	30	
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		90	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1811370

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.
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: 1811370

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: Client

ESS Project ID: 1811370
Date Received: 11/14/2018
Project Due Date: 11/16/2018
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: 3.1 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	289598	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	289597	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	289596	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	289595	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	289594	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	289593	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	289592	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	289591	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	289590	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	289589	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	289588	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	289587	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	289586	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	289585	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: 11.14.18 14:50
Reviewed By: Date & Time: 11/14/18 1454

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1811370

Date Received: 11/14/2018

Delivered By: 11/14/18 1455

1

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

CHAIN OF CUSTODY

ESS Lab # 1811370

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: AIT

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@deiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	11-14-18	0920	G	S	B-73-111418(3')	X
2		0921			B-74-111418(3')	X
3		0923			B-75-111418(3')	X
4		0924			B-76-111418(3')	X
5		0927	C		SW-63-111418(0-3')	X
6		0929			SW-61-111418(0-3')	X
7		1130			SW-722-111418-A(0-2')	X
8	11-14-18	1311	G	Concrete	B-412-111418-A(4.5')	X
9		1320		S	B-349-111418-A(4.5')	X
10		1321			B-359-111418-A(4.5')	X

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

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

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

Number of Containers per Sample:	AG	9	1	1

Laboratory Use Only

Cooler Present: —

Seals Intact: —

Cooler Temperature: Ice 3.1 °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)
11-14-18 1443	11-14-18 14:22		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

2

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

CHAIN OF CUSTODY

ESS Lab # 181370

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	Project #	Project Name
AEI	363655	BASF Cranston

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

Analysis: PCBs (Soxhlet)

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	PCBs (Soxhlet)
11	11-14-18	1332	G	S	B-403-111418-A(5')	X
12	↓	1334	↓	Concrete	B-360-111418-B(5')	X
13		1335		S	B-371-111418-B(5')	X
14		1338		~~Concrete~~ Soil	B-382-111418-B(5')	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 3.1 °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)
Evan W 11-14-18 1443	11-14-18 14:22		
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: 1811407

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:08 pm, Nov 19, 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: 1811407

SAMPLE RECEIPT

The following samples were received on November 15, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811407-01	SW-243-111518-B 0-2FT	Soil	8082A
1811407-02	SW-494-111518-C 0-2FT	Soil	8082A
1811407-03	SW-495-111518-C 0-2FT	Solid	8082A
1811407-04	SW-515-111518-B 0-2FT	Solid	8082A
1811407-05	B-738-111518-B 0-2FT	Solid	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811407

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811407-02 **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%)

1811407-03 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl [2C] (193% @ 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: 1811407

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

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

Prep Methods

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

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-243-111518-B 0-2FT
Date Sampled: 11/15/18 08:45
Percent Solids: 99
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811407
ESS Laboratory Sample ID: 1811407-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/15/18 17:07

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1221	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1232	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1242	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1248	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1254	**0.1** (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1260	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1262	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505
Aroclor 1268	ND (0.03)		8082A		1	11/16/18 11:40	C8K0330	CK81505

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*90 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*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: SW-494-111518-C 0-2FT
Date Sampled: 11/15/18 09:22
Percent Solids: 91
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811407
ESS Laboratory Sample ID: 1811407-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/15/18 17:07

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1221	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1232	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1242	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1248	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1254 [2C]	**21.2** (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1260	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1262	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505
Aroclor 1268	ND (1.4)		8082A		50	11/16/18 21:31	C8K0330	CK81505

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-495-111518-C 0-2FT
Date Sampled: 11/15/18 09:23
Percent Solids: 93
Initial Volume: 5.38
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811407
ESS Laboratory Sample ID: 1811407-03
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 11/15/18 17:07

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1221	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1232	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1242	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1248	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1254 [2C]	**7.0** (0.5)		8082A		5	11/16/18 21:50	C8K0330	CK81505
Aroclor 1260	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1262	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505
Aroclor 1268	ND (0.1)		8082A		1	11/16/18 12:18	C8K0330	CK81505

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*42 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*193 %*	*SM*	*30-150*
Surrogate: Tetrachloro-m-xylene	*82 %*		*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: SW-515-111518-B 0-2FT
Date Sampled: 11/15/18 09:28
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811407
ESS Laboratory Sample ID: 1811407-04
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 11/15/18 17:07

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1221	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1232	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1242	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1248	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1254	**6.2** (0.3)		8082A		10	11/16/18 22:09	C8K0330	CK81505
Aroclor 1260	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1262	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505
Aroclor 1268	ND (0.03)		8082A		1	11/16/18 13:53	C8K0330	CK81505

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*72 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*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-738-111518-B 0-2FT
Date Sampled: 11/15/18 10:29
Percent Solids: 94
Initial Volume: 5.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811407
ESS Laboratory Sample ID: 1811407-05
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 11/15/18 17:07

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1221	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1232	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1242	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1248	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1254 [2C]	**3.4** (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1260	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1262	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505
Aroclor 1268	ND (0.1)		8082A		1	11/16/18 14:10	C8K0330	CK81505

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*66 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*69 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811407

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK81505 - 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	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	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	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0201*		mg/kg wet	*0.02500*		*81*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140	5	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140	5	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		87	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	5	30	
Surrogate: Decachlorobiphenyl	*0.0214*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1811407

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.
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: 1811407

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: Client

ESS Project ID: 1811407
Date Received: 11/15/2018
Project Due Date: 11/19/2018
Days for Project: 2 Day

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

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	289980	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	289979	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	289978	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	289977	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	289976	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: 11/15/18 1509
Reviewed By: Date & Time: 11/15/18 1518
Delivered By: 11/15/18 1518

1

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

CHAIN OF CUSTODY

ESS Lab # 1811407

Reporting Limits: See note 1

Electonic Deliverables: [X] Limit Checker [X] Standard Excel [X] Other (Please Specify →) PDF

Turn Time: Rush 48hr

Regulatory State: RI

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

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	11-15-18	0845	C	S	SW-243-111518-B(0-2')	X
2		0922			SW-494-111518-C(0-2')	X
3		0923		Concrete	SW-495-111518-C(0-2')	X
4		0928			SW-515-111518-B(0-2')	X
5		1024	G	Concrete	B-738-111518-B(0-2')	X

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

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

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

Number of Containers per Sample: AG 9, i 1

Sampled by: A. Ting

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

Comments: Note 1: See Project QAPP

Laboratory Use Only

Cooler Present: yes

Seals Intact: na

Cooler Temperature: 5-3 °C

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
11-15-18 1406	11/15/18 1406		
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: 1811477

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:45 pm, Nov 21, 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: 1811477

SAMPLE RECEIPT

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

The cooler temperature was not within the acceptance limit of <6°C, however, samples were delivered on ice.

Lab Number	Sample Name	Matrix	Analysis
1811477-01	W-21 0-2FT	Soil	8082A
1811477-02	W-21-1 0-2FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811477

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811477-02 **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: 1811477

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
5035A - 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: W-21 0-2FT
Date Sampled: 11/19/18 12:50
Percent Solids: 86
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811477
ESS Laboratory Sample ID: 1811477-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/19/18 16:33

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1221	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1232	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1242	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1248 [2C]	**6.2** (0.3)		8082A		10	11/20/18 13:01	C8K0375	CK81910
Aroclor 1254	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1260	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1262	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910
Aroclor 1268	ND (0.03)		8082A		1	11/20/18 12:17	C8K0375	CK81910

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*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: W-21-1 0-2FT
Date Sampled: 11/19/18 12:50
Percent Solids: 86
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811477
ESS Laboratory Sample ID: 1811477-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/19/18 16:33

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1221	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1232	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1242	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1248 [2C]	**10.5** (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1254	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1260	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1262	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910
Aroclor 1268	ND (0.6)		8082A		20	11/20/18 13:20	C8K0375	CK81910

	%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: 1811477

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK81910 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0164*		mg/kg wet	*0.02500*		*66*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0170*		mg/kg wet	*0.02500*		*68*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0186*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
LCS										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		94	40-140			
Surrogate: Decachlorobiphenyl	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		100	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		101	40-140	4	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		94	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		97	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0197*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811477

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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811477

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: Client

ESS Project ID: 1811477
Date Received: 11/19/2018
Project Due Date: 11/21/2018
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: 6.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	291174	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	291173	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: [signature] Date & Time: 11/19/18 1420
Reviewed By: NAKOSE Date & Time: 11/19/18 1421
Delivered By: [signature] 11/19/18 1421

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

CHAIN OF CUSTODY

ESS Lab # 1811477

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

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)
1	11/19/18	1250	C	S	W-21 (0-2')	X
2	↓	1250	↓	↓	W-21-1 (0-2')	X

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

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

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

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: yes

Seals Intact:

Cooler Temperature: 6.3 °C (u)

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)
11-19-18 1411	11/19/18 1411		
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: 1811519

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 4:58 pm, Nov 27, 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: 1811519

SAMPLE RECEIPT

The following samples were received on November 20, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811519-01	B-828-112018 3FT	Soil	8082A
1811519-02	B-833-112018 3FT	Soil	8082A
1811519-03	B-829-112018 3FT	Soil	8082A
1811519-04	B-829-112018-1 3FT	Soil	8082A
1811519-05	B-834-112018 3FT	Soil	8082A
1811519-06	B-834-112018-1 3FT	Soil	8082A
1811519-07	B-830-112018 3FT	Soil	8082A
1811519-08	B-830-112018-1 3FT	Soil	8082A
1811519-09	B-835-112018 3FT	Soil	8082A
1811519-10	B-835-112018-1 3FT	Soil	8082A
1811519-11	B-831-112018 3FT	Soil	8082A
1811519-12	B-831-112018-1 3FT	Soil	8082A
1811519-13	B-836-112018 3FT	Soil	8082A
1811519-14	B-836-112018-1 3FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811519-02 **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%)

1811519-03 **Lower value is used due to matrix interferences (LC).**
Aroclor 1242 [2C]

1811519-03 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1242 [2C]

1811519-14 **Lower value is used due to matrix interferences (LC).**
Aroclor 1260

1811519-14 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1260

C8K0415-CCVA **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Aroclor 1016 [2C] (24% @ 20%)

C8K0415-CCVA **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl (26% @ 20%), Decachlorobiphenyl [2C] (21% @ 20%)

CK82014-MS1 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (595% @ 40-140%), Aroclor 1016 [2C] (566% @ 40-140%), Aroclor 1260 (23% @ 40-140%)

CK82014-MS2 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (505% @ 40-140%), Aroclor 1016 [2C] (373% @ 40-140%), Aroclor 1260 (145% @ 40-140%), Aroclor 1260 [2C] (180% @ 40-140%)

CK82014-MS3 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (594% @ 40-140%), Aroclor 1016 [2C] (547% @ 40-140%), Aroclor 1260 (6% @ 40-140%), Aroclor 1260 [2C] (50% @ 40-140%)

CK82014-MS4 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (259% @ 40-140%), Aroclor 1016 [2C] (308% @ 40-140%)

CK82014-MS5 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (248% @ 40-140%), Aroclor 1016 [2C] (224% @ 40-140%), Aroclor 1260 (16% @ 40-140%), Aroclor 1260 [2C] (27% @ 40-140%)

CK82014-MS6 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (258% @ 40-140%), Aroclor 1016 [2C] (217% @ 40-140%), Aroclor 1260 (32% @ 40-140%), Aroclor 1260 [2C] (22% @ 40-140%)

CK82014-MSD1 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (513% @ 40-140%), Aroclor 1016 [2C] (460% @ 40-140%), Aroclor 1260 (-94% @ 40-140%), Aroclor 1260 [2C] (-57% @ 40-140%)

CK82014-MSD2 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (449% @ 40-140%), Aroclor 1016 [2C] (352% @ 40-140%), Aroclor 1260 (134% @ 40-140%), Aroclor 1260 [2C] (159% @ 40-140%)

CK82014-MSD3 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (582% @ 40-140%), Aroclor 1016 [2C] (549% @ 40-140%), Aroclor 1260 (-6% @ 40-140%), Aroclor 1260 [2C] (-0.4% @ 40-140%)

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston ESS Laboratory Work Order: 1811519

CK82014-MSD4 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (281% @ 40-140%), Aroclor 1016 [2C] (329% @ 40-140%), Aroclor 1260 (121% @ 40-140%), Aroclor 1260 [2C] (150% @ 40-140%)

CK82014-MSD5 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (259% @ 40-140%), Aroclor 1016 [2C] (265% @ 40-140%)

CK82014-MSD6 **Due to high target values, matrix spike analyte(s) is masked (MT).**
Aroclor 1016 (260% @ 40-140%), Aroclor 1016 [2C] (223% @ 40-140%), Aroclor 1260 (38% @ 40-140%), Aroclor 1260 [2C] (25% @ 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: 1811519

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
5035A - 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-828-112018 3FT
Date Sampled: 11/20/18 08:38
Percent Solids: 78
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014
Aroclor 1221	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014
Aroclor 1232	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014
Aroclor 1242	**6.3** (0.7)		8082A		10	11/26/18 12:10	C8K0415	CK82014
Aroclor 1248	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014
Aroclor 1254	**5.5** (0.7)		8082A		10	11/26/18 12:10	C8K0415	CK82014
Aroclor 1260	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014
Aroclor 1262	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014
Aroclor 1268	ND (0.07)		8082A		1	11/21/18 14:32	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*46 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*111 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-833-112018 3FT
Date Sampled: 11/20/18 08:39
Percent Solids: 85
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1221	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1232	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1242	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1248	**35.3** (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1254	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1260	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1262	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014
Aroclor 1268	ND (2.9)		8082A		50	11/26/18 12:27	C8K0429	CK82014

	%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-829-112018 3FT
Date Sampled: 11/20/18 08:41
Percent Solids: 62
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.08)		8082A		1	11/21/18 15:10	C8K0415	CK82014
Aroclor 1221	ND (0.08)		8082A		1	11/21/18 15:10	C8K0415	CK82014
Aroclor 1232	ND (0.08)		8082A		1	11/21/18 15:10	C8K0415	CK82014
Aroclor 1242 [2C]	**LC, P 6.4** (0.8)		8082A		10	11/26/18 12:46	C8K0415	CK82014
Aroclor 1248	ND (0.08)		8082A		1	11/21/18 15:10	C8K0415	CK82014
Aroclor 1254	**6.8** (0.8)		8082A		10	11/26/18 12:46	C8K0415	CK82014
Aroclor 1260 [2C]	**5.4** (0.8)		8082A		10	11/26/18 12:46	C8K0415	CK82014
Aroclor 1262	ND (0.08)		8082A		1	11/21/18 15:10	C8K0415	CK82014
Aroclor 1268	ND (0.08)		8082A		1	11/21/18 15:10	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*69 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*76 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-829-112018-1 3FT
Date Sampled: 11/20/18 08:41
Percent Solids: 63
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.08)		8082A		1	11/21/18 16:08	C8K0415	CK82014
Aroclor 1221	ND (0.08)		8082A		1	11/21/18 16:08	C8K0415	CK82014
Aroclor 1232	ND (0.08)		8082A		1	11/21/18 16:08	C8K0415	CK82014
Aroclor 1242	**8.6** (0.8)		8082A		10	11/26/18 13:05	C8K0415	CK82014
Aroclor 1248	ND (0.08)		8082A		1	11/21/18 16:08	C8K0415	CK82014
Aroclor 1254	**6.3** (0.8)		8082A		10	11/26/18 13:05	C8K0415	CK82014
Aroclor 1260 [2C]	**5.4** (0.8)		8082A		10	11/26/18 13:05	C8K0415	CK82014
Aroclor 1262	ND (0.08)		8082A		1	11/21/18 16:08	C8K0415	CK82014
Aroclor 1268	ND (0.08)		8082A		1	11/21/18 16:08	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*58 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*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-834-112018 3FT
Date Sampled: 11/20/18 08:42
Percent Solids: 80
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/21/18 16:27	C8K0415	CK82014
Aroclor 1221	ND (0.06)		8082A		1	11/21/18 16:27	C8K0415	CK82014
Aroclor 1232	ND (0.06)		8082A		1	11/21/18 16:27	C8K0415	CK82014
Aroclor 1242	**2.6** (0.3)		8082A		5	11/26/18 13:24	C8K0415	CK82014
Aroclor 1248	ND (0.06)		8082A		1	11/21/18 16:27	C8K0415	CK82014
Aroclor 1254	**2.3** (0.3)		8082A		5	11/26/18 13:24	C8K0415	CK82014
Aroclor 1260 [2C]	**1.6** (0.3)		8082A		5	11/26/18 13:24	C8K0415	CK82014
Aroclor 1262	ND (0.06)		8082A		1	11/21/18 16:27	C8K0415	CK82014
Aroclor 1268	ND (0.06)		8082A		1	11/21/18 16:27	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*70 %*		*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-834-112018-1 3FT
Date Sampled: 11/20/18 08:42
Percent Solids: 71
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/21/18 17:24	C8K0415	CK82014
Aroclor 1221	ND (0.07)		8082A		1	11/21/18 17:24	C8K0415	CK82014
Aroclor 1232	ND (0.07)		8082A		1	11/21/18 17:24	C8K0415	CK82014
Aroclor 1242	**2.8** (0.4)		8082A		5	11/26/18 13:44	C8K0415	CK82014
Aroclor 1248	ND (0.07)		8082A		1	11/21/18 17:24	C8K0415	CK82014
Aroclor 1254	**3.0** (0.4)		8082A		5	11/26/18 13:44	C8K0415	CK82014
Aroclor 1260 [2C]	**2.2** (0.4)		8082A		5	11/26/18 13:44	C8K0415	CK82014
Aroclor 1262	ND (0.07)		8082A		1	11/21/18 17:24	C8K0415	CK82014
Aroclor 1268	ND (0.07)		8082A		1	11/21/18 17:24	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*69 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*70 %*		*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-830-112018 3FT
Date Sampled: 11/20/18 08:43
Percent Solids: 61
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.08)		8082A		1	11/21/18 17:44	C8K0415	CK82014
Aroclor 1221	ND (0.08)		8082A		1	11/21/18 17:44	C8K0415	CK82014
Aroclor 1232	ND (0.08)		8082A		1	11/21/18 17:44	C8K0415	CK82014
Aroclor 1242	**7.4** (0.8)		8082A		10	11/26/18 14:03	C8K0415	CK82014
Aroclor 1248	ND (0.08)		8082A		1	11/21/18 17:44	C8K0415	CK82014
Aroclor 1254	**5.9** (0.8)		8082A		10	11/26/18 14:03	C8K0415	CK82014
Aroclor 1260 [2C]	**4.9** (0.8)		8082A		10	11/26/18 14:03	C8K0415	CK82014
Aroclor 1262	ND (0.08)		8082A		1	11/21/18 17:44	C8K0415	CK82014
Aroclor 1268	ND (0.08)		8082A		1	11/21/18 17:44	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*65 %*		*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-830-112018-1 3FT
Date Sampled: 11/20/18 08:43
Percent Solids: 63
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.08)		8082A		1	11/21/18 21:14	C8K0415	CK82014
Aroclor 1221	ND (0.08)		8082A		1	11/21/18 21:14	C8K0415	CK82014
Aroclor 1232	ND (0.08)		8082A		1	11/21/18 21:14	C8K0415	CK82014
Aroclor 1242	**6.5** (0.8)		8082A		10	11/26/18 14:22	C8K0415	CK82014
Aroclor 1248	ND (0.08)		8082A		1	11/21/18 21:14	C8K0415	CK82014
Aroclor 1254	**6.4** (0.8)		8082A		10	11/26/18 14:22	C8K0415	CK82014
Aroclor 1260 [2C]	**5.7** (0.8)		8082A		10	11/26/18 14:22	C8K0415	CK82014
Aroclor 1262	ND (0.08)		8082A		1	11/21/18 21:14	C8K0415	CK82014
Aroclor 1268	ND (0.08)		8082A		1	11/21/18 21:14	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*96 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*58 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*113 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-835-112018 3FT
Date Sampled: 11/20/18 08:44
Percent Solids: 77
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/21/18 21:33	C8K0415	CK82014
Aroclor 1221	ND (0.07)		8082A		1	11/21/18 21:33	C8K0415	CK82014
Aroclor 1232	ND (0.07)		8082A		1	11/21/18 21:33	C8K0415	CK82014
Aroclor 1242	**2.2** (0.3)		8082A		5	11/26/18 14:41	C8K0415	CK82014
Aroclor 1248	ND (0.07)		8082A		1	11/21/18 21:33	C8K0415	CK82014
Aroclor 1254	**3.0** (0.3)		8082A		5	11/26/18 14:41	C8K0415	CK82014
Aroclor 1260 [2C]	**2.1** (0.3)		8082A		5	11/26/18 14:41	C8K0415	CK82014
Aroclor 1262	ND (0.07)		8082A		1	11/21/18 21:33	C8K0415	CK82014
Aroclor 1268	ND (0.07)		8082A		1	11/21/18 21:33	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*70 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*107 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-835-112018-1 3FT
Date Sampled: 11/20/18 08:44
Percent Solids: 75
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/21/18 22:30	C8K0415	CK82014
Aroclor 1221	ND (0.07)		8082A		1	11/21/18 22:30	C8K0415	CK82014
Aroclor 1232	ND (0.07)		8082A		1	11/21/18 22:30	C8K0415	CK82014
Aroclor 1242	**5.5** (0.7)		8082A		10	11/26/18 15:00	C8K0415	CK82014
Aroclor 1248	ND (0.07)		8082A		1	11/21/18 22:30	C8K0415	CK82014
Aroclor 1254	**5.2** (0.7)		8082A		10	11/26/18 15:00	C8K0415	CK82014
Aroclor 1260 [2C]	**4.5** (0.7)		8082A		10	11/26/18 15:00	C8K0415	CK82014
Aroclor 1262	ND (0.07)		8082A		1	11/21/18 22:30	C8K0415	CK82014
Aroclor 1268	ND (0.07)		8082A		1	11/21/18 22:30	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*96 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-831-112018 3FT
Date Sampled: 11/20/18 08:45
Percent Solids: 87
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/21/18 22:49	C8K0415	CK82014
Aroclor 1221	ND (0.06)		8082A		1	11/21/18 22:49	C8K0415	CK82014
Aroclor 1232	ND (0.06)		8082A		1	11/21/18 22:49	C8K0415	CK82014
Aroclor 1242	**1.9** (0.3)		8082A		5	11/26/18 15:19	C8K0415	CK82014
Aroclor 1248	ND (0.06)		8082A		1	11/21/18 22:49	C8K0415	CK82014
Aroclor 1254	**2.1** (0.3)		8082A		5	11/26/18 15:19	C8K0415	CK82014
Aroclor 1260 [2C]	**1.5** (0.3)		8082A		5	11/26/18 15:19	C8K0415	CK82014
Aroclor 1262	ND (0.06)		8082A		1	11/21/18 22:49	C8K0415	CK82014
Aroclor 1268	ND (0.06)		8082A		1	11/21/18 22:49	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*71 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*103 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*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-831-112018-1 3FT
Date Sampled: 11/20/18 08:45
Percent Solids: 84
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/21/18 23:46	C8K0415	CK82014
Aroclor 1221	ND (0.06)		8082A		1	11/21/18 23:46	C8K0415	CK82014
Aroclor 1232	ND (0.06)		8082A		1	11/21/18 23:46	C8K0415	CK82014
Aroclor 1242	**1.4** (0.3)		8082A		5	11/26/18 15:39	C8K0415	CK82014
Aroclor 1248	ND (0.06)		8082A		1	11/21/18 23:46	C8K0415	CK82014
Aroclor 1254	**1.9** (0.3)		8082A		5	11/26/18 15:39	C8K0415	CK82014
Aroclor 1260 [2C]	**1.2** (0.3)		8082A		5	11/26/18 15:39	C8K0415	CK82014
Aroclor 1262	ND (0.06)		8082A		1	11/21/18 23:46	C8K0415	CK82014
Aroclor 1268	ND (0.06)		8082A		1	11/21/18 23:46	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*73 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*95 %*		*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-836-112018 3FT
Date Sampled: 11/20/18 08:46
Percent Solids: 83
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/22/18 0:06	C8K0415	CK82014
Aroclor 1221	ND (0.06)		8082A		1	11/22/18 0:06	C8K0415	CK82014
Aroclor 1232	ND (0.06)		8082A		1	11/22/18 0:06	C8K0415	CK82014
Aroclor 1242	**1.3** (0.3)		8082A		5	11/26/18 15:58	C8K0415	CK82014
Aroclor 1248	ND (0.06)		8082A		1	11/22/18 0:06	C8K0415	CK82014
Aroclor 1254	**2.0** (0.3)		8082A		5	11/26/18 15:58	C8K0415	CK82014
Aroclor 1260 [2C]	**1.2** (0.3)		8082A		5	11/26/18 15:58	C8K0415	CK82014
Aroclor 1262	ND (0.06)		8082A		1	11/22/18 0:06	C8K0415	CK82014
Aroclor 1268	ND (0.06)		8082A		1	11/22/18 0:06	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*72 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*124 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-836-112018-1 3FT
Date Sampled: 11/20/18 08:46
Percent Solids: 84
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811519
ESS Laboratory Sample ID: 1811519-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: SMR
Prepared: 11/20/18 16:37

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014
Aroclor 1221	ND (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014
Aroclor 1232	ND (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014
Aroclor 1242	**1.6** (0.3)		8082A		5	11/26/18 16:17	C8K0415	CK82014
Aroclor 1248	ND (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014
Aroclor 1254	**1.3** (0.3)		8082A		5	11/26/18 16:17	C8K0415	CK82014
Aroclor 1260	**LC, P 0.3** (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014
Aroclor 1262	ND (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014
Aroclor 1268	ND (0.06)		8082A		1	11/22/18 1:03	C8K0415	CK82014

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*78 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*109 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK82014 - 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	*0.0214*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0226*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0261*		mg/kg wet	*0.02500*		*104*	*30-150*			
LCS										
Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		110	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		110	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140			
Surrogate: Decachlorobiphenyl	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0260*		mg/kg wet	*0.02500*		*104*	*30-150*			
LCS Dup										
Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		110	40-140	0.08	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		110	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0266*		mg/kg wet	*0.02500*		*107*	*30-150*			
Matrix Spike **Source: 1811519-03**										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK82014 - 3540C										
Aroclor 1016	5.0	0.08	mg/kg dry	0.8364	ND	595	40-140			MT
Aroclor 1016 [2C]	4.7	0.08	mg/kg dry	0.8364	ND	566	40-140			MT
Aroclor 1260	5.1	0.08	mg/kg dry	0.8364	4.9	23	40-140			MT
Aroclor 1260 [2C]	6.0	0.08	mg/kg dry	0.8364	5.4	70	40-140			
Surrogate: Decachlorobiphenyl	*0.0268*		mg/kg dry	*0.04182*		*64*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0350*		mg/kg dry	*0.04182*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0273*		mg/kg dry	*0.04182*		*65*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0373*		mg/kg dry	*0.04182*		*89*	*30-150*			
Matrix Spike **Source: 1811519-05**										
Aroclor 1016	3.3	0.07	mg/kg dry	0.6531	ND	505	40-140			MT
Aroclor 1016 [2C]	2.4	0.07	mg/kg dry	0.6531	ND	373	40-140			MT
Aroclor 1260	2.3	0.07	mg/kg dry	0.6531	1.4	145	40-140			MT
Aroclor 1260 [2C]	2.8	0.07	mg/kg dry	0.6531	1.6	180	40-140			MT
Surrogate: Decachlorobiphenyl	*0.0234*		mg/kg dry	*0.03265*		*72*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0290*		mg/kg dry	*0.03265*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg dry	*0.03265*		*67*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0338*		mg/kg dry	*0.03265*		*104*	*30-150*			
Matrix Spike **Source: 1811519-07**										
Aroclor 1016	4.8	0.08	mg/kg dry	0.8130	ND	594	40-140			MT
Aroclor 1016 [2C]	4.5	0.08	mg/kg dry	0.8130	ND	547	40-140			MT
Aroclor 1260	4.3	0.08	mg/kg dry	0.8130	4.2	6	40-140			MT
Aroclor 1260 [2C]	5.3	0.08	mg/kg dry	0.8130	4.9	50	40-140			MT
Surrogate: Decachlorobiphenyl	*0.0320*		mg/kg dry	*0.04065*		*79*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0379*		mg/kg dry	*0.04065*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0268*		mg/kg dry	*0.04065*		*66*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0361*		mg/kg dry	*0.04065*		*89*	*30-150*			
Matrix Spike **Source: 1811519-09**										
Aroclor 1016	1.7	0.07	mg/kg dry	0.6738	ND	259	40-140			MT
Aroclor 1016 [2C]	2.1	0.07	mg/kg dry	0.6738	ND	308	40-140			MT
Aroclor 1260	2.2	0.07	mg/kg dry	0.6738	1.7	68	40-140			
Aroclor 1260 [2C]	2.7	0.07	mg/kg dry	0.6738	2.1	85	40-140			
Surrogate: Decachlorobiphenyl	*0.0249*		mg/kg dry	*0.03369*		*74*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0312*		mg/kg dry	*0.03369*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0380*		mg/kg dry	*0.03369*		*113*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0365*		mg/kg dry	*0.03369*		*108*	*30-150*			
Matrix Spike **Source: 1811519-11**										
Aroclor 1016	1.5	0.06	mg/kg dry	0.5897	ND	248	40-140			MT
Aroclor 1016 [2C]	1.3	0.06	mg/kg dry	0.5897	ND	224	40-140			MT
Aroclor 1260	1.4	0.06	mg/kg dry	0.5897	1.3	16	40-140			MT
Aroclor 1260 [2C]	1.7	0.06	mg/kg dry	0.5897	1.5	27	40-140			MT
Surrogate: Decachlorobiphenyl	*0.0167*		mg/kg dry	*0.02948*		*57*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK82014 - 3540C										
Surrogate: Decachlorobiphenyl [2C]	*0.0225*		mg/kg dry	*0.02948*		*76*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0197*		mg/kg dry	*0.02948*		*67*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0224*		mg/kg dry	*0.02948*		*76*	*30-150*			
Matrix Spike **Source: 1811519-13**										
Aroclor 1016	1.6	0.06	mg/kg dry	0.6312	ND	258	40-140			MT
Aroclor 1016 [2C]	1.4	0.06	mg/kg dry	0.6312	ND	217	40-140			MT
Aroclor 1260	1.2	0.06	mg/kg dry	0.6312	1.0	32	40-140			MT
Aroclor 1260 [2C]	1.3	0.06	mg/kg dry	0.6312	1.2	22	40-140			MT
Surrogate: Decachlorobiphenyl	*0.0230*		mg/kg dry	*0.03156*		*73*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0284*		mg/kg dry	*0.03156*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0290*		mg/kg dry	*0.03156*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0362*		mg/kg dry	*0.03156*		*115*	*30-150*			
Matrix Spike Dup **Source: 1811519-03**										
Aroclor 1016	4.3	0.08	mg/kg dry	0.8321	ND	513	40-140	15	30	MT
Aroclor 1016 [2C]	3.8	0.08	mg/kg dry	0.8321	ND	460	40-140	21	30	MT
Aroclor 1260	4.1	0.08	mg/kg dry	0.8321	4.9	NR	40-140	21	30	MT
Aroclor 1260 [2C]	5.0	0.08	mg/kg dry	0.8321	5.4	NR	40-140	19	30	MT
Surrogate: Decachlorobiphenyl	*0.0267*		mg/kg dry	*0.04160*		*64*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0316*		mg/kg dry	*0.04160*		*76*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0283*		mg/kg dry	*0.04160*		*68*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0331*		mg/kg dry	*0.04160*		*80*	*30-150*			
Matrix Spike Dup **Source: 1811519-05**										
Aroclor 1016	2.9	0.06	mg/kg dry	0.6430	ND	449	40-140	13	30	MT
Aroclor 1016 [2C]	2.3	0.06	mg/kg dry	0.6430	ND	352	40-140	7	30	MT
Aroclor 1260	2.2	0.06	mg/kg dry	0.6430	1.4	134	40-140	4	30	MT
Aroclor 1260 [2C]	2.6	0.06	mg/kg dry	0.6430	1.6	159	40-140	6	30	MT
Surrogate: Decachlorobiphenyl	*0.0204*		mg/kg dry	*0.03215*		*63*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0257*		mg/kg dry	*0.03215*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0209*		mg/kg dry	*0.03215*		*65*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0303*		mg/kg dry	*0.03215*		*94*	*30-150*			
Matrix Spike Dup **Source: 1811519-07**										
Aroclor 1016	5.0	0.09	mg/kg dry	0.8513	ND	582	40-140	3	30	MT
Aroclor 1016 [2C]	4.7	0.09	mg/kg dry	0.8513	ND	549	40-140	5	30	MT
Aroclor 1260	4.2	0.09	mg/kg dry	0.8513	4.2	NR	40-140	2	30	MT
Aroclor 1260 [2C]	4.9	0.09	mg/kg dry	0.8513	4.9	NR	40-140	8	30	MT
Surrogate: Decachlorobiphenyl	*0.0341*		mg/kg dry	*0.04257*		*80*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0351*		mg/kg dry	*0.04257*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0319*		mg/kg dry	*0.04257*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0392*		mg/kg dry	*0.04257*		*92*	*30-150*			
Matrix Spike Dup **Source: 1811519-09**										
Aroclor 1016	1.9	0.07	mg/kg dry	0.6635	ND	281	40-140	7	30	MT

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK82014 - 3540C										
Aroclor 1016 [2C]	2.2	0.07	mg/kg dry	0.6635	ND	329	40-140	5	30	MT
Aroclor 1260	2.5	0.07	mg/kg dry	0.6635	1.7	121	40-140	15	30	MT
Aroclor 1260 [2C]	3.1	0.07	mg/kg dry	0.6635	2.1	150	40-140	15	30	MT
Surrogate: Decachlorobiphenyl	*0.0234*		mg/kg dry	*0.03317*		*71*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0301*		mg/kg dry	*0.03317*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0342*		mg/kg dry	*0.03317*		*103*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0349*		mg/kg dry	*0.03317*		*105*	*30-150*			
Matrix Spike Dup Source: 1811519-11										
Aroclor 1016	1.5	0.06	mg/kg dry	0.5748	ND	259	40-140	2	30	MT
Aroclor 1016 [2C]	1.5	0.06	mg/kg dry	0.5748	ND	265	40-140	14	30	MT
Aroclor 1260	1.6	0.06	mg/kg dry	0.5748	1.3	52	40-140	14	30	
Aroclor 1260 [2C]	1.9	0.06	mg/kg dry	0.5748	1.5	75	40-140	15	30	
Surrogate: Decachlorobiphenyl	*0.0215*		mg/kg dry	*0.02874*		*75*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0262*		mg/kg dry	*0.02874*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0355*		mg/kg dry	*0.02874*		*124*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0322*		mg/kg dry	*0.02874*		*112*	*30-150*			
Matrix Spike Dup Source: 1811519-13										
Aroclor 1016	1.6	0.06	mg/kg dry	0.6215	ND	260	40-140	0.8	30	MT
Aroclor 1016 [2C]	1.4	0.06	mg/kg dry	0.6215	ND	223	40-140	1	30	MT
Aroclor 1260	1.2	0.06	mg/kg dry	0.6215	1.0	38	40-140	3	30	MT
Aroclor 1260 [2C]	1.3	0.06	mg/kg dry	0.6215	1.2	25	40-140	1	30	MT
Surrogate: Decachlorobiphenyl	*0.0231*		mg/kg dry	*0.03107*		*74*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0269*		mg/kg dry	*0.03107*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0283*		mg/kg dry	*0.03107*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0352*		mg/kg dry	*0.03107*		*113*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

Notes and Definitions

U	Analyte included in the analysis, but not detected
SD	Surrogate recovery(ies) diluted below the MRL (SD).
P	Percent difference between primary and confirmation results exceeds 40% (P).
MT	Due to high target values, matrix spike analyte(s) is masked (MT).
LC	Lower value is used due to matrix interferences (LC).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811519

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: Client

ESS Project ID: 1811519
Date Received: 11/20/2018
Project Due Date: 11/26/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 4.1 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	291870	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	291869	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	291868	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	291881	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	291882	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	291867	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	291866	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	291879	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	291880	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	291865	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	291864	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	291877	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	291878	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	291863	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	291862	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	291875	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	291876	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	291861	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	291860	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	291873	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	291874	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	291859	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	291858	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	291871	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1811519

Date Received: 11/20/2018

13	291872	Yes	NA	Yes	4 oz. Jar - Unpres	NP
14	291857	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: 11/20/18 1534

Reviewed By: _____ Date & Time: 11/20/18 1558

Delivered By: _____ 11/20/18 1558

1

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

CHAIN OF CUSTODY

ESS Lab # 181519

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

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)
1	11-20-18	0838	G	S	B-828-112018 (3')	X
2		0839			B-833-112018 (3')	X
3		0841			B-829-112018 (3')	X
4		0841			B-829-112018-1 (3')	X
5		0841			B-829-112018 (3') MS/MSD	X
6		0842			B-834-112018 (3')	X
7		0842			B-834-112018-1 (3')	X
8		0842			B-834-112018 (3') MS/MSD	X
9		0843			B-830-112018 (3')	X
10		0843			B-830-112018-1 (3')	X

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

Seals Intact: NA

Cooler Temperature: 4.1 °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)
11-20-18 1427	11/20/18 1428		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

2

ESS Laboratory
Division of Thielsch Engineering, Inc.
85 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 #: 1811519
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)
11 7	11-20-18	0843	G	S	B-830-112018(3') ms/msd	X
12 9		0844			B-835-112018(3')	X
13 10		0844			B-835-112018-1(3')	X
14 9		0844			B-835-112018(3') ms/msd	X
15 11		0845			B-831-112018(3')	X
16 12		0845			B-831-112018-1(3')	X
17 11		0845			B-831-112018(3') ms/msd	X
18 13		0846			B-836-112018(3')	X
19 14		0846			B-836-112018-1(3')	X
20 13		0846			B-836-112018(3') ms/msd	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: Y
Seals Intact: N
Cooler Temperature: 4.1 °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)
11-20-18 1427	11/20/18 1429		
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: 1811520

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 6:03 pm, Nov 26, 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: 1811520

SAMPLE RECEIPT

The following samples were received on November 20, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811520-01	B-832-112018 3FT	Soil	8082A
1811520-02	B-838-112018 3FT	Soil	8082A
1811520-03	B-824-112018 3FT	Soil	8082A
1811520-04	B-822-112018 3FT	Soil	8082A
1811520-05	B-825-112018 3FT	Soil	8082A
1811520-06	B-823-112018 3FT	Soil	8082A
1811520-07	B-826-112018 3FT	Soil	8082A
1811520-08	B-827-112018 3FT	Soil	8082A
1811520-09	SW-592-112018 0-2FT	Soil	8082A
1811520-10	SW-591-112018 0-2FT	Soil	8082A
1811520-11	SW-590-112018 0-2FT	Soil	8082A
1811520-12	SW-589-112018 0-2FT	Soil	8082A
1811520-13	SW-588-112018 0-2FT	Soil	8082A
1811520-14	SW-587-112018 0-2FT	Soil	8082A
1811520-15	SW-586-112018 0-2FT	Soil	8082A
1811520-16	B-371-112018-C 7FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811520

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811520-03 **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%)

1811520-05 **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%)

1811520-07 **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%)

1811520-10 **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%)

1811520-11 **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%)

1811520-13 **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%)

C8K0401-CCVA **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Decachlorobiphenyl [2C] (27% @ 20%), Tetrachloro-m-xylene [2C] (35% @ 20%)

C8K0428-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Decachlorobiphenyl [2C] (23% @ 20%)

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: 1811520

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
5035A - 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.