ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: Client

ESS Project ID: 1810825
Date Received: 10/29/2018
Project Due Date: 10/31/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 4.4 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	283863	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	283862	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	283861	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	283860	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	283859	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	283858	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	283857	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	283856	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	283855	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	283854	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	283853	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	283852	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	283851	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	283850	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	283849	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	283848	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	283847	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	283846	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
19	283845	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
20	283844	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810825
Date Received: 10/29/2018

Are all necessary stickers attached? Yes / No

Completed By: _____ Date & Time: 10/29/18 1555

Reviewed By: _____ Date & Time: 10/29/18 1614

Delivered By: _____ 10/29/18 1614

*Sample ID changed per client 10/30/18 LLB

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 #: 1810825
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	10/29/18	1007	C	S	B-840-102918-A ~~(10')~~ (13')*	X
2		1015			B-794-102918-B ~~(10')~~ (13')*	X
3		1016			B-798-102918-B ~~(10')~~ (13')*	X
4		1031			B-841-102918-A ~~(10')~~ (13')*	X
5		1033			B-795-102918-B ~~(10')~~ (13')*	X
6		1320			B-812-102918-B ~~(10')~~ (13')*	X
7		1324			B-811-102918-B ~~(10')~~ (13')*	X
8		1327			B-806-102918-B ~~(10')~~ (13')*	X
9		1338			B-803-102918-B ~~(10')~~ (13')*	X
10		1405			~~SW-716-102918 (0-2')~~ B-815-102918-B (13')* (10')	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: 4.4 °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)
Joseph D D 102918 1457	10/29/18 1454		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

2 1

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CHAIN OF CUSTODY

Turn Time: Rush 48 hr
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Electronic Deliverables: ☐ Limit Checker ☐ Standard Excel ☒ Other (Please Specify →) PDF

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

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
11	10/29/18	1307	C	S	SW-716-102918 (0-2')	X
12		1308			SW-717-102918 (0-2')	X
13		1309			SW-718-102918 (0-2')	X
14		1310			SW-719-102918 (0-2')	X
15		1311			SW-720-102918 (0-2')	X
16		1312			SW-721-102918 (0-2')	X
17		1313			SW-722-102918 (0-2')	X
18		1314			SW-723-102918 (0-2')	X
19		1315			SW-724-102918 (0-2')	X
20		1316			SW-725-102918 (0-2')	X

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

Laboratory Use Only
Cooler Present: yes
Seals Intact: —
Cooler Temperature: 4.4 °C

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

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10/29/18 15:53	10/29/18 1454		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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7		1324			B-811-102918-B (10')	X
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Number of Containers per Sample: 1

Laboratory Use Only
Cooler Present: yes
Seals Intact:
Cooler Temperature: 4.4 °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)
Joseph D D 102918 1457	10/29/18 1454		
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2 1

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14		1310			SW-719-102918 (0-2')	X
15		1311			SW-720-102918 (0-2')	X
16		1312			SW-721-102918 (0-2')	X
17		1313			SW-722-102918 (0-2')	X
18		1314			SW-723-102918 (0-2')	X
19		1315			SW-724-102918 (0-2')	X
20		1316			SW-725-102918 (0-2')	X

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Number of Containers per Sample: 1

Laboratory Use Only
Cooler Present: yes
Seals Intact: —
Cooler Temperature: 4.4 °C

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

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10/29/18 15:53	10/29/18 1454		
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: 1810863

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 4:59 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: 1810863

SAMPLE RECEIPT

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

Lab Number	Sample Name	Matrix	Analysis
1810863-01	B-671-103018-A 7FT	Soil	8082A
1810863-02	B-680-103018-A 7FT	Soil	8082A
1810863-03	B-647-103018-A 5FT	Soil	8082A
1810863-04	B-648-103018-A 5FT	Soil	8082A
1810863-05	B-654-103018-A 6FT	Soil	8082A
1810863-06	B-655-103018-A 6FT	Soil	8082A
1810863-07	B-656-103018-A 6FT	Soil	8082A
1810863-08	B-657-103018-A 6FT	Soil	8082A
1810863-09	B-675-103018-A 5FT	Soil	8082A
1810863-10	B-676-103018-A 5FT	Soil	8082A
1810863-11	B-673-103018-A 5FT	Soil	8082A
1810863-12	B-696-103018-A 6FT	Soil	8082A
1810863-13	B-698-103018-A 5FT	Soil	8082A
1810863-14	B-701-103018-A 7FT	Soil	8082A
1810863-15	B-702-103018-A 7FT	Soil	8082A
1810863-16	B-705-103018-A 6FT	Soil	8082A
1810863-17	B-140-103018-C 8FT	Soil	8082A
1810863-18	B-140-103018-C-1 8FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810863

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810863-16	**Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
	Tetrachloro-m-xylene (643% @ 30-150%)
CJ83003-MS1	**Matrix Spike recovery is outside of control limits due to coelution.**
	Aroclor 1260 (149% @ 40-140%), Aroclor 1260 [2C] (150% @ 40-140%)
CJ83003-MSD1	**Matrix Spike recovery is outside of control limits due to coelution.**
	Aroclor 1260 [2C] (185% @ 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: 1810863

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-671-103018-A 7FT
Date Sampled: 10/30/18 10:32
Percent Solids: 87
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1248 [2C]	**0.9** (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 14:09	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*104 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*106 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-680-103018-A 7FT
Date Sampled: 10/30/18 10:33
Percent Solids: 84
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1254	**0.2** (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 14:28	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*96 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*101 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-647-103018-A 5FT
Date Sampled: 10/30/18 10:45
Percent Solids: 88
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1254 [2C]	**0.4** (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 14:48	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*94 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-648-103018-A 5FT
Date Sampled: 10/30/18 10:46
Percent Solids: 89
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1221	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1232	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1242	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1248	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1254 [2C]	**0.6** (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1260	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1262	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003
Aroclor 1268	ND (0.05)		8082A		1	10/31/18 15:07	C8J0694	CJ83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*108 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*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-654-103018-A 6FT
Date Sampled: 10/30/18 11:03
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1254 [2C]	**0.1** (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 15:26	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*107 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*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-655-103018-A 6FT
Date Sampled: 10/30/18 11:05
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1221	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1232	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1242	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1248	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1254	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1260	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1262	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003
Aroclor 1268	ND (0.05)		8082A		1	10/31/18 15:46	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*98 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*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-656-103018-A 6FT
Date Sampled: 10/30/18 11:06
Percent Solids: 86
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1242	**0.2** (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 18:00	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*107 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-657-103018-A 6FT
Date Sampled: 10/30/18 11:07
Percent Solids: 86
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 18:19	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*105 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*92 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*69 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*79 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-675-103018-A 5FT
Date Sampled: 10/30/18 11:23
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1254 [2C]	**0.1** (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 18:38	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*93 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-676-103018-A 5FT
Date Sampled: 10/30/18 11:22
Percent Solids: 86
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 18:57	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*96 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*92 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-673-103018-A 5FT
Date Sampled: 10/30/18 11:29
Percent Solids: 92
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1254 [2C]	**1.5** (0.3)		8082A		5	11/01/18 9:38	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 19:16	C8J0694	CJ83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*102 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-696-103018-A 6FT
Date Sampled: 10/30/18 11:39
Percent Solids: 85
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-12
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1221	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1232	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1242	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1248	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1254 [2C]	**0.1** (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1260	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1262	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131
Aroclor 1268	ND (0.06)		8082A		1	11/01/18 11:15	C8K0013	CK80131

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*92 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*103 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-698-103018-A 5FT
Date Sampled: 10/30/18 11:35
Percent Solids: 85
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-13
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1254 [2C]	**0.9** (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1260	**0.3** (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 19:55	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*83 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*77 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*86 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-701-103018-A 7FT
Date Sampled: 10/30/18 11:52
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-14
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 20:14	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*105 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*86 %*		*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-702-103018-A 7FT
Date Sampled: 10/30/18 11:51
Percent Solids: 84
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-15
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1254	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 20:33	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*97 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*82 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*88 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-705-103018-A 6FT
Date Sampled: 10/30/18 12:02
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-16
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1254	**0.5** (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 20:52	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*139 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*643 %*	*SM*	*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*111 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-140-103018-C 8FT
Date Sampled: 10/30/18 13:36
Percent Solids: 83
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-17
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1254	**1.0** (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 21:11	C8J0694	CJ83003

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*108 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*98 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-140-103018-C-1 8FT
Date Sampled: 10/30/18 13:36
Percent Solids: 82
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810863
ESS Laboratory Sample ID: 1810863-18
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/30/18 16:49

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1221	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1232	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1242	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1248	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1254 [2C]	**1.7** (0.3)		8082A		5	11/01/18 9:57	C8J0694	CJ83003
Aroclor 1260	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1262	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003
Aroclor 1268	ND (0.06)		8082A		1	10/31/18 22:09	C8J0694	CJ83003

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*103 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*79 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*81 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810863

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83003 - 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	*0.0257*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140			
Surrogate: Decachlorobiphenyl	*0.0266*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		101	40-140	0.3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	40-140	0.2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140	2	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	1	30	
Surrogate: Decachlorobiphenyl	*0.0274*		mg/kg wet	*0.02500*		*110*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			
Matrix Spike **Source: 1810863-17**										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810863

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83003 - 3540C										
Aroclor 1016	0.5	0.06	mg/kg dry	0.6174	ND	79	40-140			
Aroclor 1016 [2C]	0.6	0.06	mg/kg dry	0.6174	ND	101	40-140			
Aroclor 1260	0.9	0.06	mg/kg dry	0.6174	ND	149	40-140			MC
Aroclor 1260 [2C]	0.9	0.06	mg/kg dry	0.6174	ND	150	40-140			MC
Surrogate: Decachlorobiphenyl	*0.0362*		mg/kg dry	*0.03087*		*117*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0298*		mg/kg dry	*0.03087*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0277*		mg/kg dry	*0.03087*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0268*		mg/kg dry	*0.03087*		*87*	*30-150*			
Matrix Spike Dup Source: 1810863-17										
Aroclor 1016	0.6	0.06	mg/kg dry	0.5961	ND	96	40-140	15	30	
Aroclor 1016 [2C]	0.7	0.06	mg/kg dry	0.5961	ND	116	40-140	10	30	
Aroclor 1260	0.7	0.06	mg/kg dry	0.5961	ND	115	40-140	29	30	
Aroclor 1260 [2C]	1.1	0.06	mg/kg dry	0.5961	ND	185	40-140	18	30	MC
Surrogate: Decachlorobiphenyl	*0.0329*		mg/kg dry	*0.02980*		*111*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0304*		mg/kg dry	*0.02980*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0268*		mg/kg dry	*0.02980*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0258*		mg/kg dry	*0.02980*		*87*	*30-150*			
Batch CK80131 - 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]	*0.0215*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
LCS										

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810863

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK80131 - 3540C										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		107	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		109	40-140			
Surrogate: Decachlorobiphenyl	*0.0266*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0224*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		103	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		109	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140	3	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0279*		mg/kg wet	*0.02500*		*112*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0244*		mg/kg wet	*0.02500*		*97*	*30-150*			

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810863

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).
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: 1810863

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: 1810863
Date Received: 10/30/2018
Project Due Date: 11/6/2018
Days for Project: ~~5 Day~~ 2Day

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: 2.7 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	284319	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	284318	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	284317	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	284316	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	284315	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	284314	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	284313	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	284312	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	284311	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	284310	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	284309	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	284308	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	284307	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	284306	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	284305	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	284304	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	284303	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	284320	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	284321	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	284302	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

ESS Project ID: 1810863
Date Received: 10/30/2018

Are all necessary stickers attached? Yes / No

Completed By: Date & Time: 10/30/18 1530

Reviewed By: Date & Time: 10/30/18 1538

Delivered By: 10/30/18 1538

1 | 2

ESS Laboratory

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

CHAIN OF CUSTODY

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

ESS Lab #: F6108653
Reporting Limits: See note 1
Electronic 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	10/30/18	1038	G	S	B-671-103018-A (7')	X
2		1033			B-680-103018-A (7')	X
3		1045			B-647-103018-A (5')	X
4		1046			B-648-103018-A (5')	X
5		1103			B-654-103018-A (6')	X
6		1105			B-655-103018-A (6')	X
7		1106			B-656-103018-A (6')	X
8		1107			B-657-103018-A (6')	X
9		1123			B-675-103018-A (5')	X
10		1122			B-676-103018-A (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: ✓
Seals Intact: —
Cooler Temperature: Ice 2.7 °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 Dalton 10/30/18 14:53	10/30/18 14:53		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

2/2

ESS Laboratory

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

CHAIN OF CUSTODY

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

ESS Lab #: P810863
Reporting Limits: See note 1
Electronic Deliverables: ☐ Link Checker ☐ Standard Excel ☒ Other (Please Specify --> PDF

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

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
11	10/30/18	11:29	G	S	B-673-103018-A (5')	X
12		11:39			B-696-103018-A (6')	X
13		11:35			B-698-103018-A (5')	X
14		11:52			B-701-103018-A (7')	X
15		11:51			B-702-103018-A (7')	X
16		12:02			B-705-103018-A (6')	X
17		13:36			B-140-103018-C (8')	X
18		13:36			B-140-103018-C-1 (8')	X
17		13:36			B-140-103018-C (8') MS/MSD	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
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: —
Seals Intact: —
Cooler Temperature: Ice 2.7 °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 Drel 10/30/18 14:53	10/30/18 14:53		
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: 1810901

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 2:00 pm, Nov 02, 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: 1810901

SAMPLE RECEIPT

The following samples were received on October 31, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1810901-01	B-152-103118-B 10.5FT	Soil	8082A
1810901-02	B-155-103118-B 10.5FT	Soil	8082A
1810901-03	B-154-103118-B 10.5FT	Soil	8082A
1810901-04	B-149-103118-B 10.5FT	Soil	8082A
1810901-05	B-145-103118-B 10.5FT	Soil	8082A
1810901-06	B-700-103118-A 6FT	Soil	8082A
1810901-07	B-665-103118-A 6FT	Soil	8082A
1810901-08	B-934-103118-A 6FT	Soil	8082A
1810901-09	B-935-103118-A 6FT	Soil	8082A
1810901-10	B-938-103118-A 6FT	Soil	8082A
1810901-11	SW-476-103118-A 0-4FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810901

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1810901-01 **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%)

1810901-02 **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%)

1810901-03 **Surrogate recovery(ies) diluted below the MRL (SD).**
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1810901-04 **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%)

1810901-05 **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%)

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: 1810901

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-152-103118-B 10.5FT
Date Sampled: 10/31/18 09:13
Percent Solids: 79
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1221	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1232	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1242	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1248	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1254 [2C]	**37.1** (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1260	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1262	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104
Aroclor 1268	ND (3.1)		8082A		50	11/01/18 20:31	C8K0020	CJ83104

	%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-155-103118-B 10.5FT
Date Sampled: 10/31/18 09:17
Percent Solids: 82
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1221	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1232	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1242	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1248	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1254 [2C]	**21.9** (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1260	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1262	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104
Aroclor 1268	ND (3.1)		8082A		50	11/01/18 20:51	C8K0020	CJ83104

	%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-154-103118-B 10.5FT
Date Sampled: 10/31/18 09:24
Percent Solids: 80
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1221	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1232	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1242	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1248	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1254 [2C]	**39.9** (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1260	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1262	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104
Aroclor 1268	ND (3.1)		8082A		50	11/01/18 21:10	C8K0020	CJ83104

	%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-149-103118-B 10.5FT
Date Sampled: 10/31/18 09:29
Percent Solids: 76
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1221	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1232	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1242	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1248	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1254 [2C]	**64.2** (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1260	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1262	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104
Aroclor 1268	ND (6.6)		8082A		100	11/01/18 21:29	C8K0020	CJ83104

	%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-145-103118-B 10.5FT
Date Sampled: 10/31/18 09:34
Percent Solids: 62
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1221	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1232	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1242	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1248	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1254 [2C]	**47.1** (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1260	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1262	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104
Aroclor 1268	ND (4.1)		8082A		50	11/01/18 21:48	C8K0020	CJ83104

	%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-700-103118-A 6FT
Date Sampled: 10/31/18 13:43
Percent Solids: 88
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-06
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1221	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1232	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1242	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1248	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1254	**0.2** (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1260	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1262	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104
Aroclor 1268	ND (0.06)		8082A		1	11/01/18 22:07	C8K0020	CJ83104

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*84 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*108 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*94 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-665-103118-A 6FT
Date Sampled: 10/31/18 13:47
Percent Solids: 91
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1221	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1232	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1242	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1248	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1254	**0.2** (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1260	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1262	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104
Aroclor 1268	ND (0.05)		8082A		1	11/01/18 17:01	C8K0020	CJ83104

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*96 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*94 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*100 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*99 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-934-103118-A 6FT
Date Sampled: 10/31/18 13:51
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-08
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1221	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1232	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1242	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1248	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1254	**1.9** (0.3)		8082A		5	11/02/18 10:53	C8K0020	CJ83104
Aroclor 1260	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1262	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104
Aroclor 1268	ND (0.06)		8082A		1	11/01/18 17:20	C8K0020	CJ83104

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*105 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*88 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: B-935-103118-A 6FT
Date Sampled: 10/31/18 13:52
Percent Solids: 88
Initial Volume: 19.7
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-09
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1221	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1232	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1242	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1248	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1254	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1260	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1262	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104
Aroclor 1268	ND (0.06)		8082A		1	11/01/18 17:40	C8K0020	CJ83104

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*103 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*102 %*		*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: B-938-103118-A 6FT
Date Sampled: 10/31/18 13:53
Percent Solids: 91
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-10
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1221	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1232	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1242	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1248	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1254	**0.2** (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1260	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1262	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104
Aroclor 1268	ND (0.05)		8082A		1	11/01/18 17:59	C8K0020	CJ83104

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*93 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*88 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*90 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
Client Sample ID: SW-476-103118-A 0-4FT
Date Sampled: 10/31/18 14:02
Percent Solids: 97
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1810901
ESS Laboratory Sample ID: 1810901-11
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 10/31/18 16:05

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1221	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1232	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1242	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1248	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1254 [2C]	**0.7** (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1260	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1262	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104
Aroclor 1268	ND (0.05)		8082A		1	11/01/18 18:18	C8K0020	CJ83104

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*95 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*97 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1810901

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83104 - 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	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
LCS										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		107	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		106	40-140			
Surrogate: Decachlorobiphenyl	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			
LCS Dup										
Aroclor 1016	0.6	0.02	mg/kg wet	0.5000		116	40-140	9	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		106	40-140	6	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		106	40-140	9	30	
Aroclor 1260 [2C]	0.6	0.02	mg/kg wet	0.5000		113	40-140	6	30	
Surrogate: Decachlorobiphenyl	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0266*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1810901

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: 1810901

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: 1810901
Date Received: 10/31/2018
Project Due Date: 11/2/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 3.5 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	284644	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	284643	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	284642	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	284641	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	284640	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	284639	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	284638	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	284637	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	284636	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	284635	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	284634	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: 10/31/18 15:19
Reviewed By: Date & Time: 10/31/18 1526
Delivered By: 10/31/18 1528

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ESS Laboratory

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

CHAIN OF CUSTODY

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

ESS Lab #: 1810901
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	10/31/18	0913	G	S	B-152-103118-B (10.5)	X
2		0917			B-155-103118-B (10.5)	X
3		0924			B-154-103118-B (10.5)	X
4		0929			B-149-103118-B (10.5)	X
5		0934			B-145-103118-B (10.5)	X
6		1343			B-700-103118-A (6')	X
7		1347			B-665-103118-A (6')	X
8		1351			B-934-103118-A (6')	X
9		1352			B-935-103118-A (6')	X
10		1353			B-938-103118-A (6')	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-Not 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: ✓
Seals Intact:
Cooler Temperature: 3.5 °C

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

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
10-31-18 1442	10/31/18 1442	10/31/18 1510	10/31/18 1509
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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ESS Laboratory

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 # 1810901
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@aeicommtech.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
11	10/31/18	1402	C	S	SW-476-103118-A (0-4')	X

ACT
(11/2/18

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: ✓
Seals Intact:
Cooler Temperature: 3.5 °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)
10-31-18 1442	10/31/18 1442	10/31/18 1520	10/31/18 1520
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

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

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1811019

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 6:26 pm, Nov 05, 2018

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

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

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811019

SAMPLE RECEIPT

The following samples were received on November 01, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811019-01	B-460-110118-C 6.5FT	Soil	8082A
1811019-02	B-366-110118-C 9FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811019

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811019-01 **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: 1811019

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-460-110118-C 6.5FT
Date Sampled: 11/01/18 13:17
Percent Solids: 78
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811019
ESS Laboratory Sample ID: 1811019-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/1/18 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1221	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1232	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1242	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1248	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1254	**80.5** (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1260	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1262	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1268	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105

	%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-366-110118-C 9FT
Date Sampled: 11/01/18 13:30
Percent Solids: 78
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811019
ESS Laboratory Sample ID: 1811019-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/1/18 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1221	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1232	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1242	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1248	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1254 [2C]	**0.4** (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1260	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1262	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1268	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*120 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811019

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83105 - 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	*0.0263*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0226*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		110	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		114	40-140			
Surrogate: Decachlorobiphenyl	*0.0282*		mg/kg wet	*0.02500*		*113*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		107	40-140	3	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	2	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		118	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0281*		mg/kg wet	*0.02500*		*112*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0242*		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]	*0.0259*		mg/kg wet	*0.02500*		*104*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1811019

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: 1811019

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: 1811019
Date Received: 11/1/2018
Project Due Date: 11/5/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	285305	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	285304	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

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

Completed By: Date & Time: 11/1/18 1509
Reviewed By: Date & Time: 11/1/18 1521
Delivered By: 11/1/18 1521

*sample ID updated per client 11/2/18 LLB

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

CHAIN OF CUSTODY

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

ESS Lab #: K811019
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3123055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-577-7138
FAX Number: —
Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	11/1/18	1317	G	S	B-460-110118-~~C~~ B* (6.5')	X
2	11/1/18	1330	G	S	B-366-110118-~~C~~ B* (9')	X

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 1.6 °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)
11/1/18 14:35	11/1/18 14:39	11/1/18 15:01	11/1/18 1503
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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

CHAIN OF CUSTODY

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

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

Company Name: AEI
Contact Person: Aaron Ting
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-577-7138
FAX Number: —
Email Address: ating@aeiconsultants.com
Project #: 316316055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)															
	11/1/18	1317	G	S	B-460-110118-~~C~~ B (6.5') ACT 11/2/18	X															
	11/1/18	1330	G	S	B-366-110118-~~C~~ B (9')	X															

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

Number of Containers per Sample: AG 9 1 1

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: °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 Trull 11/1/18 14:35	11/1/18 14:39		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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

CHAIN OF CUSTODY

ESS Lab # K811019

Turn Time: Rush 48-hr

Regulatory State: RI

Reporting Limits: see note 1

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

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

Company Name: AEI

Contact Person: Aaron Ting

Project # 3123055 | Project Name: BASF Cranston

Address: 112 Water St, 5th Floor

City: Boston | State: MA | Zip Code: 02109 | PO #: —

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

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	11/1/18	1317	G	S	B-460-110118-C (6.5')	X
2	11/1/18	1330	G	S	B-366-110118-C (9')	X

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

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

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

Number of Containers per Sample: | 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact: —

Cooler Temperature: 1.1 °C

Sampled by: A. Ting

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

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
11/1/18 14:35	11/1/18 14:39	11/1/18 15:01	11/1/18 1503
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: 1811019

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 4:17 pm, Nov 06, 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: 1811019

SAMPLE RECEIPT

The following samples were received on November 01, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Revision 1 (date): This report has been revised to include corrected sample IDs for all samples.

Lab Number	Sample Name	Matrix	Analysis
1811019-01	B-460-110118-B 6.5FT	Soil	8082A
1811019-02	B-366-110118-B 9FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811019

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811019-01 **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: 1811019

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-460-110118-B 6.5FT
Date Sampled: 11/01/18 13:17
Percent Solids: 78
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811019
ESS Laboratory Sample ID: 1811019-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/1/18 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1221	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1232	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1242	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1248	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1254	**80.5** (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1260	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1262	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105
Aroclor 1268	ND (6.5)		8082A		100	11/02/18 11:45	C8K0036	CJ83105

	%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-366-110118-B 9FT
Date Sampled: 11/01/18 13:30
Percent Solids: 78
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811019
ESS Laboratory Sample ID: 1811019-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/1/18 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1221	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1232	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1242	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1248	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1254 [2C]	**0.4** (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1260	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1262	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105
Aroclor 1268	ND (0.07)		8082A		1	11/02/18 11:15	C8K0036	CJ83105

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*120 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*87 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*85 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811019

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CJ83105 - 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	*0.0263*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0226*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		110	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		114	40-140			
Surrogate: Decachlorobiphenyl	*0.0282*		mg/kg wet	*0.02500*		*113*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		107	40-140	3	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		113	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		104	40-140	2	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		118	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0281*		mg/kg wet	*0.02500*		*112*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0242*		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]	*0.0259*		mg/kg wet	*0.02500*		*104*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: AEI Consultants, Inc.
Client Project ID: BASF Cranston
ESS Laboratory Work Order: 1811019

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: 1811019

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: 1811019
Date Received: 11/1/2018
Project Due Date: 11/5/2018
Days for Project: 2 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp: 1.1 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

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

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	285305	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	285304	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

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

Completed By: Date & Time: 11/1/18 1509
Reviewed By: Date & Time: 11/1/18 1521
Delivered By: 11/1/18 1521

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

CHAIN OF CUSTODY

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

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

Company Name: AEI
Contact Person: Aaron Ting
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-577-7138
FAX Number: —
Project #: 31631655
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
	11/1/18	1317	G	S	B-460-110118-~~C~~ B (6.5') ACT 11/2/18	X
	11/1/18	1330	G	S	B-366-110118-~~C~~ B (9')	X

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

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: °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 Trel 11/1/18 14:35	11/1/18 14:39		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

*sample ID updated per client 11/2/18 LLB

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

CHAIN OF CUSTODY

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

ESS Lab #: K811019
Reporting Limits: see note 1
Electonic Deliverables: ☒ Limit Checker ☒ Standard Excel ☐ Other (Please Specify →)

Company Name: AEI
Contact Person: Aaron Ting
Project #: 3123055
Project Name: BASF Cranston
Address: 112 Water St, 5th Floor
City: Boston
State: MA
Zip Code: 02109
PO #: —
Telephone Number: 978-577-3138
FAX Number: —
Email Address: ating@aeiconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	11/1/18	1317	G	S	B* B-460-110118-~~C~~ (6.5')	X
2	11/1/18	1330	G	S	B-366-110118-~~C~~ (9') B*	X

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

Laboratory Use Only
Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 1.6 °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)
11/1/18 14:35	11/1/18 14:39	11/1/18 15:01	11/1/18 1503
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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

CHAIN OF CUSTODY

ESS Lab # K811019

Turn Time: Rush 48-hr

Regulatory State: RI

Reporting Limits: see note 1

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

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

Company Name: AEI

Contact Person: Aaron Ting

Project # 3123055 | Project Name: BASF Cranston

Address: 112 Water St, 5th Floor

City: Boston | State: MA | Zip Code: 02109 | PO #: —

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

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	11/1/18	1317	G	S	B-460-110118-C (6.5')	X
2	11/1/18	1330	G	S	B-366-110118-C (9')	X

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

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

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

Number of Containers per Sample: | 1

Laboratory Use Only

Cooler Present: ✓

Seals Intact: —

Cooler Temperature: 1.1 °C

Sampled by: A. Ting

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

note 1: see project QAPP

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
11/1/18 14:35	11/1/18 14:39	11/1/18 15:01	11/1/18 1503
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: 1811063

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 4:07 pm, Nov 06, 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: 1811063

SAMPLE RECEIPT

The following samples were received on November 02, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811063-01	B-698-110218-B 7FT	Soil	8082A
1811063-02	B-673-110218-B 5.5FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811063

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

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

Definitions of Quality Control Parameters

Semivolatile Organics Internal Standard Information

Semivolatile Organics Surrogate Information

Volatile Organics Internal Standard Information

Volatile Organics Surrogate Information

EPH and VPH Alkane Lists

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811063

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-698-110218-B 7FT
Date Sampled: 11/02/18 13:44
Percent Solids: 77
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811063
ESS Laboratory Sample ID: 1811063-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/2/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1221	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1232	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1242	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1248	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1254	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1260	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1262	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208
Aroclor 1268	ND (0.07)		8082A		1	11/06/18 0:41	C8K0081	CK80208

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*102 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*97 %*		*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-673-110218-B 5.5FT
Date Sampled: 11/02/18 13:50
Percent Solids: 93
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811063
ESS Laboratory Sample ID: 1811063-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/2/18 16:10

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1221	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1232	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1242	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1248	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1254 [2C]	**2.9** (0.3)		8082A		5	11/06/18 10:13	C8K0081	CK80208
Aroclor 1260	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1262	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208
Aroclor 1268	ND (0.05)		8082A		1	11/06/18 1:00	C8K0081	CK80208

	%Recovery	*Qualifier*	*Limits*
Surrogate: Decachlorobiphenyl	*103 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*107 %*		*30-150*

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811063

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CK80208 - 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	*0.0238*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0180*		mg/kg wet	*0.02500*		*72*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Surrogate: Decachlorobiphenyl	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0191*		mg/kg wet	*0.02500*		*76*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		108	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140	6	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		105	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	5	30	
Surrogate: Decachlorobiphenyl	*0.0266*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0201*		mg/kg wet	*0.02500*		*80*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0243*		mg/kg wet	*0.02500*		*97*	*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: 1811063

Notes and Definitions

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

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811063

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

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

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

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

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

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

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

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

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

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

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AEI Consultants, Inc. - TB/MM

Shipped/Delivered Via: Client

ESS Project ID: 1811063
Date Received: 11/2/2018
Project Due Date: 11/6/2018
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: 5.9 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	285720	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	285719	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review

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

Completed By: Date & Time: 11/2/18 1441
Reviewed By: Date & Time: 11-2-18 1452
Delivered By: 11/2/18 1508

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 # 1811063

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

Company Name: AEE
Contact Person: Aaron Ting
Project # 3463055
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@aeeconsultants.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: PCBs (Soxhlet)
1	11/02/18	13 44	G	S	B-698-110218-B(7')	X
2	11/02/18	13 50	G	S	B-673-110218-B(5.5)	X

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

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

Laboratory Use Only
Cooler Present: X
Seals Intact: N/A
Cooler Temperature: 5.9 °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 DaDeck 11/2/18 14:29	11/2/18 1429		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

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

RE: BASF Cranston (363655)
ESS Laboratory Work Order Number: 1811097

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:25 pm, Nov 07, 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: 1811097

SAMPLE RECEIPT

The following samples were received on November 05, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1811097-01	B-296-110518-A 3FT	Soil	8082A
1811097-02	B-297-110518-A 3FT	Soil	8082A
1811097-03	B-292-110518-A 5FT	Soil	8082A
1811097-04	B-293-110518-A 5FT	Soil	8082A
1811097-05	B-294-110518-A 5FT	Soil	8082A
1811097-06	B-295-110518-A 5FT	Soil	8082A
1811097-07	B-302-110518-A 5FT	Soil	8082A
1811097-08	B-303-110518-A 5FT	Soil	8082A
1811097-09	B-304-110518-A 5FT	Soil	8082A
1811097-10	B-310-110518-A 5FT	Soil	8082A
1811097-11	B-311-110518-A 5FT	Soil	8082A
1811097-12	B-312-110518-A 5FT	Soil	8082A
1811097-13	B-313-110518-A 5FT	Soil	8082A
1811097-14	B-314-110518-A 5FT	Soil	8082A
1811097-15	B-285-110518-A 5FT	Soil	8082A
1811097-16	B-286-110518-A 5FT	Soil	8082A
1811097-17	B-287-110518-A 5FT	Soil	8082A
1811097-18	B-319-110518-A 5FT	Soil	8082A
1811097-19	B-923-110518-A 5FT	Soil	8082A
1811097-20	B-924-110518-A 5FT	Soil	8082A

CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1811097

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1811097-13 **Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).**
Decachlorobiphenyl (706% @ 30-150%), Decachlorobiphenyl [2C] (758% @ 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: 1811097

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-296-110518-A 3FT
Date Sampled: 11/05/18 09:49
Percent Solids: 91
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1811097
ESS Laboratory Sample ID: 1811097-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 11/5/18 16:38

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1221	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1232	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1242	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1248	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1254 [2C]	**0.2** (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1260 [2C]	**0.08** (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1262	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513
Aroclor 1268	ND (0.05)		8082A		1	11/06/18 16:41	C8K0095	CK80513

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*91 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*96 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*