CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-684-102418 2FT
Date Sampled: 10/24/18 10:02
Percent Solids: 97
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810706
ESS Laboratory Sample ID: 1810706-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/26/18 16:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1221	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1232	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1242	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1248	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1254 [2C]	**0.5** (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1260	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1262	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604
Aroclor 1268	ND (0.05)		8082A		1	10/28/18 18:47	C8J0634	CJ82604

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*98 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*93 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-685-102418 2FT
Date Sampled: 10/24/18 10:03
Percent Solids: 97
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810706
ESS Laboratory Sample ID: 1810706-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/26/18 16:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1221	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1232	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1242	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1248	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1254	**0.2** (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1260	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1262	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604
Aroclor 1268	ND (0.05)		8082A		1	10/28/18 21:03	C8J0634	CJ82604

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*108 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*99 %*		*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-686-102418 2FT
Date Sampled: 10/24/18 10:04
Percent Solids: 96
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810706
ESS Laboratory Sample ID: 1810706-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/26/18 16:24

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1221	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1232	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1242	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1248	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1254 [2C]	**0.8** (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1260	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1262	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604
Aroclor 1268	ND (0.05)		8082A		1	10/28/18 21:22	C8J0634	CJ82604

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*94 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810706

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82604 - 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	*0.0285*		mg/kg wet	*0.02500*		*114*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0226*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		109	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140			
Surrogate: Decachlorobiphenyl	*0.0287*		mg/kg wet	*0.02500*		*115*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		98	40-140	10	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	10	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140	9	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	8	30	
Surrogate: Decachlorobiphenyl	*0.0265*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Matrix Spike **Source: 1810706-12**										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810706

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82604 - 3540C										
Aroclor 1016	0.9	0.05	mg/kg dry	0.5421	ND	169	40-140			MC
Aroclor 1016 [2C]	0.9	0.05	mg/kg dry	0.5421	ND	157	40-140			MC
Aroclor 1260	0.6	0.05	mg/kg dry	0.5421	ND	105	40-140			
Aroclor 1260 [2C]	0.7	0.05	mg/kg dry	0.5421	ND	133	40-140			
Surrogate: Decachlorobiphenyl	*0.0294*		mg/kg dry	*0.02711*		*109*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0258*		mg/kg dry	*0.02711*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0275*		mg/kg dry	*0.02711*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0297*		mg/kg dry	*0.02711*		*109*	*30-150*			
Matrix Spike Dup Source: 1810706-12										
Aroclor 1016	0.9	0.05	mg/kg dry	0.5287	ND	171	40-140	1	30	MC
Aroclor 1016 [2C]	0.8	0.05	mg/kg dry	0.5287	ND	157	40-140	2	30	MC
Aroclor 1260	0.5	0.05	mg/kg dry	0.5287	ND	101	40-140	6	30	
Aroclor 1260 [2C]	0.7	0.05	mg/kg dry	0.5287	ND	126	40-140	8	30	
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg dry	*0.02643*		*100*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0217*		mg/kg dry	*0.02643*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0252*		mg/kg dry	*0.02643*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0278*		mg/kg dry	*0.02643*		*105*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810706

Notes and Definitions

U	Analyte included in the analysis, but not detected
MC	Matrix Spike recovery is outside of control limits due to coelution.
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: 1810706

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: 1810706
Date Received: 10/24/2018
Project Due Date: 10/26/2018
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: 5.0 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	282108	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	282107	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	282106	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	282105	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	282104	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	282103	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	282102	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	282101	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	282100	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	282099	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	282098	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	282097	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	282164	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	282165	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	282096	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	282095	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	282094	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	282093	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	282092	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	282091	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
19	282090	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810706
Date Received: 10/24/2018

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

Completed By: _____ Date & Time: 10/24/18 1947
Reviewed By: _____ Date & Time: 10/24/18 1953
Delivered By: _____ 10/24/18 1953

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

CHAIN OF CUSTODY

ESS Lab # 1810706

Turn Time Rush 48hr

Regulatory State RI

Reporting Limits See note 1

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

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

Company Name: AEI

Contact Person: Aaron Ting

Project #: 363655

Project Name: BASF Cranston

Address: 112 Water St, 5th floor

City: Boston

State: MA

Zip Code: 02109

PO #:

Telephone Number: (978) 577-7138

FAX Number:

Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	10/24/18	0947	G	S	B-669-102418(2')	
2		0948			B-670-102418(2')	X
3		0949			B-671-102418(2')	X
4		0950			B-672-102418 (2')	X
5		0951			B-673-102418 (2')	X
6		0952			B-674-102418 (2')	X
7		0953			B-675-102418 (2')	X
8		0954			B-676-102418(2')	X
9		0955			B-677-102418 (2')	X
10		0956			B-678-102418 (2')	X
					Container Type:	AG
					Container Volume:	9
					Preservation Code:	1
					Number of Containers per Sample:	1

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

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

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

Laboratory Use Only

Cooler Present: —

Seals Intact: —

Cooler Temperature: Ice 5.6°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)
Joseph D'Ian 10/24/18 15:13	10/24/18 16:13	10/24/18 15:30	10/24/18 1535
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

(ACT) 1/6 5

ESS Laboratory

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

CHAIN OF CUSTODY

ESS Lab # 1810706

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

Electronic 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)
11	10/24/18	0957	G	S	B-679-102418 (2')	X
12		0958			B-680-102418 (2')	X
13		0958			B-680-102418-1 (2')	X
12		0958			B-680-102418 (2') MS/MSD	X
14		0959			B-681-102418 (2')	X
15		1000			B-682-102418 (2')	X
16		1001			B-683-102418 (2')	X
17		1002			B-684-102418 (2')	X
18		1003			B-685-102418 (2')	X
19		1004			B-686-102418 (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 46

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 5.6°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)
Joseph D Dr 10/24/18 15:13	10/24/18 15:13	10/24/18 15:30	10/24/18 1528
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: 1810745

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 2:18 pm, Nov 01, 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: 1810745

SAMPLE RECEIPT

The following samples were received on October 25, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810745-01	B-265-102518 4FT	Solid	8082A
1810745-02	B-266-102518 4FT	Solid	8082A
1810745-03	B-267-102518 0.5FT	Soil	8082A
1810745-04	B-268-102518 0.5FT	Soil	8082A
1810745-05	B-269-102518 0.5FT	Soil	8082A
1810745-06	B-270-102518 0.5FT	Soil	8082A
1810745-07	SW-214-102518 0-3FT	Soil	8082A
1810745-08	SW-215-102518 0-3FT	Soil	8082A
1810745-09	SW-216-102518 0-3FT	Soil	8082A
1810745-10	SW-217-102518 0-0.5FT	Soil	8082A
1810745-11	SW-218-102518 0-0.5FT	Soil	8082A
1810745-12	SW-219-102518 0-0.5FT	Soil	8082A
1810745-13	SW-220-102518 0-0.5FT	Soil	8082A
1810745-14	SW-221-102518 0-0.5FT	Soil	8082A
1810745-15	SW-222-102518 0-0.5FT	Soil	8082A
1810745-16	SW-223-102518 4FT	Soil	8082A
1810745-17	SW-224-102518 4FT	Soil	8082A
1810745-18	B-738-102518 1FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810745

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810745-01 **Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).**
Decachlorobiphenyl (24% @ 30-150%), Decachlorobiphenyl [2C] (21% @ 30-150%), Tetrachloro-m-xylene (15% @ 30-150%), Tetrachloro-m-xylene [2C] (16% @ 30-150%)

1810745-04 **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%)

1810745-05 **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%)

1810745-06 **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%)

1810745-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810745-09 **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%)

1810745-10 **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%)

1810745-11 **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%)

1810745-12 **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%)

1810745-15 **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%)

1810745-17 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810745-18 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

CJ82801-BLK1 **Surrogate recovery(ies) below lower control limit (S-).**
Tetrachloro-m-xylene (22% @ 30-150%), Tetrachloro-m-xylene [2C] (23% @ 30-150%)

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810745

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

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Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810745

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-265-102518 4FT
Date Sampled: 10/25/18 09:45
Percent Solids: 96
Initial Volume: 5.08
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-01
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1221	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1232	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1242	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1248	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1254	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1260	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1262	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801
Aroclor 1268	ND (0.1)		8082A		1	10/29/18 16:23	C8J0639	CJ82801

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*24 %*	*SC*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*21 %*	*SC*	*30-150*
Surrogate: Tetrachloro-m-xylene	*15 %*	*SC*	*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*16 %*	*SC*	*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-266-102518 4FT
Date Sampled: 10/25/18 09:50
Percent Solids: 96
Initial Volume: 5.01
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-02
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1221	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1232	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1242	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1248	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1254 [2C]	**0.3** (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1260	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1262	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001
Aroclor 1268	ND (0.1)		8082A		1	10/31/18 11:53	C8J0693	CJ83001

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*39 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*37 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*35 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*38 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-267-102518 0.5FT
Date Sampled: 10/25/18 09:55
Percent Solids: 93
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1221	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1232	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1242	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1248	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1254	**2.1** (0.3)		8082A		5	10/30/18 10:28	C8J0639	CJ82801
Aroclor 1260	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1262	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801
Aroclor 1268	ND (0.05)		8082A		1	10/29/18 17:01	C8J0639	CJ82801

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*97 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*89 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-268-102518 0.5FT
Date Sampled: 10/25/18 09:56
Percent Solids: 91
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1254 [2C]	**11.1** (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 10:45	C8J0662	CJ82801

	%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-269-102518 0.5FT
Date Sampled: 10/25/18 09:57
Percent Solids: 92
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1254 [2C]	**11.6** (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 11:04	C8J0662	CJ82801

	%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-270-102518 0.5FT
Date Sampled: 10/25/18 09:58
Percent Solids: 87
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1254 [2C]	**8.7** (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 11:23	C8J0662	CJ82801

	%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-214-102518 0-3FT
Date Sampled: 10/25/18 10:00
Percent Solids: 90
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1221	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1232	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1242	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1248	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1254 [2C]	**6.6** (0.6)		8082A		10	10/30/18 11:42	C8J0639	CJ82801
Aroclor 1260	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1262	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801
Aroclor 1268	ND (0.06)		8082A		1	10/29/18 20:12	C8J0639	CJ82801

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*121 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*105 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-215-102518 0-3FT
Date Sampled: 10/25/18 10:01
Percent Solids: 88
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1254 [2C]	**9.7** (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:02	C8J0662	CJ82801

	%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-216-102518 0-3FT
Date Sampled: 10/25/18 10:02
Percent Solids: 91
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1254 [2C]	**11.2** (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:21	C8J0662	CJ82801

	%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-217-102518 0-0.5FT
Date Sampled: 10/25/18 10:03
Percent Solids: 89
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1254 [2C]	**10.4** (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:40	C8J0662	CJ82801

	%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-218-102518 0-0.5FT
Date Sampled: 10/25/18 10:04
Percent Solids: 89
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1254 [2C]	**10.1** (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:59	C8J0662	CJ82801

	%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-219-102518 0-0.5FT
Date Sampled: 10/25/18 10:05
Percent Solids: 90
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1254 [2C]	**10.0** (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 13:18	C8J0662	CJ82801

	%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-220-102518 0-0.5FT
Date Sampled: 10/25/18 10:06
Percent Solids: 92
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1221	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1232	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1242	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1248	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1254 [2C]	**6.2** (0.5)		8082A		10	10/30/18 13:37	C8J0639	CJ82801
Aroclor 1260	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1262	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801
Aroclor 1268	ND (0.05)		8082A		1	10/29/18 22:07	C8J0639	CJ82801

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*120 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*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-221-102518 0-0.5FT
Date Sampled: 10/25/18 10:07
Percent Solids: 92
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1221	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1232	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1242	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1248	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1254 [2C]	**1.6** (0.3)		8082A		5	10/30/18 13:56	C8J0639	CJ82801
Aroclor 1260	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1262	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801
Aroclor 1268	ND (0.05)		8082A		1	10/29/18 22:26	C8J0639	CJ82801

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*113 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*97 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-222-102518 0-0.5FT
Date Sampled: 10/25/18 10:08
Percent Solids: 91
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1221	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1232	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1242	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1248	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1254 [2C]	**23.1** (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1260	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1262	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801
Aroclor 1268	ND (2.7)		8082A		50	10/30/18 14:15	C8J0662	CJ82801

	%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-223-102518 4FT
Date Sampled: 10/25/18 10:09
Percent Solids: 92
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1221	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1232	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1242	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1248	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1254 [2C]	**4.1** (0.5)		8082A		10	10/30/18 14:34	C8J0639	CJ82801
Aroclor 1260	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1262	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801
Aroclor 1268	ND (0.05)		8082A		1	10/29/18 23:04	C8J0639	CJ82801

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*123 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*43 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*98 %*		*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: SW-224-102518 4FT
Date Sampled: 10/25/18 10:10
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1254 [2C]	**8.5** (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 14:53	C8J0662	CJ82801

	%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-738-102518 1FT
Date Sampled: 10/25/18 10:45
Percent Solids: 97
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810745
ESS Laboratory Sample ID: 1810745-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 12:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1221	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1232	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1242	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1248	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1254	**25.7** (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1260	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1262	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801
Aroclor 1268	ND (2.5)		8082A		50	10/30/18 15:12	C8J0662	CJ82801

	%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: 1810745

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82801 - 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	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.00562*		mg/kg wet	*0.02500*		*22*	*30-150*			*S-*
Surrogate: Tetrachloro-m-xylene [2C]	*0.00576*		mg/kg wet	*0.02500*		*23*	*30-150*			*S-*
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		107	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Surrogate: Decachlorobiphenyl	*0.0246*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0254*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
LCS Dup										
Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		112	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140	4	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140	5	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140	5	30	
Surrogate: Decachlorobiphenyl	*0.0261*		mg/kg wet	*0.02500*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0256*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0270*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Batch CJ83001 - 3540C										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810745

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83001 - 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	*0.0194*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Surrogate: Decachlorobiphenyl	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		106	40-140	0.2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Surrogate: Decachlorobiphenyl	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0221*		mg/kg wet	*0.02500*		*89*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810745

Notes and Definitions

U	Analyte included in the analysis, but not detected
SD	Surrogate recovery(ies) diluted below the MRL (SD).
SC	Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
S-	Surrogate recovery(ies) below lower control limit (S-).
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: 1810745

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: 1810745
Date Received: 10/25/2018
Project Due Date: 10/29/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.4 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? No
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:

COC = B-266-102518(4') collected at 0950 ; Label = collected at 0946

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	282675	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	282674	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	282673	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	282672	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	282671	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	282670	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	282669	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	282668	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	282667	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	282666	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	282665	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	282664	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	282663	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	282662	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	282661	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	282660	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	282659	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	282658	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

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

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810745

Date Received: 10/25/2018

Completed By: _____ Date & Time: 10/25/18 1716

Reviewed By: _____ Date & Time: 10/25/18 17:49

Delivered By: _____ 10/25/18 1831

2 1

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

CHAIN OF CUSTODY

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

ESS Lab #: 1810745
Reporting Limits: See note 1
Electonic Deliverables: ☐ Limit Checker ☒ Standard Excel ☒ Other (Please Specify →) PDF

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

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	10-25-18	0945	G	Concrete	B-265-102518(4')	X
2		0950			B-266-102518(4')	X
3		0955		S	B-267-102518(0.5')	X
4		0956			B-268-102518(0.5')	X
5		0957	G		B-269-102518(0.5')	X
6		0958			B-270-102518(0.5')	X
7		1000	C		SW-214-102518(0-3')	X
8		1001			SW-215-102518(0-3')	X
9		1002			SW-216-102518(0-3')	X
10		1003			SW-217-102518(0-0.5')	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: 1

Laboratory Use Only
Cooler Present: yes
Seals Intact: yes
Cooler Temperature: 5.4 °C ice

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

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10-25-18 1347	10/25/18 1348		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

3 1

ESS Laboratory

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

CHAIN OF CUSTODY

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

ESS Lab #: 1810745
Reporting Limits: See note 1
Electonic Deliverables: ☐ Limit Checker ☐ Standard Excel ☒ Other (Please Specify →) PDF

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

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
11	10-25-18	1004	G	S	SW-218-102518(0-0.5')	X
12		1005			SW-219-102518(0-0.5')	X
13		1006			SW-220-102518(0-0.5')	X
14		1007			SW-221-102518(0-0.5')	X
15		1008			SW-222-102518(0-0.5')	X
16		1009			SW-223-102518(4')	X
17		1010			SW-224-102518(4')	X
18	10-25-18	1045	G	S	B-738-102518(1')	X

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

Sampled by: A. Ting

Laboratory Use Only
Cooler Present: yes
Seals Intact: —
Cooler Temperature: 5.4 °C ice

Comments: Please specify "Other" preservative and containers types in this space
Note 1: See Project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10-25-18 1547	10/25/18 1548		
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: 1810746

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 4:06 pm, Oct 31, 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: 1810746

SAMPLE RECEIPT

The following samples were received on October 25, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810746-01	B-257-102518 3FT	Soil	8082A
1810746-02	B-258-102518 4FT	Soil	8082A
1810746-03	B-259-102518 3FT	Soil	8082A
1810746-04	B-260-102518 4FT	Soil	8082A
1810746-05	B-260-102518-1 4FT	Soil	8082A
1810746-06	B-261-102518 4FT	Solid	8082A
1810746-07	B-262-102518 4FT	Solid	8082A
1810746-08	B-263-102518 3FT	Soil	8082A
1810746-09	B-264-102518 4FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810746

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810746-01 **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%)

1810746-02 **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%)

1810746-03 **Surrogate recovery(ies) below lower control limit (S-).**
Decachlorobiphenyl [2C] (24% @ 30-150%)

1810746-05 **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%)

1810746-08 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810746-09 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%)

CJ82803-MS1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (151% @ 40-140%), Aroclor 1016 [2C] (151% @ 40-140%), Aroclor 1260 (199% @ 40-140%), Aroclor 1260 [2C] (227% @ 40-140%)

CJ82803-MSD1 **Matrix Spike recovery is outside of control limits due to coelution.**
Aroclor 1016 (169% @ 40-140%), Aroclor 1016 [2C] (156% @ 40-140%), Aroclor 1260 (221% @ 40-140%), Aroclor 1260 [2C] (241% @ 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: 1810746

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-257-102518 3FT
Date Sampled: 10/25/18 09:29
Percent Solids: 92
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1254	**11.8** (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 10:49	C8J0664	CJ82803

	%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-258-102518 4FT
Date Sampled: 10/25/18 09:30
Percent Solids: 93
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1221	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1232	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1242	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1248	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1254	**23.7** (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1260	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1262	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803
Aroclor 1268	ND (2.7)		8082A		50	10/30/18 11:08	C8J0664	CJ82803

	%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-259-102518 3FT
Date Sampled: 10/25/18 09:31
Percent Solids: 88
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1254	**3.6** (0.3)		8082A		5	10/30/18 11:27	C8J0637	CJ82803
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 0:01	C8J0637	CJ82803

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*24 %*	*S-*	*30-150*
Surrogate: Tetrachloro-m-xylene	*34 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*44 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-260-102518 4FT
Date Sampled: 10/25/18 09:32
Percent Solids: 86
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1254	**6.8** (0.6)		8082A		10	10/30/18 11:46	C8J0637	CJ82803
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 0:21	C8J0637	CJ82803

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*95 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-260-102518-1 4FT
Date Sampled: 10/25/18 09:32
Percent Solids: 88
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1254	**12.8** (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:06	C8J0664	CJ82803

	%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-261-102518 4FT
Date Sampled: 10/25/18 09:33
Percent Solids: 95
Initial Volume: 5.05
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-06
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1221	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1232	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1242	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1248	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1254	**1.7** (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1260	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1262	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803
Aroclor 1268	ND (0.2)		8082A		1	10/30/18 1:37	C8J0637	CJ82803

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*129 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*110 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-262-102518 4FT
Date Sampled: 10/25/18 09:38
Percent Solids: 97
Initial Volume: 5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-07
Sample Matrix: Solid
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1221	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1232	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1242	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1248	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1254 [2C]	**0.1** (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1260	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1262	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001
Aroclor 1268	ND (0.1)		8082A		1	10/31/18 12:12	C8J0693	CJ83001

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*51 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*48 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*38 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*40 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-263-102518 3FT
Date Sampled: 10/25/18 09:43
Percent Solids: 90
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1254 [2C]	**12.9** (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:25	C8J0664	CJ82803

	%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-264-102518 4FT
Date Sampled: 10/25/18 09:44
Percent Solids: 89
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810746
ESS Laboratory Sample ID: 1810746-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1221	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1232	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1242	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1248	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1254	**10.4** (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1260	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1262	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803
Aroclor 1268	ND (1.1)		8082A		20	10/30/18 12:44	C8J0664	CJ82803

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

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810746

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82803 - 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	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0246*		mg/kg wet	*0.02500*		*98*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		109	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Surrogate: Decachlorobiphenyl	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0226*		mg/kg wet	*0.02500*		*90*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140	0.5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0231*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Matrix Spike **Source: 1810746-04**										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810746

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82803 - 3540C										
Aroclor 1016	0.9	0.06	mg/kg dry	0.5649	ND	151	40-140			MC
Aroclor 1016 [2C]	0.9	0.06	mg/kg dry	0.5649	ND	151	40-140			MC
Aroclor 1260	1.1	0.06	mg/kg dry	0.5649	ND	199	40-140			MC
Aroclor 1260 [2C]	1.3	0.06	mg/kg dry	0.5649	ND	227	40-140			MC
Surrogate: Decachlorobiphenyl	*0.0281*		mg/kg dry	*0.02824*		*99*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg dry	*0.02824*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0237*		mg/kg dry	*0.02824*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0246*		mg/kg dry	*0.02824*		*87*	*30-150*			
Matrix Spike Dup Source: 1810746-04										
Aroclor 1016	1.0	0.06	mg/kg dry	0.5704	ND	169	40-140	12	30	MC
Aroclor 1016 [2C]	0.9	0.06	mg/kg dry	0.5704	ND	156	40-140	5	30	MC
Aroclor 1260	1.3	0.06	mg/kg dry	0.5704	ND	221	40-140	11	30	MC
Aroclor 1260 [2C]	1.4	0.06	mg/kg dry	0.5704	ND	241	40-140	7	30	MC
Surrogate: Decachlorobiphenyl	*0.0297*		mg/kg dry	*0.02852*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0240*		mg/kg dry	*0.02852*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0248*		mg/kg dry	*0.02852*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0253*		mg/kg dry	*0.02852*		*89*	*30-150*			
Batch CJ83001 - 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	*0.0194*		mg/kg wet	*0.02500*		*78*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
LCS										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810746

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83001 - 3540C										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Surrogate: Decachlorobiphenyl	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		106	40-140	0.2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		104	40-140	0.8	30	
Surrogate: Decachlorobiphenyl	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0239*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0221*		mg/kg wet	*0.02500*		*89*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810746

Notes and Definitions

U	Analyte included in the analysis, but not detected
SD	Surrogate recovery(ies) diluted below the MRL (SD).
S-	Surrogate recovery(ies) below lower control limit (S-).
MC	Matrix Spike recovery is outside of control limits due to coelution.
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: 1810746

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: 1810746
Date Received: 10/25/2018
Project Due Date: 10/29/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 5.4 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	282686	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	282685	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	282684	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	282676	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	282677	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	282683	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	282682	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	282681	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	282680	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	282679	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	282678	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

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

Completed By: Date & Time: 10/25/18 1716
Reviewed By: Date & Time: 10/25/18 17:52
Delivered By: 10/25/18 1836

1

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

CHAIN OF CUSTODY

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

ESS Lab #: 1810746
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: BAJF Cranston
Address: 112 Water St, 5th floor
City: Boston
State: MA
Zip Code: 02109
PO #:
Telephone Number: (978) 577-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	10-25-18	0929	G	S	B-257-102518(3')	X
2		0930			B-258-102518(4')	X
3		0931			B-259-102518(3')	X
4		0932			B-260-102518(4')	X
5		0932			B-260-102518-1(4')	X
4		0932			B-260-102518(4')MS/MSD	X
6		0938		Concrete	B-261-102518(4')	X
7		0938			B-262-102518(4')	X
8		0943		S	B-263-102518(3')	X
9		0944			B-264-102518(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
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: 1

Laboratory Use Only
Cooler Present: yes
Seals Intact:
Cooler Temperature: 5.4 °C IW

Sampled by: A.Ting
Comments: Please specify "Other" preservative and containers types in this space
Note 1: See Project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10-25-18 1347	10/25/18 1348		
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: 1810784

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 4:35 pm, Oct 30, 2018

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

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

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810784

SAMPLE RECEIPT

The following samples were received on October 26, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810784-01	B-842-102618-A 10FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810784

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810784-01 **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%)

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: 1810784

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-842-102618-A 10FT
Date Sampled: 10/26/18 11:46
Percent Solids: 68
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810784
ESS Laboratory Sample ID: 1810784-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/28/18 14:15

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1221	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1232	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1242	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1248	**18.0** (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1254	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1260	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1262	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803
Aroclor 1268	ND (1.4)		8082A		20	10/30/18 10:32	C8J0664	CJ82803

	%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: 1810784

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82803 - 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	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0246*		mg/kg wet	*0.02500*		*98*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		109	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Surrogate: Decachlorobiphenyl	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0226*		mg/kg wet	*0.02500*		*90*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140	0.5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0231*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0200*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810784

Notes and Definitions

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

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810784

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: 1810784
Date Received: 10/26/2018
Project Due Date: 10/30/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 2.8 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	283481	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

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

Completed By: Date & Time: 10/26/18 1845
Reviewed By: Date & Time: 10/26/18 1947
Delivered By: 10/26/18 1947

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

CHAIN OF CUSTODY

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

ESS Lab #: 1810784
Reporting Limits: See note 1
Electonic Deliverables: ☐Limit Checker ☐Standard Excel ☐Other (Please Specify →)

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: 978-572-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCB (Soxhlet)
1	10/26/18	1146	G	S	~~B-842~~ 842 A 102618-~~B~~ (10') per client instructions	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 4 1 1

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: Fr 2.8 °C

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

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
102618 1440	10/26/18 14:42	10/26/18 15:02	10/26/18 1537
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: 1810825

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 5:13 pm, Oct 31, 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: 1810825

SAMPLE RECEIPT

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

Lab Number	Sample Name	Matrix	Analysis
1810825-01	B-840-102918-A 13FT	Soil	8082A
1810825-02	B-794-102918-B 13FT	Soil	8082A
1810825-03	B-798-102918-B 13FT	Soil	8082A
1810825-04	B-841-102918-A 13FT	Soil	8082A
1810825-05	B-795-102918-B 13FT	Soil	8082A
1810825-06	B-812-102918-B 13FT	Soil	8082A
1810825-07	B-811-102918-B 13FT	Soil	8082A
1810825-08	B-806-102918-B 13FT	Soil	8082A
1810825-09	B-803-102918-B 13FT	Soil	8082A
1810825-10	B-815-102918-B 13FT	Soil	8082A
1810825-11	SW-716-102918 0-2FT	Soil	8082A
1810825-12	SW-717-102918 0-2FT	Soil	8082A
1810825-13	SW-718-102918 0-2FT	Soil	8082A
1810825-14	SW-719-102918 0-2FT	Soil	8082A
1810825-15	SW-720-102918 0-2FT	Soil	8082A
1810825-16	SW-721-102918 0-2FT	Soil	8082A
1810825-17	SW-722-102918 0-2FT	Soil	8082A
1810825-18	SW-723-102918 0-2FT	Soil	8082A
1810825-19	SW-724-102918 0-2FT	Soil	8082A
1810825-20	SW-725-102918 0-2FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810825

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810825-01 **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%)

1810825-06 **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%)

1810825-17 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810825-18 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (166% @ 30-150%)

1810825-19 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (158% @ 30-150%)

1810825-20 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (2450% @ 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: 1810825

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-840-102918-A 13FT
Date Sampled: 10/29/18 10:07
Percent Solids: 54
Initial Volume: 20.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1221	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1232	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1242	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1248 [2C]	**110** (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1254	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1260	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1262	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914
Aroclor 1268	ND (9.1)		8082A		100	10/30/18 22:45	C8J0663	CJ82914

	%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-794-102918-B 13FT
Date Sampled: 10/29/18 10:15
Percent Solids: 60
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1221	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1232	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1242	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1248 [2C]	**7.4** (0.9)		8082A		10	10/30/18 23:04	C8J0663	CJ82914
Aroclor 1254	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1260	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1262	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914
Aroclor 1268	ND (0.09)		8082A		1	10/30/18 14:43	C8J0663	CJ82914

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

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-798-102918-B 13FT
Date Sampled: 10/29/18 10:16
Percent Solids: 61
Initial Volume: 20.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1221	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1232	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1242	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1248 [2C]	**3.2** (0.4)		8082A		5	10/30/18 23:24	C8J0663	CJ82914
Aroclor 1254	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1260	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1262	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914
Aroclor 1268	ND (0.08)		8082A		1	10/30/18 15:03	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*85 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*72 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-841-102918-A 13FT
Date Sampled: 10/29/18 10:31
Percent Solids: 51
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1221	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1232	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1242	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1248 [2C]	**10.7** (1.0)		8082A		10	10/30/18 23:43	C8J0663	CJ82914
Aroclor 1254	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1260	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1262	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914
Aroclor 1268	ND (0.1)		8082A		1	10/30/18 15:22	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*102 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*95 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*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-795-102918-B 13FT
Date Sampled: 10/29/18 10:33
Percent Solids: 58
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1221	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1232	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1242	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1248	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1254	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1260	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1262	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914
Aroclor 1268	ND (0.09)		8082A		1	10/30/18 15:41	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*78 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-812-102918-B 13FT
Date Sampled: 10/29/18 13:20
Percent Solids: 66
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1221	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1232	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1242	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1248	**481** (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1254	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1260	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1262	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914
Aroclor 1268	ND (38.2)		8082A		500	10/31/18 9:39	C8J0694	CJ82914

	%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-811-102918-B 13FT
Date Sampled: 10/29/18 13:24
Percent Solids: 70
Initial Volume: 20.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1221	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1232	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1242	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1248	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1254	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1260	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1262	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914
Aroclor 1268	ND (0.07)		8082A		1	10/30/18 16:20	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*86 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*75 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-806-102918-B 13FT
Date Sampled: 10/29/18 13:27
Percent Solids: 68
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1221	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1232	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1242	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1248	**0.6** (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1254	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1260	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1262	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914
Aroclor 1268	ND (0.08)		8082A		1	10/30/18 16:39	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*90 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-803-102918-B 13FT
Date Sampled: 10/29/18 13:38
Percent Solids: 87
Initial Volume: 20.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1248 [2C]	**1.0** (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1254	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 16:58	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*101 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*113 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*84 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-815-102918-B 13FT
Date Sampled: 10/29/18 14:05
Percent Solids: 82
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 12:52	C8J0694	CJ83137

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*105 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-716-102918 0-2FT
Date Sampled: 10/29/18 13:07
Percent Solids: 94
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1221	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1232	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1242	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1248	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1254 [2C]	**1.1** (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1260	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1262	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914
Aroclor 1268	ND (0.05)		8082A		1	10/30/18 19:32	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*118 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*134 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*112 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-717-102918 0-2FT
Date Sampled: 10/29/18 13:08
Percent Solids: 94
Initial Volume: 19.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1254 [2C]	**1.9** (0.3)		8082A		5	10/31/18 9:58	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 19:52	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*118 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*119 %*		*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: SW-718-102918 0-2FT
Date Sampled: 10/29/18 13:09
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1254 [2C]	**6.1** (0.6)		8082A		10	10/31/18 10:17	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 20:11	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*138 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*102 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*113 %*		*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: SW-719-102918 0-2FT
Date Sampled: 10/29/18 13:10
Percent Solids: 96
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1221	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1232	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1242	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1248	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1254 [2C]	**0.5** (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1260	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1262	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914
Aroclor 1268	ND (0.05)		8082A		1	10/30/18 20:30	C8J0663	CJ82914

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*128 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*94 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-720-102918 0-2FT
Date Sampled: 10/29/18 13:11
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1254 [2C]	**3.0** (0.3)		8082A		5	10/31/18 10:37	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 20:50	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*99 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*107 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-721-102918 0-2FT
Date Sampled: 10/29/18 13:12
Percent Solids: 82
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1254 [2C]	**0.5** (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 21:09	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*106 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*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-722-102918 0-2FT
Date Sampled: 10/29/18 13:13
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1221	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1232	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1242	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1248	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1254 [2C]	**28.4** (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1260	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1262	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914
Aroclor 1268	ND (2.8)		8082A		50	10/31/18 10:56	C8J0694	CJ82914

	%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-723-102918 0-2FT
Date Sampled: 10/29/18 13:14
Percent Solids: 87
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1254 [2C]	**1.4** (0.3)		8082A		5	10/31/18 11:15	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 21:47	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*166 %*	*SM*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*134 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*114 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-724-102918 0-2FT
Date Sampled: 10/29/18 13:15
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-19
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1254 [2C]	**1.0** (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 22:07	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*158 %*	*SM*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*134 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*105 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-725-102918 0-2FT
Date Sampled: 10/29/18 13:16
Percent Solids: 90
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810825
ESS Laboratory Sample ID: 1810825-20
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/29/18 16:58

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1221	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1232	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1242	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1248	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1254 [2C]	**4.1** (0.6)		8082A		10	10/31/18 11:35	C8J0663	CJ82914
Aroclor 1260	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1262	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914
Aroclor 1268	ND (0.06)		8082A		1	10/30/18 22:26	C8J0663	CJ82914

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*2450 %*	*SM*	*30-150*
Surrogate: Decachlorobiphenyl [2C]	*128 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*112 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810825

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ82914 - 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	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0215*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		115	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		120	40-140			
Surrogate: Decachlorobiphenyl	*0.0283*		mg/kg wet	*0.02500*		*113*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0241*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0261*		mg/kg wet	*0.02500*		*104*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140	3	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		115	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0271*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0231*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Batch CJ83137 - 3540C										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810825

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83137 - 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	*0.0259*		mg/kg wet	*0.02500*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		108	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		117	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		119	40-140			
Surrogate: Decachlorobiphenyl	*0.0287*		mg/kg wet	*0.02500*		*115*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0261*		mg/kg wet	*0.02500*		*104*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		103	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		109	40-140	7	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140	4	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		115	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0275*		mg/kg wet	*0.02500*		*110*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0234*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810825

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: 1810825

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